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Cook It Up!: Formative evaluation of a community-based cooking program for at-risk youth in London, Ontario

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Abstract

Cooking programs targeting at-risk Canadian youth are limited in scope and opportunity. There is the need to create community-based food literacy programs with this target population. A 15-month pilot project providing educational sessions for cooking, food literacy skills, and fieldtrips to local agri-food outlets was offered to an at-risk youth population living in London, Ontario. A formative evaluation on the intervention provided valuable information that will inform future cooking and food literacy programs for this population among others.

Objectives of the intervention included the application of food literacy and cooking skills education taught by local chefs and a registered dietitian. The intervention was enhanced with fieldtrips to local farms to foster an appreciation and understanding of food, from "farm to fork". Youth, community partners, and parents/guardians who participated in the Cook It Up! program and its development were targeted for inclusion in the formative evaluation ($n = 25$). As of November 2010, eight at-risk youth (five girls and three boys, mean age = 14.6) had completed the intervention.

The Cook It Up! program can provide an effective template for other agencies and researchers to utilize for enhancing existing programs or to create new applied cooking programs based on contextual information from this formative evaluation. A community-based cooking program would be relevant for a wide range of populations. Additionally, there is an ongoing need for applied research focusing on food literacy and cooking skills.

Keywords: Food literacy, cooking skills, formative evaluation, at-risk youth

Introduction

Disadvantaged youth are at a higher risk of consuming an unhealthy diet compared to youth in stable family relationships (Anderson, Bell, Adamson, & Moynihan, 2002). For the purpose of this study the term "at-risk youth" refers to adolescents aged 13-18 years, whose socio-economic status and/or living arrangements puts them at increased risk for a variety of physical and psycho-social issues, including poor nutrition (World Health Organization, 2002). Other characteristics of at-risk youth include diverse racial backgrounds; negative influence from family, environment, or peers; social factors that restrict healthy mental and social growth; limited financial resources; difficulty achieving optimal education; and behavioural issues (Dobizl, 2002; Moore, 2006; Sussman et al., 2010). At-risk youth may also experience

challenges such as addiction and homelessness (Hadland, Kerr, Li, Montaner, & Wood, 2009; Rachlis, Wood, Zhang, Montaner, & Kerr, 2009).

Supporting at-risk youth by implementing food literacy and cooking skills program can facilitate the development of hands-on learning to enhance social determinants of health in a positive way, through addressing behavioural factors like the quality of dietary choices. As such, a food literacy program can strengthen at-risk youths' food culture for health "to foster [their] knowledge of food and nutrition, cooking skills, growing food, and the social value of preparing food and eating together" (World Health Organization, 2003, p. 27).

The provision of a hands-on, practical life skills program to build food-related self-efficacy, knowledge, and self-confidence is an important and unique intervention for at-risk youth (Thomas & Irwin, 2011). According to Bandura (1977), one's self-efficacy is enhanced when one has the practical and necessary skills for completion of the task and/or behaviour. *Cook It Up!* was a community-based cooking program targeting at-risk youth and designed to provide participants with food literacy and cooking skills. This program also included opportunities for at-risk youth to enhance their self-efficacy. Offering the program is only the first step: without knowing participants' receptiveness to and experiences with the program, it is hard to know whether it should continue, be expanded, or if it has any unanticipated negative effects. Therefore, the purpose of this formative evaluation was to gain an understanding of participants' experiences with the pilot offering of the *Cook It Up!* program, where participants include the at-risk youth, community partners, and parents/guardians. As Patton (2002) and Green and Kreuter (2005) noted, formative evaluations are particularly helpful for finding out what is working well with the program, how to improve and shape the program, and also to identify what needs to be done to make it optimally effective for its target audience. The desired results of a formative evaluation are "recommendations for improvements". This study was conducted in concert with the piloted administration of *Cook It Up!* and was used to "assess the relevance, comprehension, and acceptability of activities, materials, [and] methods" of the program (Green & Kreuter, 2005, p. 207).

For the formative evaluation, the at-risk youth participants were able to share feedback about their direct involvement in the program. The community partners (i.e., Program Coordinator, Steering Committee members, fieldtrip operators, guest chefs, volunteers) contributed to the research by sharing their experiences with the organizational processes and logistics of implementing the program components. Finally, the parents/guardians had an interesting "outsider" perspective and were able to share their perceptions of the impact of *Cook It Up!* on their children. It was important to gain some idea of the program's impact on participants' food literacy and self-efficacy; therefore, a simple, self-reported tool (pre-post) to assess each was implemented. A brief description of the *Cook It Up!* program is provided for context.

Program description

Cook It Up! was a community-based cooking program targeting at-risk youth in London, Ontario. This program focused on teaching vulnerable youth essential cooking skills and food

literacy by introducing them to the local agri-food industry through fieldtrips to local farms and farmers' markets. The overall purpose of the program was to enhance food literacy and cooking skills among this population. Guest chefs from local restaurants and other food service outlets facilitated 29 educational cooking sessions focusing on local foods. Eleven fieldtrips to local farms and farmers' markets also occurred. Ethical approval for this study was granted by the Office of Research Ethics at The University of Western Ontario.

Purpose

The objectives of this formative evaluation were three-fold. First, this evaluation assessed the strengths and weaknesses of the program and its delivery. Secondly, we uncovered obstacles, barriers, or unexpected opportunities that could make the program more effective. Finally, this formative evaluation generated understandings about how the program content and implementation could be improved. As a deliverable, the research facilitated the development of a "how-to" community resource manual available for local and provincial distribution. In addition to the qualitative component of this study, a demographic survey was administered and included an assessment of self-reported food skills, food literacy, and self-efficacy (pre- and post-test questionnaires). Results from the quantitative data are reported in Tables 1, 2, and 3.

Table 1: Demographic characteristics of at-risk youth in Cook It Up!

	Demographics	<i>n</i>
Sex	Male	3
	Female	2
Age	13	1
	14	1
	15	2
	16	1
Ethnicity	White	3
	Black	1
	White/Black mix	1
Family Structure	Double parent family	3
	Parent and step-parent	1
	Single parent	1
Employed	Yes	1
	No	4
Grade	8	1
	9	1
	10	2
	11	1

Table 2: Self-reported food skills rating for pre- and post-test questionnaire

Food Skill	Pre-Test Results.		Post-Test Results.	
	Very good skill + good skill n	Basic skill + very limited/no skill n	Very good skill + good skill n	Basic skill + very limited/no skill n
Using a knife safely	3	2	5	0
Peeling, chopping, slicing vegetables or fruit	3	2	5	0
Cooking a piece of raw or frozen meat/chicken/fish (not processed)	4	1	4	1
Cooking a soup, stew, casserole using a pre-packaged mix	4	1	4	1
Cooking a soup, stew, casserole from "scratch"	2	3	3	2
Choosing a spice or herb that goes well with the food being cooked	2	3	4	1
Adjusting a recipe to make it healthier	2	3	2	3
Baking muffins or cake "from scratch"	4	1	4	1
Baking muffins or cake using a pre-packaged mix	4	1	2	3
Planning a quick, healthy meal using only the foods already at home	2	3	2	3
Freezing vegetables or fruit from raw to bagged in a home freezer	2	3	2	3
Canning fruit or salsa from raw ingredients to finished products in sealed glass jars	1	4	3	2

Table 3: Self-reported self-efficacy with respect to food literacy and cooking skills

Food skill identified	Self-efficacy	Pre-test results	Post-test results
		n	n
Preparing foods at home at least partly from "scratch"	I know I can	2	4
	I think I can	3	1
	I'm not sure I can	0	0
	I know I can't	0	0
	I don't know	0	0
Knowledge of what "local foods" means	I know I can	4	4
	I think I can	1	1
	I'm not sure I can	0	0
	I know I can't	0	0
	I don't know	0	0

Methodology

Youth, community partners (i.e., Steering Committee members, guest chefs, fieldtrip operators, and volunteers), and parents/guardians who participated in the program in any capacity were targeted for inclusion in this study. All eligible participants were invited to participate in the formative evaluation research through direct personal and/or telephone contact with the lead investigator and/or Program Coordinator of *Cook It Up!* The lead investigator and Program Coordinator explained the purpose of the formative evaluation, answered questions about the research, and provided all potential participants with the letter of information outlining the purpose of the formative evaluation and research parameters. Twenty-five participants (i.e., at-risk youths, community partners, and parents/guardians) participated in the in-depth interviews, which took place immediately following the conclusion of the *Cook-it-Up!* program, and which lasted approximately one hour; all interviews were audio-recorded and transcribed verbatim. Only the youth participants completed the demographic form and the pre-post assessments pertaining to their cooking and food literacy skills, and their cooking- and food-related self-efficacy (the pre-assessment was implemented during the second program session; the post-assessment was implemented immediately following the conclusion of *Cook-it-Up!* during the in-depth interview). The pre-post assessments were implemented orally to accommodate literacy challenges among at-risk youth.

Specific process of the formative evaluation

The in-depth interviews were conducted at a convenient and private community location as mutually decided and agreed upon by the participant and research team (e.g., local library, local community college, guest chef's restaurant, high school). Each formative evaluation participant was greeted by the lead investigator who provided him/her with another copy of the Letter of Information and re-explained the nature of the in-depth interview and research purpose. Participants were told their involvement was voluntary, that they could refuse to answer any questions, and that they could ask to stop the recording at any time during the interview. As noted above, in-depth interviews lasted approximately one hour and were audio-recorded and transcribed verbatim.

In-depth interviews were completed with a total of 25 participants (3 guest chefs, 5 Steering Committee members, 3 fieldtrip operators, 6 volunteers, 3 parents/guardians, and 5 at-risk youth participants). Saturation of the data occurred at 18 interviews; however, using principles of PAR (Kidd & Kral, 2005), the research team felt it was important to conduct interviews with *all* interested participants in order to maintain inclusiveness while furthering the opportunity to obtain rich, contextual data about *Cook It Up!*. A semi-structured interview guide was used to facilitate the in-depth interviews. Examples of questions from the semi-structured interview guides for at-risk youth, community partners, and parents/guardians appear in Table 4.

Table 4: Example questions from semi-structured interview guides for at-risk youth, community partners, and parents/guardians

At-Risk Youth	<ul style="list-style-type: none"> • What did you like best or value most about the cooking program? Why? • What did you like least or value least about the cooking program? Why? • If you could change anything about the program, what would it be? • What is different for you since being in the <i>Cook It Up!</i> program? What, if anything, is different about how you're eating? What, if anything, is different about where you're purchasing? • What recommendations would you make to improve this program so it could be adapted to other target groups in other communities?
Community Partners	<ul style="list-style-type: none"> • Why did you become involved in the <i>Cook It Up!</i> program? • How effective was the Steering Committee in meeting its objectives for this project? Please say more? • What recommendations would you make to improve this program? • How could this program be adapted to other target groups in other communities?
Parent/Guardians	<ul style="list-style-type: none"> • Why do you think your child wanted to participate in the cooking program? • What do you think your child liked best or valued most about the cooking program? Why? • What did you like best or value most about the cooking program? Why? • Why was it good for your child to be a part of <i>Cook It Up!</i>? What did you gain from the program? • In what ways could the cooking program be improved? If you could change anything about the program, what would it be? • What is different for you since your child was involved in the <i>Cook It Up!</i> program? What, if anything, is different about how you and your family are eating? What, if anything, is different about where you're purchasing food?

Data analysis

Upon completion of data collection, descriptive statistics were conducted on the pre-post assessments, and inductive content analysis as described by Patton (2002) was utilized to analyze, code, and categorize emerging themes for the qualitative data. QSR NVivo 8 (QSR International, 2008) software was used to help code and categorize emerging themes. All themes were presented as group findings to keep confidentiality of identities intact. Several strategies, as outlined by Guba and Lincoln (1989), were employed to ensure the trustworthiness of the findings (see Table 5).

Table 5: Measures to facilitate data trustworthiness as outlined by Guba & Lincoln (1989)

Credibility	Member-checking was used between each question and at the end of the interview to ensure the responses from participants were correctly understood and recorded by the researcher. The lead investigator provided her perception of the participants' responses prior to moving onto the next question in the semi-structured interview guide.
Dependability	Following the interview, the lead investigator and a member of the research team met to debrief and summarize the interview. A colleague not involved in this study was recruited to engage in peer-debriefing sessions with the researchers following the interviews. Detailed notes from this discussion were recorded and any biases identified, documented, and considered to ensure the researchers' biases would not affect the data analysis. Detailed notes also provided an audit trail. During the data analysis, the lead investigator also engaged in reflexivity to help keep any biases in check.
Confirmability	Inductive content analysis was performed independently and simultaneously by two researchers with experience in qualitative research and the findings were then triangulated and analyses compared. Data were examined for similarities and differences and emerging themes identified. Another member of the research team reviewed the data and engaged in peer debriefing with the research team to ensure that any of the researchers' biases that were taken for granted have been uncovered. Additionally, through this process, the researcher can become aware of her position toward the data and its analysis.
Transferability	The entire research process has been documented in detail to allow other researchers to determine if the context and findings from this study are transferable to their contexts and settings.

Findings

A summary of participants' demographics is found in Table 1. In terms of the quantitative (descriptive) tools, a summary of the pre- and post-test cooking skills assessment is found in Table 2. In general, all participants identified an increase in their cooking skills acquisition from pre-test to post-test (see Table 2) and indicated an improvement in food literacy and self-efficacy with respect to cooking skills (see Table 3).

In terms of the qualitative findings, a number of themes emerged from the data related to the pilot program components and attributes, the impact of the program on at-risk youth participants, and future program considerations. These broad themes were not decided upon

prior to conducting the interviews, but instead materialized from the data and underscored key concepts related to the intervention, the utility of the intervention, and the value of the community-based cooking program for at-risk youth from the participants' perspectives. The specific themes that emerged from the data were food literacy, connections, confidence, youth engagement, relevance, at-risk youth behaviour, and location.

Food literacy

Nineteen of 25 participants (i.e., at-risk youth, community partners, parents/guardians) interviewed for the formative evaluation mentioned the importance of food literacy for the at-risk youth population, and among other populations. Comments related to food literacy focused on increased awareness of the relationship between the local agri-food industry (i.e., access and availability of foods from local farms and farmers' markets) and cooking, learning about food and cooking, and the progression of cooking skills. One volunteer summarized her view of the youths' understanding of food literacy by stating, "the light bulb goes off [with the youth when they say] 'oh this is how it's grown' and 'this is how I pick it and now I'm going to go back and prepare it'... every time you go you see the kids - they are blossoming." This was echoed by a parent, who stated:

I think it was a combination of following the fieldtrips with the produce and following it through and cooking it. I think she [daughter's name] really enjoyed that aspect of it, like going to the grocery store and getting the chicken and cutting it all up. She didn't really like that but she did it!

A Steering Committee member also appreciated the enhancement of food literacy experienced by youth participants through their involvement in *Cook It Up!* She stated:

...the participants that we have currently [are] coming away with a better understanding of the food that they eat and how to prepare it. The spin-off of that is that they are going to be an influencing factor in their own families and to their friends, and hopefully as they grow older and have families of their own these [skills] are going to live on and transfer down [to their children].

Several participants stated there were numerous opportunities to learn about food literacy and cooking skills, primarily championed by the guest chefs. When asked what she thought was the best part of *Cook It Up!*, the mother of one participant stated:

[T]hat he was learning. That he had the desire to go. He was more interested in foods. I know he talked to his grandmother and his aunts about his class... so he really liked it because he would talk about it.

One of the guest chefs involved in the program indicated:

[N]one of them [youth participants] had actually gone apple picking before. None of the kids had been on a real farm. They had never seen food grown;

they had never seen livestock up close.... We are trying to impart knowledge. We are trying to impart professionalism. We are trying to impart skills.

The opportunity to learn about food and cooking was explained by one guest chef through an explanation of skills acquired by at-risk youth thus:

[W]e've taught the kids how to respect a knife and how to respect their boards and keep things clean.... So we give them an idea of what they are going to make today and we talk to them a bit about the history of what we are making and why we are making it and then we go through the process of making it and then we give them the reasons why we are making the different processes and things to that effect.

It was important to the Program Coordinator and guest chefs to see that the participants had a good understanding of the historical context of the food they would be cooking as well as how it related to the seasonal availability of produce. One stated:

I like the mix of sessions between [cooking and] field trips because it's like practical outside of the kitchen and then in the kitchen. It does take the whole local foods concept...taking them on a field trip is really great... [t]hose are all strengths of the program.

Finally, the progression of the participants' cooking skills might be linked to enhancing their food literacy. If the program was to be successful, an outcome related to cooking skills progression would be revealed. The Program Coordinator stated, "It's been really fun to watch the kids' interest change through the program so it's been really fun to watch their skills grow." He explained, "[I] just listen to the way that they understand food, listening to them answer the guest chefs' questions faster and more enthusiastically than they were at the start which - it's been fun to watch them grow as a group." From an at-risk youth participant's perspective, the progression of cooking skills was evident as well. She stated:

[Chef] has even told me that [my skills have] improved, like my knife-handling skills and stuff like that. He said when I first grabbed a knife I could barely use it but now I'm a lot better with them and he doesn't think I'm going to cut myself anymore...I can follow a recipe a lot better now too. Before I could follow a recipe but now it's more, like, I don't have to read the recipe for each ingredient. Like, I can just look over it really quickly and then I can make it, type of thing.

Another youth participant indicated a similar sentiment regarding how her cooking skills progressed over the course of the intervention. She stated, "...having someone constantly critiquing [your cooking skills] and showing you 'do it this way'...they are constantly telling you that it kind of sticks in your head more." Similarly, one participant indicated, "[I liked the] hands-on aspect...I had to be shown it first and then it's ingrained in my head."

Connections

Related to food literacy is the theme of connections. Specifically, the themes of connections between farms and farmers, connections to community members, and connections to food each emerged from the data. The Program Coordinator succinctly summarized his perspective about connections, stating:

I think one of the big things that I personally believe when it comes to food is the more of a connection that a person has with the food that they are eating, the more into it they are going to be. It becomes an experience as opposed to just a meal.

Building on the connection to food, one at-risk youth participant, whose sentiments were consistent with her peers, said, "you got to see where all the food came from and like the process of how it's grown, which is kind of cool because if you are not exposed to that [it's not good]." A Steering Committee member agreed with the importance of connections to local farms and farmers, stating:

...it's all about that connection with your food. So when you bring kids who have never really connected with anything they are eating before, especially when you are trying to get them to explore new ideas with food and new concepts with food...when they are the ones that prepared it, [it] really makes a huge difference in how they will look at that food and look at that experience when you can take it that step further and you actually bring them out to the source of the food and they see it growing. They can't help but have that affect them in a way where they are like 'Wow, this is something that I pulled from the ground.'

The importance of community connections also emerged. A member of the Steering Committee indicated that community involvement was the key reason for the success of *Cook It Up!* This person said:

I would say that if you take a look at the interest that has been shown by all of the different community partners and people who are involved, without all of them it would not work...there's a whole network of people working together to make sure that this program is delivered and delivered well. And if you take any one of them out of the equation, I'm not sure how it would work.

Cook It Up! provided connections with the at-risk youth as well, mainly through the Program Coordinator and guest chefs, but also with the introduction of at-risk youth to local farms and markets. A volunteer noted, "the enthusiasm of the people that are involved and how that has—it sparks the enthusiasm in the kids... [i]t's like turning on the light." The youth participants felt similarly, as exemplified by one participant who stated,

[T]he field trips were really cool because we went to like organics farms and we went apple picking and strawberry picking and all kinds of stuff like that

so you got to see where all the food came from and like the process of how it's grown, which is kind of cool because you are not exposed to that.

Confidence

The theme of confidence was expressed by community participants, parents/guardians, and the at-risk youth themselves as they described the benefits of *Cook It Up!*. Throughout *Cook It Up!*, at-risk youth participants reportedly improved their self-esteem and correspondingly their confidence in the kitchen and in themselves. One at-risk youth participant stated, "It's made me more confident in the kitchen, definitely. I don't feel like I am going to burn the house down any more!" One of the volunteers who had professional experience as a teacher of children with special needs indicated:

[W]hen you see what's happening with the kids in the program and you see that you have been a part of helping them to see that they can achieve things and it's possible [for them] to feel good about themselves.

In discussing the positive impact *Cook It Up!* had on her child, one of the parents/guardians indicated, "This [program] was just 100%. If you reached one child during this whole thing...I think that this has changed [child's name] life... [increasing her] self-confidence and someone listened to her and discussed ideas with her. And she counted." A program volunteer indicated she had noticed youth "changed so much in this program...it's like them becoming responsible for themselves which is becoming an adult. Kids gained more confidence and comfort in their skill and their abilities."

Youth engagement

Youth engagement was another emerging theme. A parent of one at-risk youth participant indicated that his daughter enjoyed being:

...involved in the ideas of what some of the side trips were and cooking projects. She really liked the idea of that...I can see that this course has developed leadership qualities in her...she didn't have that incentive before this *Cook It Up!*

A guest chef involved in the program stressed the importance of youth engagement by the participants when he stated:

...it's a set of kids that are there to learn, not just there because of money. Their mom and dad didn't send them. They are here by choice. When you are here by choice, you have a tendency to learn more.

This chef felt that the participants' commitment to the program underscored their efforts for engagement throughout its duration. When it came to their perspective of engaging in the program and its various activities, youth themselves reported feeling interested and excited to participate. This was evident through the quote of one youth participant who said:

...now that I have these skills, I am going for my Food Handler [Training certificate] and I've been taking cooking at school...I have better confidence. I can get a job at a restaurant easier than say somebody who is just taking cooking at school...I have that much more experience.

Relevance to others

All participants in the formative evaluation were asked about the potential relevance of *Cook It Up!* to other populations and groups. All respondents indicated that a wide range of diverse groups could benefit from a cooking skills and food literacy program like *Cook It Up!*. One at-risk youth participant, whose sentiments reflected those of his peers, indicated, "I think that everyone can benefit from knowing how to cook their own food from scratch." Virtually every age group, from students in elementary school, high school, university and college to teenage mothers, professional adults, and older adults, were mentioned by participants in the formative evaluation as prospective groups to benefit from an intervention similar to *Cook It Up!*

At-risk youth behaviour

The Program Coordinator, guest chefs, volunteers, Steering Committee, and some at-risk youth participants experienced difficulties with the behaviours of some at-risk youth participants in the program. One of the volunteers with expertise working with at-risk youth kept challenging situations in perspective. She stated:

[W]ho knows what goes on at home, right, and who knows what kind of consistency they have in their life, so for the same people to show that dedication and come and spend that Monday night with them is probably maybe the only time that they have had that in their whole lives.

Her colleague added:

[T]here's times when we forget or don't really understand some of the challenges that the youth that we are dealing with have so there may be some behaviour or lack of attendance or focus at a session and we have to remember that we are dealing with youth that are probably facing some challenges that we are not all that privy to, so we are just, you know, and we have to keep that in mind. We have to remember who we are dealing with.

Having this perspective helped facilitators of the cooking sessions and fieldtrips have a better understanding of this unique population and increased their comfort level when working with at-risk youth, as evidenced by one volunteer who stated:

I think that there's a couple of kids that have had some issues with organization and with obviously have problems with authority. Probably they've had a lot of, I would think that they would have family issues, they have behavioural issues. And I think a couple of them we had to kind of fight to keep in the program because, you know, people were seeing them as

disruptive influences. I think it's worked out and it's been good for everybody to see that you don't give up right at the beginning. You know, you plough through and you persevere with those kids and you do get rewards...they need a little [tender loving care] to get them on the track.

A Steering Committee member agreed that the whole team handled the challenge of working with at-risk youth very professionally and effectively. She stated:

I think we've worked very well with dealing with all of these challenges...We are very fortunate there that we've got a diverse mix of people making that up who can come in and have expertise in dealing with youth either as a teacher or a service provider for at-risk youth.

As mentioned above, some of the youth themselves found behaviours of other participants to be challenging. One youth participant described this situation stating, "there are some kids that it was just like kind of avoid them...don't pretty much engage with them too much."

Location

The greatest challenge was securing a satisfactory location for the initiative. The *Cook It Up!* program participants (Program Coordinator, guest chefs, volunteers, and at-risk youth) needed to exercise flexibility with respect to the location as it was changed on four different occasions over the 18-month duration of the program. Finally, the Steering Committee was fortunate to secure a centrally-located industrial kitchen in a faith-based organization easily accessible by bus. One volunteer stated, "the biggest challenge has been finding a home for the program...it's difficult for kids and their parents to be in the different kitchen and the different venue, you know. I think it's hard - those kids crave familiarity and consistency."

Discussion

The findings from this formative evaluation suggest that the *Cook It Up!* community-based cooking program for at-risk youth was an important intervention to facilitate teaching at-risk youth about food literacy and cooking skills. This intervention might assist participants' connections to local agri-food industry while building essential life skills, self-confidence, and self-efficacy. The application of food knowledge from "farm to fork" (i.e., food literacy skills) is relevant not only to the at-risk youth population in the current study, but also for other populations. Having community connections with experts in the field working specifically with the new population would provide an enhanced understanding of the target populations' specific needs and facilitate program success. A centrally-located, accessible location was seen as a necessary component of the program for youth participants, volunteers, and guest chefs alike. An appropriate location was an ongoing concern during the *Cook It Up!* program; however, the Steering Committee eventually acquired the ideal site thus alleviating the stress of implementing the intervention in a less suitable location.

The findings of the current study are meaningful because they contribute to the limited evidence about food literacy and cooking skills. These findings also provide participants' perspectives of the need for continued skill development to many target groups. Educational

programs focusing on cooking skills provide the opportunity to enhance and improve participants' self-efficacy while teaching basic food preparation and healthy nutrition behaviours and practices in a hands-on environment. The literature indicates programs designed using these components are well received by participants and facilitators (Byrd-Bredbenner, 2004; Haley & McKay, 2004; Lai Yeung, 2007; Levy & Auld, 2004; Meehan, Yeh, & Spark, 2008; Winter, Stanton, & Boushey, 1999; Wrieden et al., 2007).

Throughout the entire intervention, confidence among at-risk youth participants was explored, developed, and enhanced, and confidence is one of several key ingredients for positive youth development (Lerner, Fisher, & Weinberg, 2000). Youth engagement can be defined as "the meaningful participation and sustained involvement of a young person in an activity, with a focus outside of him or herself" (Centres of Excellence for Children's Well-Being, 2009). Youth were consulted at all stages throughout the intervention, including for recipe selection, field trip ideas, and content development for the program curriculum.

Along with the outcomes of achieving enhanced cooking skills, food literacy, self-confidence, and self-efficacy, other outcomes of importance were realized in this intervention. For example, *Cook It Up!* facilitated the opportunity to explore the relationship of cooking skills and the possibility for improved nutrition and healthy eating outcomes. When individuals follow *Eating Well with Canada's Food Guide* (Health Canada, 2007a), they are better equipped to obtain sufficient vitamins, minerals, and other nutrients; reduce the risk of type 2 diabetes, obesity, heart disease, certain types of cancer, and osteoporosis; while achieving overall health and vitality (Health Canada, 2007b). However, consuming unhealthy diets has resulted in the increased incidence of excess weight and obesity, especially among Canadian children and youth (Biro & Wien, 2010; Lee & Cubbin, 2002; Shields & Tjepkema, 2006; Taylor, Evers, & McKenna, 2005). Greater risk of obesity in children is correlated with higher consumption of sweetened beverages (Ludwig, Peterson, & Gortmaker, 2001; Statistics Canada, 2008), increased intake of oils and fats (Statistics Canada, 2006), and increase in the total calories consumed (Statistics Canada, 2006).

While poorer eating patterns are associated with excess weight and obesity, *healthy* eating patterns are associated with positive outcomes including healthy weights. For example, eating more servings of vegetables and fruit is linked with healthy weights, weight loss, and better weight management (Rolls, Ello-Martin, & Tohill, 2004). One impediment to establishing healthy eating is related to the ability to prepare nutritious foods. A cooking skills and food literacy program similar to *Cook It Up!* might improve cooking skills and encourage the consumption of healthy foods. Consequently, cooking skills programs might help in the achievement and maintenance of healthy bodyweight.

Another implication of improved cooking skills relates to opportunities to enhance community food security. The Community Nutritionists Council of British Columbia (2004) stated that community food security "exists when all citizens obtain a safe, personally acceptable, nutritious diet through a sustainable food system that maximizes healthy choices, community self-reliance and equal access for everyone" (p. vii). The foundational goals of community food security are diverse and include components relevant to cooking initiatives. For example, the need to "enhance the dignity and joy of growing, preparing, and eating food"

(Dietitians of Canada, 2007, p. 2) and “build the capacity for people to create change through education and empowerment” (Dietitians of Canada, 2007, p. 2) reflects goals shared by food literacy and cooking skills programs. These programs can be designed to include education and awareness of food production and preparation, from the farm producing the food to an individual’s kitchen where it is prepared. Food literacy and cooking skills programs might improve opportunities to achieve food security, especially for vulnerable populations at greatest risk.

Food literacy and cooking skills are essential for a number of reasons. Lang and Caraher (2001) highlighted that cooking skills underscore one’s ability to acknowledge what constitutes a healthy diet; they also enable and empower individuals to make healthy and culturally preferred food choices both by having the ability to prepare food from “scratch” and by understanding the process by which ready-to-prepare foods are made (Lang, Caraher, Dixon, & Carr-Hill, 1999). Youth, especially those at-risk for failing to achieve the positive social determinants of health, require being equipped with an essential set of practical skills such as food literacy and cooking (Thomas & Irwin, 2011). These skills may facilitate at-risk youths’ ability to make healthy food choices while reducing their risk for chronic disease, achieving and maintaining a healthy bodyweight, and contributing to acquiring food security.

Limitations

Cook It Up! provided a hands-on initiative for at-risk youth to gain essential food literacy and cooking skills in a supportive environment which fostered their self-esteem and confidence. The limitations of this study focus on the small number of participants in the intervention itself. Of the 25 participants involved in the formative evaluation, only 5 participants were at-risk youth themselves, the main target population for the *Cook It Up!* intervention. There was a total of eight at-risk youth who were involved in *Cook It Up!* when it was conducted from August 2009 to November 2010. With this small number of at-risk youth participants in the formative evaluation, we cannot confirm the opinions of the other three participants, let alone those at-risk youth who did *not* become involved in *Cook It Up!* at any time throughout its duration. It would be interesting to know what other at-risk youth would have shared about this unique initiative, and if they did not become involved, why they were not interested in participating in this intervention. Perhaps there would be a more efficient or effective way to reach these at-risk youth, either in the community environment or alternatively through recruitment in a school setting.

Additionally, a small number of parents/guardians participated in the formative evaluation. It is difficult to make any recommendations based on perspectives from only a few parents/guardians. While this information was interesting, it would have been useful to have the opinions about the *Cook It Up!* program presented by other parents/guardians involved in the intervention. Their lack of involvement might reflect their at-risk characteristics as well, which may have contributed to their barrier to participation in the formative evaluation. Regardless of the small sample size of participants in this research, however, the contextual information provided shapes future food literacy and cooking skills development programs targeting at-risk youth.

Conclusion

This formative evaluation assessed the strengths and areas for improvement of the community-based cooking program for at-risk youth and its delivery. Through this assessment, we uncovered barriers and opportunities that served to make the program more effective. Finally, this evaluation engendered insight about how the program content and implementation could be improved. The research facilitated the development of a "how-to" community resource manual available for local and provincial distribution. To date, this initiative has been adapted by a number of agencies locally and provincially (i.e., Youth Opportunities Unlimited, Children's Aid Society, Cross Cultural Learners Centre, and the North Bay and District Health Unit). *Cook It Up!* provided a useful template to be shared with other agencies and groups interested in improving food literacy and cooking skills among their target populations.

School- and community-based cooking programs for youth provide numerous benefits, including the development of necessary life, social, and economic management skills, and education about healthy eating in service of improving weight status and overall health (Byrd-Bredbenner, 2004; Lai Yeung, 2007; Larson, Perry, Story, & Neumark-Sztainer, 2006; Larson, Story, Eisenberg, & Neumark-Sztainer, 2006). With the cooking skills syllabus removed from the curriculum from several North American school systems, fewer opportunities exist for youth to learn and apply basic food-related skills such as proper food selection, preparation, storage, and usage. This "de-skilling" of food and cooking demonstrates the need to expose youth to cooking/culinary and food literacy programs. The creation of food literacy and cooking programs using existing culinary infrastructure and linking with experts in the community (e.g., local guest chefs and farmers) might be a solution to facilitate the provision of these important skills to this population and others. In the process, food literacy and cooking skills development programs also will improve attitudes, self-efficacy, nutrition knowledge, confidence, and perceived cooking ability (Thomas & Irwin, 2011).

Youth represents a key period for social and biological development which can impact health-related behaviours and beliefs (Ruland, 2005). Lang and Caraher (1999) acknowledge health promotion as paramount for changing knowledge, attitudes, and behaviour, and food literacy and cooking skills provide a catalyst for the intersection of all three. Health professionals are in a position to advocate for the inclusion of cooking skills programs to re-skill an already vulnerable youth population with limitations in food literacy and cooking skills development.

Biography

Dr Heather Thomas is a Registered Dietician at the Middlesex-London Health Unit and Adjunct Professor at Brescia University College, affiliated with Western University (formerly called The University of Western Ontario). Heather researches and writes about food literacy as it impacts youth and applies this program of study to her practice in public health nutrition. She is actively involved in her provincial association, the Ontario Society of Nutrition Professionals in Public Health, the official voice of Registered Dieticians working in public health in Ontario.

Dr Jennifer Irwin is an Associate Professor in the Faculty of Health Sciences, School of Health Studies, Western University (formerly called The University of Western Ontario). She is also a certified life coach with the International Coach Federation and has focused training in Motivational Interviewing. While her research focuses primarily on obesity prevention and treatment, her areas of specialization include: Motivational Interviewing and life coaching for health-related behaviour change (e.g., obesity- and smoking-related behaviours) and the promotion of physical activity and healthy dietary intake behaviours.

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