Approaching Culinary Eudemonia: Exploring Relationships Between Culinary Agency and Subjective Wellbeing Using Survey Methodology

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ABSTRACT

Cooking, as a human universal behaviour, engages biological, psychological, and social processes. Despite this, few studies have examined the potential relationship between cooking as a psychosocial behaviour with subjective wellbeing (SWB). This study investigates the concept of Culinary Eudemonia (CE) by exploring the relationship between Culinary Agency (CA) and SWB. Utilizing survey methodology, 83 participants completed a 43-item, self-report questionnaire. We measured CA through three sub scales conceptualized as Culinary Self-Efficacy (CSE), Attitudes toward Cooking (ATC), and Socio-Structural Barriers (SSB). While CSE, ATC, and SSB did not individually correlate significantly with SWB, collectively, CA emerged as a significant predictor of SWB ($p = \leq 0.05$), with ATC demonstrating the strongest relationship ($\beta = .249$). Further analysis revealed gender differences, with CSE significantly predicting SWB for females ($\beta = .287$). These findings suggest a positive association between cooking and SWB, underscoring the importance of future research using rigorous methodologies to explore the potential components and mechanisms pertaining to CE.

INTRODUCTION

What does it mean to cook?

Across our evolution as a species, our ability to cook granted us not only access to nutrients and energy necessary for enhanced psychological functioning (Wrangham et al., 1999; Wrangham & Carmody, 2009; Fonseca & Herculano, 2012), but the practice of cooking undoubtably generated psychosocial benefits conducive to wellbeing. Yet cooking as we understand it today, having been influenced by socio-cultural and environmental factors across time, has neither one "correct" set of actions, nor is the concept of cooking clearly defined (Wolfson et al., 2017; Graff, 2020).

Indeed, cooking is a multifaceted and complex psychosocial behaviour (Raber & Wolfson, 2021), whose operation involves not only cognitive mechanisms and processes such as causal reasoning, self-control, and anticipatory planning (Warneken & Rosati, 2015), but also physical and socioemotional processes. Cooking involves learning, mastery of skills, and modelling of behaviour (Farmer, Touchton-Leonard & Ross, 2018). Moreover, being able to cook requires having access to social-cultural knowledge, tools, and other resources (i.e., recipes, cooking equipment and ingredients), along with enough time to carry out its practice (Daniels et al., 2012). Researchers, including Trubek et al. (2017) and Wolfson et al. (2017), have incorporated Bandura's theory of human agency (2006) into the study of cooking. Bandura (2006) suggested that individuals are not simply passive observers of their behaviours but rather active contributors to their life circumstances, shaping them instead of being solely shaped by them.

In addition to research focussing on cooking and agency, literature has examined the relationship between cooking and identity. For instance, Bugge (2003) discusses how cooking encompasses various roles and identities within Norwegian food discourse, influencing identity

formation. Similarly, Brady (2011) introduces 'cooking as inquiry' as a method to explore the embodied self, recognizing it as a significant domain for knowledge acquisition and identity expression. These insights complement the understanding of individuals' active role in shaping their cooking experiences.

Culinary Eudemonia: The literature

Despite all this, surprisingly few studies have explored the relationship between cooking and subjective wellbeing (SWB). Indeed, whilst a relatively large literature base details the impact of consuming various cooked foods on cognitive functioning and mood (e.g., Kheirouri & Alizadeh, 2022; Wade et al., 2020), with other research discussing diet choices alongside cooking skills (e.g., Lavelle et al., 2019; Hagmann et al., 2020), there is limited literature that moves beyond nutrition towards an investigation of cooking as a psychosocial behaviour in its own right. Increased understanding of cooking as a psychosocial behaviour could prove useful for counselling psychologies where enhancing SWB is paramount. Indeed, if research could help demonstrate that the act of cooking might be associated with increased SWB, then perhaps psychologically focused cooking therapies could be realized. These interventions might be crafted not only to boost motivation and the regularity of cooking, thereby fostering greater autonomy in dietary choices, but also to provide participants with positive psychosocial outcomes that extend beyond the kitchen setting (Farmer, Touchton & Ross, 2018).

This research uses the term Culinary Eudemonia (CE) to articulate how cooking might provide a catalyst towards SWB. CE comprises the affective, cognitive, and social dimensions and embodies the psychological and social benefits that might be derived from culinary activities, emphasizing the significance of aligning culinary practices with personal values and aspirations to optimize overall well-being. The benefits of CE are likely dependent on the

presence of specific cooking behaviours, cooking attitudes and confidence, and cooking identity (Lavelle et al., 2016). Cooking identity encompasses individuals' cognitive representations, beliefs, values, and affiliations related to culinary practice, and cooking behaviours constitute the observable actions and practices individuals undertake in the context of cooking, including frequency, ingredient selection, and cooking methods. The extent and degree to which individuals exhibit value-driven, goal-oriented, self-regulatory, and pro-social behaviours in their culinary activities may significantly impact their ability to achieve a sense of well-being from these experiences.

Though there are relatively few studies exploring CE, it is a construct discussed in the literature. A qualitative study by Daniel, Guttmann and Raviv (2011) examined the effect of cooking alongside the humanistic model of Maslow's Hierarchy of Needs. The authors propose that the theoretical construct provided a valid context for understanding the psychosocial effects of cooking. They suggest that cooking afforded participants a sense of control, socio-cultural belongingness, connection to family roots, and a reinforcement of self-efficacy / social esteem.

Evidence supporting Culinary Eudemonia (CE) can also be found in the work of Mosko and Delach (2021), who employed both qualitative and quantitative methods to investigate the relationship between cooking behaviours, attitudes, and SWB Through phenomenological inquiry, a survey utilizing Ryff's Psychological Well-Being Scale (1989), and a custom scale assessing cooking attitudes and behaviours, they identified significant correlations between cooking frequency and various measures of psychological well-being. Their findings suggest that incorporating cooking as a creative intervention may enhance mood, foster social connections, and promote personal acceptance, underscoring the potential relevance of culinary activities to emotional well-being. However, while their choice to employ a survey method allows for exploration of relationships between hypothetical constructs, it is crucial to

scrutinize the psychometric properties of the utilized scales. Additionally, although Ryff's scale is widely recognized, the rationale behind its selection amidst numerous available instruments for measuring SWB in the context of cooking remains unclear, warranting further clarification.

Agency and Subjective Wellbeing in the Context of Cooking

Cooking and Agency: Extending from CE, culinary agency (CA) embodies individuals' perceived sense of empowerment and proficiency in engaging in culinary endeavours. CA encompasses culinary self-efficacy (CSE), attitudes towards cooking (ATC), and adeptness in overcoming socio-structural barriers (SSB) (SSB). In recent years, there has been growing interest in creating robust instruments to measure 'food agency.' This concept pertains to individuals' capacity to navigate and overcome obstacles in procuring, planning, and preparing food within diverse individual, cultural, and social settings (e.g., Condrasky et al., 2011; Miketinas et al., 2016; Lahne et al., 2017). However, because of the multifaceted and complex nature of food agency, the development of psychometrically robust scales that conceptualize and measure this construct has remained a difficult task (Raber & Wolfson, 2021). Building on the work of Trubek et al. (2017) and Wolfson (2017), Lahne et al. (2017) drew on Bandura's Theory of Human Agency and developed the Cooking and Food Provisioning Action Scale (CAFPAS). The standardized tool consists of 28 items that form three internally consistent, correlated scales that assess self-efficacy, attitudes, and social structural barriers towards cooking and food provisioning. Validation and factor analysis of the instrument reported face validity with theorized elements of food agency, and that CAFPAS conceptualizes and measures the construct of food agency in a reliable and valid manner (Lahne et al, 2017).

Cooking and Subjective Wellbeing: SWB is considered a complex, multidimensional construct that involves cognitive and affective components (Diener et al., 1985; Diener et al., 1999). SWB is therefore regarded by many to be a challenging construct to measure, with wide-

ranging terminology, conceptual confusions, and other methodological issues (Diener, er al., 2018; Goodman et al., 2017). Presumably aware of the difficulties in measurement of SWB, Farmer and Cotter (2021) evaluated peer-reviewed and other published studies related to cooking alongside research from positive psychology. The authors suggested that cooking might be associated with positive psychosocial outcomes and hypothesised that the PERMA model (Seligman, 2011) would be an appropriate theoretical framework to apply in this context. PERMA is a five-dimensional model that conceptualizes subjective wellbeing as follows: -

P – cultivating positive emotions

E – engaging in 'flow' activities

R – building strong relationships

M – finding meaning in life

A – accomplishing goals

Study Purpose

This current study is interested in furthering the understanding of CE and builds on the research of Mosko and Delach (2021). As noted, there is both a need to empirically research CE as well as to identify the potential use of more than one reliable and valid survey scale to advance research in this area. Therefore, this study has the following aims: (1) to trial a survey measure focusing specifically on agency in cooking (2) to explore the associations between self-efficacy, attitudes, and socio-structural barriers and SWB in the context of cooking.

To address the aims, this study used the CAFPAS (Lahne et al., 2017). To focus solely on cooking rather than other food activities, the scale was modified to reconceptualize the construct of food agency as a new tripartite construct referred from here on as Culinary Agency (CA). This modified scale conceptualized and measured CA through three sub scales: 1) Culinary self-efficacy (CSE); 2) Attitudes towards cooking (ATC); 3) Socio-structural Barriers

(SSB). The study also explored if the three sub-scales of the newly conceptualized CA scale have similar internal reliability to the original CAFPAS.

To understand SWB in the context of cooking, the study applied the PERMA model (2011) as suggested by Farmer and Cotter (2021). The PERMA profiler (Butler and Kern, 2015), a psychometrically robust, standardized scale, that conceptualizes PERMA's five domains within a self-report questionnaire was used.

The hypothesis suggests that greater CSE, positive, and reduced SSB will positively correlate with SWB, when using PERMA as the conceptual model of subjective well-being.

METHOD

Design

The study used a cross-sectional online survey design, which was operationalized through a 43-item, self-report instrument that harvested continuous (interval/ratio) data. Responses were measured using a CA scale and a SWB scale. The three sub-scales of the CA scale measured the three potential mediating variables of this study. SWB was the dependent outcome variable.

Recruitment

For determining the number of subjects, this study drew on research by Tabachnik and Fidell (2001), who suggest that a minimum of 50 + (8 x number of predictors) offers sufficient statistical power. To assure a minimum of 74 respondents, the study aimed for recruitment of 100 survey respondents.

Individuals were recruited from a pool of Open University undergraduate students through Sona Systems, which is a standard university participant recruitment platform, in

addition to colleagues who were invited to participate by email. Open University is a large public research university in the UK whose students primarily study via distance learning.

Survey Procedure

The survey program Qualtrics (Qualtrics, Provo, UT) was used to design the self-report instrument and distribute the survey. After developing an initial version of the survey, it underwent a pilot phase with four volunteers: one researcher, one with extensive cooking experience, and two randomly selected individuals. Feedback was incorporated to create the final version of the survey. Potential survey respondents were presented with a link to the online survey via the recruitment platform. Once presented with information about the survey, data protection, and ethics, respondents were asked to give their informed consent to proceed. Respondents agreeing to all the informed consent items were then asked to identify their age and gender. Any individual reporting their age below 18 was excluded at this point. The survey presented 43 items in two sets: (1) 16 randomized items that related to SWB and (2) 27 randomized questions relating to CA. The survey was available online from 21st February through 5th April 2023.

Ethics

This current research was approved by the Open University module ethics board. In compliance with the ethical requirements of the British Psychological Society (BPS, 2023), potential respondents had to freely give informed consent based on their knowledge and understanding of this study's aims. Clear information about the nature of the study was provided which included both the benefits and risks of taking part, the fact that they could withdraw from the study at any time, and the use of their data in terms of confidentiality and

privacy. Risks for participating in the study included potentially feeling worse after reflecting on SWB and completing the survey. Contact information for support was therefore provided.

Measures

Culinary Agency scale: The original CAFPAS (Lahne et al., 2017) is a 7-point, 28-item scale chosen for this study because it includes 3 subscales of interest: self-efficacy, attitudes, and socio-structural barriers to cooking and food provisioning. The Cronbach alpha values associated with CAFPAS are: Self-efficacy .91; Attitudes .86; Socio-Structure .81.

As previously mentioned, the original CAFPAS (Lahne et al., 2017) was modified to conceptualize and measure the construct of CA within three sub-scales: 1) CSE, 2) ATC, 3) SSB (see Appendix 1 for CA scale items). This involved rewording 17 of the 28 items of the original CAFPAS: 9 items relating to self-efficacy, 3 items relating to attitudes, and 4 items relating to socio-structural barriers. Conceptualization of CA was led by the study's lead author (M.P.) who has professional culinary experience and experience with studying cooking behaviour among individuals with mood disorder. Modifications to the original CAFPAS (Lahne et al., 2017) are shown below using item 2 from self-efficacy sub scale as an example:

'I can always manage to decide what I would like to eat at any given time.'

For CA, the question item was amended to:

'I can always manage to decide what I would like to cook at any given time.'

In addition to these wording changes, the decision was taken to reclassify the revised item, "*I wish I had more time for culinary activities*," originally intended for the SSB subscale, into the ATC subscale. This adjustment was made after thoughtful deliberation, recognizing

that the statement primarily reflects an attitude rather than a structural barrier. Further, one item was inadvertently omitted entirely from the survey instrument.

Scoring for the CA scale followed the same procedure as the original CAFPAS.

PERMA profiler: The PERMA profiler (Butler & Kern, 2015) is a standardized, 11- point, 16-item scale that conceptualizes the construct of SWB over five-dimensions. Cronbach's alpha for PERMA profiler (2015) is .94. Respondents are asked to rate questions such as:

'In general, how often do you feel joyful?' (0 = never, 10 = always)

'In general, to what extent do you feel that what you do in your life is valuable and worthwhile?' (0= not at all, 10 = completely)

Demographics

Self-reported age at the time of participation was collected, as well as self-identified gender of respondents.

Data Analysis

The program SPSS (IBM Corp) was used to treat data in this current study. Respondent data was summed as per the published scoring instructions. Data points that were missing as a result of incomplete questionnaires were deleted.

Next, tests were carried out assessing Cronbach alpha values from both sets of scales, and scatterplots were built checking linearity. Multiple, regression analysis was conducted with appropriate tests checking for multicollinearity, independence of residual values, homoscedasticity, distribution of values and model bias. Finally, a 'power' calculator (Soper, 2023) observed statistical power. Statistical significance for all tests was set as $p < 0.05$.

Age was analysed as a co-variate in the linear regression, along with a separate gender stratified analysis.

RESULTS

Sample

The total sample for this study consisted of 83 respondents (n = 83). Respondents' ages ranged from 19 to 73 years (m = 40 years, SD = 12.56). The sample was disproportionately female at 77%.

Descriptive Statistics for Key Constructs

Table 1 displays the descriptive statistics for the key constructs measured in the study, offering an overview of the participants' responses across the measured constructs, as well as scale reliability.

	Total Respondents	Number of Items	Cronbach's Alpha	Sum	Range of Scores	Mean Scores	Std. Deviation
Culinary Self Efficacy (CSE)	83	13.0	.950	428.46	5.77	5.16	1.32
Attitudes Towards Cooking (ATC)	83	10.0	.895	396.40	5.10	4.77	1.31
Social Structural Barriers (SSB)	83	4.0	.819	386.50	5.0	4.65	1.36
Subjective Wellbeing (SWB)	83	16	.950	650.0	7.75	7.83	1.44

Table 1. Reliability and descriptive statistics for Culinary Eudemonia (CE) and Subjective Well-Being (SWB) constructs. Subjective well-being measured using PERMA (Positive Emotions, Engagement, Relationships, Meaning, Accomplishment) profile.

Findings

Unadjusted multiple regression analysis revealed that the tripartite construct of CA significantly predicted SWB, $F(3, 79) = 3.15$, $p = .029$, explaining 10.7% of the variance in the data. Although ATC emerged as the largest contributor to the model ($\beta = .249$, $p = .189$), followed by CSE ($\beta = .108$, $p = .551$), and finally SSB ($\beta = .052$, $p = .668$), none of the subscales individually made a significant contribution to the model. Assumptions of linearity, collinearity, homoscedasticity, independence of residual values, model bias, and the normal distribution of values were all tested.

The final predictive model was:

Subjective Wellbeing = 5.845 + .108 CSE + .249 ATC + .052 SSB.

Including age as a covariate in the linear regression yielded a non-statistically significant outcome. Conducting a gender-specific forward regression analysis focusing on females, CSE emerged as the significant predictor ($\beta = .287$) of SWB.

Post hoc tests

Based on three predictors, an R^2 of 0.11, a probability level of 0.05, and a study sample size of 83, post-hoc tests revealed the observed statistical power for this study was 0.755, indicating a strong likelihood of detecting true effects given the sample size and chosen alpha level.

DISCUSSION

Addressing Research Aims and Theorical Framework

As previously noted, this study sought to build upon Mosko and Delach's (2021) exploration of the relationships between cooking as a behaviour and SWB by (1) trailing a survey measure focusing on CA, conceptualized as CSE, ATC, and SSB, and (2) exploring the associations between CA and SWB, as measured by the PERMA profile, in the context of cooking.

In terms of the first study aim, the modified CAFPAS appeared to show promise as a measure of the construct of CA. The Cronbach's alpha values for the modified subscales were similar to the original CAFPAS, demonstrating high internal consistency. Addressing the second study aim, the results suggest that CA had significant correlation to SWB, though individual components, CSE, ATC or SSB, did not significantly predict SWB. Because each of the individual constructs represented by the subscales contributed to overall CA, as represented in the predictive model, this suggests that they each represent an important facet of CA. In response to the hypothesis that greater CSE, positive ATC, and the reduction of SSB will positively correlate with SWB, the results generally support this prediction. The findings potentially show that CA should be considered in a holistic manner, with each component addressed, to significantly impact SWB.

Cooking is a dietary behaviour that remains highly gender specific in daily life. When examining data by gender, CSE was a significant predictor for females, but not males. This suggests a potential link between gender, CSE, and identity, perhaps serving to highlight the role of societal expectations and cultural influences in shaping individuals' sense of competence in culinary endeavours.

Both cooking and SWB are considered complex, multifaceted, and multidimensional in nature (Raber & Wolfson, 2021; Wolfson et al., 2017; Diener et al., 1999; Kashdan and Steger, 2011; Goodman et al., 2017), therefore it is possible that different scales may conceptualize each of the constructs differently. While the results generally align with the findings of Mosko and Delach's (2021) study, it is important to note that our analysis, in comparison, used different scales to measure cooking behaviours and SWB. For example, Mosko and Delach (2021) measured not only attitudes on cooking, but also cooking frequency and preference (cooking for self or others). While our study measured CA, which overlapped with Mosko and Delach with regard to attitudes on cooking only.

The finding that CA has a statistically significant relationship to SWB supports using Bandura's Theory of Human Agency, which, as a fundamental component of Social Cognitive Theory (SCT), provides a suitable framework to conceptualize cooking as a psychosocial behaviour. However, since this is the first study to introduce CA and to attempt to measure it through the use of survey methodology, the results only provide an initial basis for further exploration of CA, its components of CSE, ATC, or SSB, and their relationship to SWB as conceptualized by the PERMA model. It is also noteworthy that the authors of a recent review (Gordillo & Prescott., 2023) assessing the utilization of SCT components in cooking and food skill interventions suggest that SCT may not be fully realized, underscoring the need for continued exploration and refinement of the application of SCT in the context of cooking interventions.

Limitations

The main limitation of this study was the scope and size of the sample; post hoc tests revealed that the observed power for this current study was perhaps insufficient. In addition,

female respondents (77%) were over-represented in the sample. The extent to which this might have affected results is unknown but is consistent with gender-specific survey responses on cooking (Mosko and Delach, 2020). In addition, this study did not collect data for certain variables such as personality traits or sociodemographic barriers, which may have impacted an individual's access to cooking tools, ingredients, and knowledge and in addition to their attitude towards cooking. Our final model showed just over ten percent contribution of the CA constructs to SWB, suggesting that variation in SWB may be determined unmeasured variables not included in this analysis. Finally, respondents who were willing to participate in the online survey regarding cooking experiences may have been more interested in cooking compared to members of the general population, therefore impacting external validity of our results.

This study only examined CA and not overall human agency. Therefore, it is not clear if CA is merely a reflection of a person's agency in general or a true independent variable which has its own relationship to overall SWB as described by the PERMA model. Furthermore, while it is possible the inadvertent omission of one item may have potentially affected the reliability of the ATC sub score, the impact of this was likely minimal. Lastly, the modified CAFPAS was used to measure CA. However, psychometric properties have not yet been established and thus results from this analysis should be considered preliminary.

Future Directions

In light of the findings and theoretical underpinnings of this pilot survey and the previously mentioned literature on cooking as a psychosocial behaviour, we propose a conceptual model (see Figure 1) that elucidates a potential interplay between culinary agency, culinary identity, culinary behaviours, and culinary eudemonia. We suggest that the model could be used as an initial framework by future researchers who can rigorously and

systematically explore how these constructs might mediate and moderate each other within the context of cooking experiences and SWB.

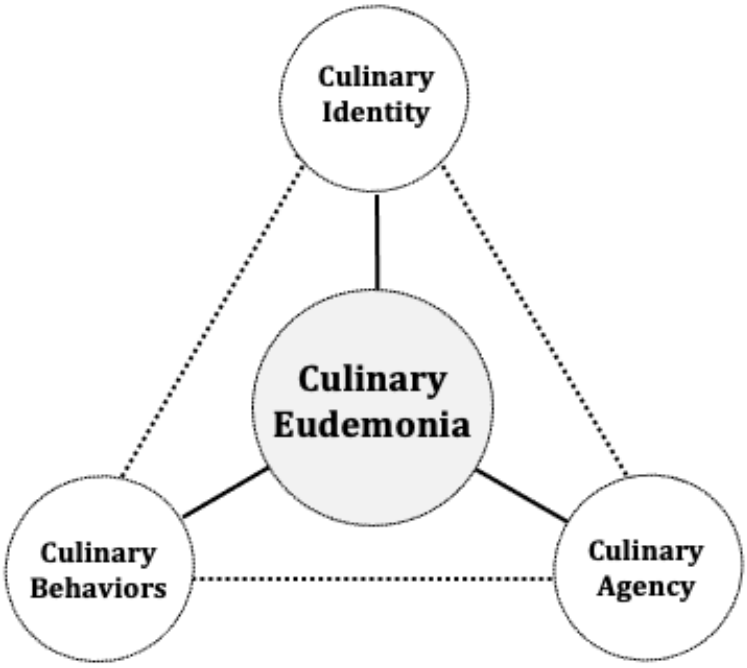

Figure 1. Model showing connection of culinary eudemonia (CE) with interconnected constructs of culinary agency (CA), culinary behaviours (CB) and culinary self-identity.

Culinary Eudemonia: Situated as the cornerstone of the model, culinary eudemonia encapsulates individuals' comprehensive well-being stemming from meaningful and purposeful engagement with acts of cooking.

Culinary Agency: Encompassing CSE, ATC, and SSB, culinary agency refers to an individuals' perceived sense of empowerment and proficiency in engaging in culinary endeavours.

Culinary Identity: Reflecting one's self-concept within the culinary domain, culinary identity might be shaped by cultural influences, societal norms, and personality traits thereby guiding individuals' culinary values, personal preferences, and motivations to cook.

Culinary Behaviours: Encompassing a diverse set of observable actions and practices, such as ingredient selection, cooking methods, culinary-related habits, rituals and routines, culinary behaviours act as tangible expressions of individuals' culinary identity and agency.

Conclusion

As an initial exploration of CA and SWB, results from this study show the possible contribution of CA to SWB and the overarching construct of CE. Though the study had a number of limitations, the findings regarding CA and SWB indicate that continued research into CE is needed to explore the use of cooking as a psychosocially beneficial behaviour. Indeed, future researchers may continue to explore the theoretical basis of CE as well as draw on the CA scale used by this study to develop a valid and reliable scale for cooking attitudes and behaviours. To further measurement development, future studies should utilize factor analysis of CA and explore the potential need for further survey items that draw on a range of attitude and behaviour theory from psychology. Conducting mixed method, longitudinal studies to examine changing cooking behaviour and CA over time and how this might result in increased SWB and CE would also be beneficial and could potentially lay the groundwork for psychologically-focused cooking therapies.

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Appendix:

Culinary Agency scale items. Response anchors 0-6

Culinary self-efficacy (CSE).

1) I feel limited by my lack of cooking knowledge. *
2) I can always decide what to cook at any given time.
3) When practicing cookery, I am confident that I can deal with any unexpected results.
4) When I cook, I believe I can solve most problems with enough effort.
5) When I cook it is easy for me to accomplish my desired results.
6) I feel comfortable cooking.
7) I know how to use the kitchen equipment I have.
8) I practice cooking daily.
9) When I cook, I know how to use most ingredients.
10) I am confident cooking meals with the ingredients I have on hand.
11) Before I start to cook, I usually have a mental plan of the all the necessary steps.
12) If presented with two different recipes, I am confident I could cook either.
13) When I cook, I feel in control.

Attitudes towards cooking (ATC).

1) For me cooking is just something to get through as quickly as possible. *
2) Compared to other activities, cooking brings me little enjoyment. *
3) If the food I am cooking does not come out right, I usually won't try and cook it again. *
4) I often think about cooking.
5) I prefer to spend my time on more important things than cooking. *
6) If everything is equal, I would choose to cook for myself rather than have food prepared by someone else.
7) I feel cooking is a waste of effort. *
8) I am inspired to cook for other people, like friends and family.
9) I feel burdened by having to cook for other people, like friends or family. *
10) I wish I had more time for culinary activities.

Social-structural barriers (SSB).

1) Challenges in my life prevent me from cooking as frequently as I would like. *
2) My family responsibilities prevent me from having time to cook. *
3) My social responsibilities prevent me from having time to cook. *
4) My job responsibilities prevent me from having time to cook. *

**Reverse items*