

The Qualitative Evaluation of the Lived Experience of Food Addiction

by

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DEDICATION

To the individuals who shared their stories with me – your honest and openness inspires me to continue using scientific inquiry to improve our understanding of the lived experience of mental health conditions to improve policy and intervention.

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TABLE OF CONTENTS

DEDICATION	ii
ACKNOWLEDGEMENTS	iii
LIST OF TABLES	vii
LIST OF APPENDECIES	viii
ABSTRACT	ix
Chapter I Overview of the Scientific Study of Food Addiction	1
Chapter II The Qualitative Examination of the Yale Food Addiction Scale 2.0	8
Methods	13
Results	18
Discussion	42
Chapter III The Qualitative Examination of the Development of Food Addiction over the Lifespan	52
Methods	57
Results	59
Discussion	72
Chapter IV The Qualitative Examination of Treatment Approaches for Food Addiction	95
Methods	102
Results	102

Discussion	119
Chapter V Limitations, Future Directions, and Overarching Conclusions	136
TABLES	145
APPENDICES	153
REFERENCES	158

LIST OF TABLES

TABLES

1. Participant Demographics, YFAS Scores, and Eating Disorder Status	146
2. Examples by Symptom	147
3. Interview Schedule by Category	151
4. Intervention Descriptions	152

LIST OF APPENDICES

APPENDICES

A. The Yale Food Addiction Scale 2.0	154
B. The Diagnostic Criteria for DSM 5 Eating Disorders	156

ABSTRACT

Food addiction (FA) theory posits that certain foods can trigger responses akin to traditional substances of abuse. FA has gained significant attention over time, and empirical evidence supporting the construct is growing. However, questions about the construct remain surrounding the measurement of FA, its developmental trajectory, and effective treatments. Most FA research is quantitative in nature, and little is known about the subjective experience of FA. This dissertation used qualitative interviewing and thematic analysis to explore three aims in a sample of individuals with FA.

Aim 1 examined the measurement of FA. The Yale Food Addiction Scale (YFAS) is the most popular scale used to measure FA and has been quantitatively validated across numerous samples. However, little is known about the subjective interpretation of the scale. It is possible that items are interpreted inconsistently with the clinical conceptualization of substance use disorders, impacting the validity of the measure. We examined the subjective experience of completing the YFAS to determine if items were interpreted as expected, if any were irrelevant to the lived experience of FA, and if there are phenomena central to the lived experience of FA not captured by the scale. Participants interpreted most items on the scale in-line with the clinical conceptualization of FA. Tolerance and withdrawal-related items were most commonly misinterpreted. Problem-focused items were least relevant to participants' lived experience. Novel constructs including emotional eating also emerged.

Aim 2 explored the developmental trajectory of FA. While numerous quantitative studies have explored the prevalence and correlates of FA in childhood and adolescence, little is known

about the lived experience of FA early in the lifespan, nor how experiences of FA may change over time. Further, little is known about how dieting interacts with FA. We asked participants to describe their eating behaviors beginning in childhood and across their lifespan to identify novel, developmental aspects of FA and allowed participants to describe how dieting interacted with their FA. Parental control of food, food scarcity, and a drive for highly palatable foods in childhood were relevant to the development of FA. Autonomy over food, weight gain, and the college environment emerged as important to the lived experience of FA during adolescence and young adulthood. Adulthood was viewed as the most severe period of FA and participants felt increasing role responsibilities contributed to its severity. Participants also described dieting as a response to FA, rather than dieting contributing to addictive eating.

Aim 3 examined treatment for FA. Currently, there are no empirically supported treatments for FA and little is known about preferences or motivations for treatment. We asked participants to describe attempts to control FA including what has helped and what has not, barriers to recovery, and preferences for treatments. Most participants felt diets were not effective and describing multiple failed diets. Accountability, replacement foods, and controlling the home food environment were considered helpful. Internal (e.g., eating to cope) and external (e.g., affordability) factors were considered barriers to change. Cognitive behavioral therapy and abstinence were preferred methods of treatment.

This dissertation provided evidence for the face validity of the YFAS and potential methods for improvement. Novel constructs about the lived experience of FA across the lifespan and implications for treatment were uncovered, setting the stage for quantitative research to explore their prevalence and statistical significance. Research and clinical implications were discussed.

CHAPTER I

Introduction - Overview of the Scientific Study of Food Addiction

Food addiction (FA) theory posits that certain foods are capable of triggering neurobiological and behavioral (e.g., loss of control, withdrawal, tolerance) responses akin to traditional substances of abuse (e.g., alcohol, nicotine) (Gearhardt et al., 2009; Gearhardt et al., 2016). The foods most implicated in FA theory are highly processed foods with unnaturally high levels of refined carbohydrates and/or fat (e.g., pizza, ice cream, French fries), while unprocessed foods (e.g., fruits, vegetables, whole grains) are not believed to be capable of triggering an addictive response (Schulte et al., 2015). While often perceived to be a recent area of scientific inquiry, FA has been researched for decades, with studies examining the phenomenon of hedonic and addictive eating dating back to the 19th century (Clouston, 1890; Crothers, 1890). Early research detected similar patterns of behavior between individuals who chronically overeat and those with other addictions, such as use to cope with negative emotions (Hamburger, 1951; Randolph, 1956). Overlapping personality traits between individuals with substance use disorders (SUDs) and chronic overeating such as neuroticism and impulsiveness were also discovered (Feldman & Eysenck, 1986; Leon et al., 1979). As the study of FA has progressed over time, research focused more on the neurobiological similarities between FA and traditional SUDs (Avena et al., 2008; Volkow et al., 2008) and examined the characteristics of the foods that are most associated with addictive-like eating (Ifland et al., 2015; Schulte et al., 2015). Further, treatment models for obesity, like Overeaters Anonymous, have existed since the

1960s (Russell-Mayhew et al., 2010), suggesting that acceptance for the concept in lay persons has existed for decades.

Since its original conceptualization, evidence for FA has grown considerably, and psychometrically validated tools for the measurement and diagnosis of FA have been developed. Specifically, in 2009, Gearhardt and colleagues developed the Yale Food Addiction Scale (YFAS) to operationalize FA using the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (DSM-IV) criteria for substance dependence (Gearhardt et al., 2009). The YFAS consisted of items reflecting individual symptoms of substance dependence (e.g., tolerance, withdrawal, loss of control) altered to reflect addictive-patterns of eating and prompted individuals to think about the foods most associated with binge eating while completing the measure (i.e., ultra-processed foods high in refined carbohydrates and/or fat) (Gearhardt et al., 2009). In 2016, the YFAS was updated into the YFAS 2.0 to reflect changes to the DSM-5 criteria for SUD which combined DSM-IV substance dependence and substance abuse into a single disorder. The updated scale consists of 35 items measuring 11 symptoms of FA (see Appendix A), including the new criterion of craving (Gearhart et al., 2016). Both scales have undergone extensive quantitative evaluation to determine the validity and utility of the measures (Gearhardt et al., 2016). Specifically, both scales demonstrate strong convergent, discriminant, and incremental validity, and demonstrate strong internal consistency across samples (Gearhardt et al., 2009; Gearhardt et al., 2016). Further, the scales are the most popular measure of FA in scientific research.

Using the YFAS and the YFAS 2.0, FA has been examined in numerous populations. In community samples, the prevalence of FA is approximately 16% (Pursey et al., 2014) and FA is associated with elevated body mass index, binge eating, emotional eating, and impulsivity

(Gearhardt et al., 2009; Gearhardt et al., 2016; Joyner et al., 2015; Loxton & Tipman, 2017; Manzoni et al., 2018). FA is also associated with increased weight cycling (i.e., repeated periods of weight loss and regain; Flint et al., 2014), and is negatively correlated with perceived success in dieting (Meule et al., 2012). In clinical samples (e.g., individuals with clinically significant eating disorders such as bulimia nervosa or BED) FA is associated with more frequent binge eating, and higher levels of depression, negative affect, emotion dysregulation, and eating disorder psychopathology (Flint et al., 2014; Gearhardt et al., 2012; Meule et al., 2014), suggesting that, within disordered eating samples, individuals with elevated FA may represent a more severe clinical subgroup. Together, these findings suggest that FA, across community and clinical samples, is a valid construct associated with numerous physical and psychological consequences

Despite increasing quantitative support for the construct of FA and ample evidence for the validity and utility of the YFAS, qualitative research into the construct is limited. While quantitative research has allowed scientists to determine the prevalence and correlates of FA at the population level, questions about the lived experience of FA and the qualitative validity of the YFAS remain. As such, qualitative research is essential to broaden our holistic understanding of FA. As such, the following dissertation is broken up into three main qualitative areas of inquiry.

First, while the YFAS has been examined quantitatively across numerous populations, little is known about the subjective experience of completing the scale. As such, it is possible that individuals are interpreting items on the YFAS in a manner that is inconsistent with the clinical conceptualization of SUDs, lowering the face validity of the scale. For example, an individual completing the scale may reference experiences that fail to reach clinical severity or

eating behaviors unassociated with SUD (e.g., non-pathological dieting). Further, critics of the YFAS argue that some symptoms of traditional SUDs do not appropriately characterize FA. Specifically, symptoms such as hazardous use or difficulty fulfilling role obligations are rarely endorsed on the YFAS (Meule et al., 2012; Schiestl & Gearhardt, 2018), suggesting that the current criteria for SUD may not be well suited to characterize FA. As such, the YFAS may not be the most valid measure of FA as it may measure constructs that are not associated with the lived experience of the condition. Qualitative methods may help scientists to determine if any items on the YFAS do not accurately represent the lived experience of FA, and subsequently if the scale should be altered to improve its face validity. Finally, there may be experiences central to the lived experience of FA that are not currently measured by the YFAS but may ultimately help in the detection and diagnosis of the condition. Thus, qualitative validation of the YFAS may allow researchers to uncover helpful strategies to improve the measure, leading to increased face validity of the scale.

Second, little is known about the development and lived experience of FA over the lifespan, particularly in childhood and adolescence. Quantitative research has produced substantial evidence for the existence of FA in childhood and adolescence (Filgueiras et al., 2019; Laurent & Sibold, 2016). Further, like adulthood, FA in childhood and adolescence is associated with numerous negative factors including elevated BMI, increased consumption of added sugars, and binge eating behaviors (Filgueiras et al., 2019; Laurent & Sibold, 2016). Additionally, adolescence is a high-risk period for the development of SUDs and obesity (Abarca-Gómez et al., 2017; Gray & Squeglia, 2018) However, to our knowledge, qualitative methods have not been used to examine the lived experience of FA in childhood or adolescence. This is problematic as information about the lived experience of FA early in the lifespan may be

clinically relevant. Specifically, understanding how FA develops over time may allow researchers to determine risk factors for the condition, as well as early signs of FA. These novel findings can then inform quantitative research to examine trends at the population level, which in turn can inform prevention and early intervention strategies.

Further, qualitative research can be used to explore novel constructs about the lived experience of FA during adulthood that remain unexamined. For example, little is known about the role of dieting in the context of FA. However, dieting in the context of other maladaptive eating behaviors (e.g., binge eating) and clinically significant eating disorders is well studied, albeit controversial. Specifically, while some researchers believe that dieting may lead to maladaptive eating behaviors (Herman & Mack, 1975; Stice, 2001), others view dietary restriction as a means to control a high reward drive for food (Lowe et al., 2016; Lowe & Levine, 2005). It will be important to learn about the subjective experience of dieting in the context of FA to determine if individuals with the condition believe dieting contributes to or helps to control addictive-eating. By qualitatively exploring how FA influences dieting behaviors and how dieting may influence FA, these experiences can be examined quantitatively to inform prevention strategies and interventions to reduce the negative impact of addictive eating.

Third, qualitative research may also help researchers to identify appropriate, evidence-based interventions for the treatment of FA. Currently, there are no well-established treatments for FA. However, several evidence-based treatments for SUDs and clinically significant eating disorders, have been proposed to treat symptoms of addictive eating. For example, cognitive behavioral therapy (CBT), motivational interviewing, and emotion regulation have all been proposed as potential treatments (Dimitrijević et al., 2015; Schulte et al., 2017). However, prior to developing treatments for the condition, it is important to explore what individuals with FA

have done to try and combat their addictive-eating. For example, participants can describe tactics that have been both helpful and unhelpful in controlling their FA, which may help to inform intervention strategies. Further, qualitative methods can uncover motivations and preferences for treatment. This may help researchers and clinicians to identify the most preferred modalities of intervention, potentially increasing treatment adherence by enhancing an individuals' motivation to engage.

Overall, despite rigorous quantitative examination of the YFAS, overarching questions about its validity and utility still exist. Further, there are many aspects of the lived experience of FA that remain unanswered, particularly surrounding the development of FA across the lifespan and about preferences and motivations for treatment. As such, it is important to use alternative, qualitative research methods to broaden our understanding of the construct of FA. This dissertation was broken down into three specific qualitative aims. Aim one sought to qualitatively validate the YFAS 2.0 to determine 1) if items on the scale are being interpreted in line with our clinical conceptualization of SUDs, 2) if any items on the scale are not representative of the lived experience of FA, and 3) if there are any experiences central to the lived experience of FA not captured by the YFAS 2.0. This study helped to determine if alterations to the scale are necessary in order to improve the validity of the YFAS 2.0. Aim two sought to qualitatively explore the lived experience of FA across the lifespan, beginning in childhood. We aimed to explore how individuals perceive their eating behaviors in childhood may have contributed to the later development of FA, to determine how symptoms of FA may ebb and flow over time, and to determine how related behaviors such as dieting may influence addictive eating. This research may help to uncover early warning signs of FA which may promote early prevention and intervention strategies, reducing the overall impact of FA. Finally,

aim three sought to explore preferences and motivations for treatments, as well as methods individuals with FA have used to recover from FA. This research may help to improve engagement in and adherence to treatment, and potentially allow researchers to identify novel strategies to treat FA.

CHAPTER II

The Qualitative Examination of the Yale Food Addiction Scale 2.0

Qualitative methods are an alternative approach to evaluate the YFAS. While quantitative research is necessary to determine if a scale is psychometrically sound, it does not allow for a holistic perspective on the nature of the measure or the experience of a participant while completing the measure (Brodey et al., 2018). These insights are essential to ensure that a scientific measure is truly capturing the construct a researcher desires to study.

To ensure the construct validity of FA, the original YFAS and the YFAS 2.0 necessarily paralleled the established DSM IV and DSM 5 criteria respectively (Gearhardt et al., 2016). However, now that the scales are increasingly accepted as valid measures of FA (Meule & Gearhardt, 2014), there is an opportunity to use qualitative methods to examine how well the YFAS 2.0 captures the lived experience of FA. Further, qualitative methods may help us explore how individuals subjectively interpret items on the YFAS 2.0 to better understand if the scale truly captures our clinical understanding of FA.

In the field of psychology, qualitative methods vary greatly from quantitative methods. Quantitative methods use deductive approaches to explain cause and effect relationships, test pre-generated hypotheses, and uncover objective trends in data (Maher & Neale, 2019). Further, quantitative research typically relies upon random sampling and random assignment for the purpose of maximizing the generalizability of the results to broader populations (Arghode, 2012). Alternatively, qualitative research emphasizes description over explanation, represents the subjective understanding of research participants, highlights the importance of context in

understanding responses, and emphasizes the emergence of hypotheses from the data rather than imposing an a priori theory (Henwood & Pidgeon, 1992). More generally, qualitative research provides elevated depth and detail and allows for the generation of novel information that may not arise using pre-established hypotheses (Arghode, 2012).

The qualitative examination of scientific scales is essential in that it allows researchers to determine whether or not a scale is being understood as expected. Further, it allows for the understanding of a participant's experience while completing the measure through the use of open-ended questions and follow-up inquiry (Brodey et al., 2018). For example, asking participants to describe the thoughts they experience while completing a scale allows for the identification of problems that could affect a patient's response in unintended ways (Godderis et al., 2009). It also helps to illuminate items that may be confusing or easily misunderstood (Brodey et al., 2018; Godderis et al., 2009). Further, the use of follow up questions provides participants the opportunity to explain why they chose a specific response and to extrapolate on any caveats to their selection (Godderis et al., 2009). For example, a participant may have the opportunity to describe contexts in which their original choice may not apply. Alternatively, quantitative measures utilize a pre-conceptualized sets of questions and scoring criteria, limiting the scope of information that can be gathered. Further, questions are often presented in a non-randomized order potentially priming the participant to think about their experience in a specific way (Maher & Neale, 2019). Thus, the forced choice questions commonly used in quantitative research have the potential of biasing responses which limits the external validity of these methods by failing to capture the complexity and nuance of an individual's experience.

In conjunction with quantitative methods, qualitative methods can help to enhance the psychometric properties of a scale in several ways. First, qualitative evaluation can allow

researchers to ensure that questions are being interpreted as expected. For example, one team of researchers had participants complete a measure examining early experiences of psychosis (Brodey et al., 2018). After, researchers asked participants open-ended questions such as “what do you think this question means?” and “what were you thinking about while answering this question?” Any question that elicited more than one interpretation was either rewritten or eliminated until all questions elicited a single interpretation that coincided with the clinical understanding of psychotic symptoms. Thus, by employing qualitative approaches, the construct validity of a measure can be enhanced. Additionally, qualitative methods allow individuals to identify aspects of a condition that are not being captured by a scale but are important to their lived experience. Further, qualitative research can promote the identification of items that do not accurately reflect the lived experience of a condition and should thus be eliminated or altered (Brodey et al., 2018). Revising measures based on the feedback of participants, either by including additional items reflective of their lived experience or by eliminating or altering inaccurate items increases the validity of psychological measures and allows for more accurate research.

A limited number of qualitative studies have explored perceptions of the concept of FA in samples of individuals with and without FA. Across studies, prompts such as, “Do you feel addicted to food? Why or why not?”, “Tell me about your experience with food addiction.”, and “How would you define addiction to food or eating?” have been used to better understand individual conceptualizations and experiences. Themes such as craving, preoccupation with food and eating, lack of control, and the inability to stop eating have all emerged as themes, demonstrating that many symptoms on the YFAS appear relevant to the conceptualization and experience of FA (Curtis & Davis, 2014; Ifland et al., 2009; Lacroix et al., 2019; Paterson et al.,

2019; Ruddock et al., 2015). One study examining women with obesity who varied on the presence of BED compared their eating experiences to the DSM 5 SUD criteria (Curtis & Davis, 2014). They found that participants, particularly those with BED, spontaneously endorsed many symptoms of DSM 5 SUD while describing their eating behaviors (e.g., the persistent desire or unsuccessful attempts to cut down, taking more than planned, craving). However, despite spontaneous recognition of these constructs during semi-structured qualitative interviews, it remains unclear if quantitative measures such as the YFAS appropriately capture the lived experience of FA.

To date, the interpretation of individual items on the YFAS have not been examined qualitatively. As such, three major areas of evaluation are necessary. First, it is necessary to understand how individuals interpret items on the YFAS to determine if their responses represent our scientific understanding of FA. Without this form of analysis, participants may be referencing personal experiences that are not representative of addictive-behaviors as defined by the DSM 5. For example, the phrase “I ended up eating much more than I planned” is meant to convey the consumption of an objectively large amount of food (e.g. an entire pizza, several servings of potato chips). However, some individuals may perceive even a very small amount of additional food, such as a cookie after dinner, to be excessive, and endorse this item. If participants interpret questions in unanticipated ways, this may lead to the inappropriate endorsement of symptoms and skew our understanding of a participant’s experience (Brodey et al., 2018). In the current study we will examine how participants interpret individual items on the YFAS 2.0 in order to determine if they interpret the scale in line with our clinical conceptualization of FA.

Additionally, qualitative analysis of the scale will allow us to determine if any of the current symptoms of SUDs are inappropriate or irrelevant to the evaluation of FA. While most symptoms are regularly endorsed on the YFAS, others are endorsed at a relatively low frequency (Meule et al., 2012; Schiestl & Gearhardt, 2018). As such, these symptoms may not reflect the lived experience of FA and may potentially promote an inaccurate understanding of the disorder. For example, items concerning the consumption of food in potentially dangerous circumstances may not be relevant to the lived experience of FA. Further, because highly palatable food is readily accessible and consumption does not lead to intoxication, it may be unlikely that overconsumption will interfere with important responsibilities or result in physically hazardous use. Thus, using qualitative methods, will allow us to determine which questions may not be relevant to FA in order adapt the YFAS to better capture the lived experience of FA.

Finally, a qualitative examination of the YFAS will allow participants to describe important aspects of their FA that are not currently captured by the scale. To date, a small number of qualitative studies have identified common behaviors (e.g. emotional eating), contextual factors (e.g., social and situational cues) and consequences (e.g., weight gain) related to the lived experience of addictive eating that are not currently captured by the YFAS (Lacroix et al., 2019; Paterson et al., 2019). These researchers argue that these experiences should be addressed on quantitative measures of FA. However, it remains unclear if these experiences should be considered diagnostic features of FA or if they are better conceptualized as severity indicators, associated constructs or risk factors related to FA. In the current study, we will similarly inquire about additional behaviors or experiences associated with FA not currently captured by the YFAS. This will allow future researchers to use quantitative methods to determine if the addition

of new criteria may produce enhanced detection of FA, or if they are best characterized as contributing factors.

Methods

Participants

Participants were recruited through the University of Michigan Health Research website. Potential participants were prompted to indicate if they currently felt addicted to food, complete the modified Yale Food Addiction Scale 2.0 (mYFAS 2.0) (i.e., a brief screener version of the full YFAS 2.0), and provide demographic information (e.g., age, race, sex). Adults over the age of 25 who self-identified as addicted to food and who met criteria for FA were eligible to participate. Individuals who did not self-identify as addicted to food, who identified as food addicted in the past but not currently, who did not meet criteria for FA, or who were unwilling to audio recorded were not eligible to participate.

Four hundred and forty-four people indicated interest in the study. Participants who did not meet inclusion criteria were marked “ineligible.” Potential participants were excluded primarily because they did not meet criteria for FA on the mYFAS 2.0 or because they self-identified as addicted to food in the past but not within the last year. Purposive sampling was used with the remaining eligible individuals to recruit a wide range of participants across sex, race, age, and FA severity. Specific care was taken to ensure that the sample included approximately equal proportions of participants representing mild, moderate, and severe FA. Eighty-eight potential participants were invited to complete the study. Fifty-six did not respond to the initial invitation or did not follow up to schedule their interview. Fourteen did not attend their scheduled interview. Finally, two participants were excluded after their interviews, one for

failing to provide detailed answers that could be analyzed qualitatively, and the other for attending the interview under the influence of substances.

Sixteen participants were included in the current study. The sample included more women (n = 11) than men (n = 5). Participants were 40.19 years old on average (*S.D.* = 12.70) and ranged from healthy weight (n = 2), to overweight (n = 4), to obese (n = 8), with an average BMI of 34.04 (*S.D.* = 11.15). Two participants opted not to provide height and weight. Nine participants identified as white, four identified as Black, one identified as Asian, and two identified as non-White Hispanic (See Table 1). Despite efforts to recruit equal numbers of participants with different levels of FA severity, the sample contained more participants qualifying for severe FA (n = 8), relative to mild (n = 6), and moderate (n = 2) FA. However, this is comparable to previous studies, which demonstrate higher rates of severe FA relative to moderate and mild FA (Gearhardt, et al., 2016). Thirteen participants denied a history of eating disorders, one participant met criteria for past bulimia nervosa, and two participants met criteria for current BED.

Protocol Overview

Participants arrived at the research facility to complete the interview. Prior to initiating the interview, participants were informed about their role as a participant and completed written informed consent procedures. Following consent, all participants completed a hard copy of the full, 35-item YFAS 2.0 to determine their level of FA (see Appendix A). After completing the scale, participants completed a qualitative interview about completing the YFAS 2.0 to gain an understanding of their experience while responding to individual items. Finally, participants completed the Structured Clinical Interview for DSM 5 - Eating Disorders Module to determine the presence or history of clinically significant eating pathology including anorexia nervosa,

bulimia nervosa, or BED (see Appendix B for diagnostic criteria). Afterwards, participants were debriefed, given the opportunity to ask questions, and offered a list of local resources for the treatment of disordered eating behavior. All participants were compensated \$40 and thanked for their participation.

Measures and Interviews

The YFAS 2.0: The YFAS 2.0 is a 35-item, self-report questionnaire that applies the DSM-5 criteria for SUD to the consumption of highly palatable foods (Gearhardt et al., 2016). Questions on the YFAS 2.0 include, “I worried a lot about cutting down on certain types of food, but I ate them anyways,” “I had problems with my family or friends because of how much I overate,” and “Eating the same amount of food did not give me as much enjoyment as it used to”. The scale prompts participants to only consider their eating behaviors over the last 12 months and asks them to think about specific type of foods (e.g., sweets, salty snacks, sugary drinks, fast food) while completing the survey (see Appendix A).

Qualitative YFAS 2.0 Interview: Participants were asked two interview questions about each item on the YFAS 2.0: “Can you tell me what you were thinking when you answered that question?” and “Can you describe a specific example of when that happened to you in the last year?” Follow-up questions, such as “Can you tell me more about that?” and “Do you have another example?” were utilized when more detail was needed to understand a participant’s response.

Following the interview, participants were asked three follow up questions regarding their personal experiences with FA: “Are there any other behaviors/experiences that you believe are representative of food addiction that were not addressed on the YFAS 2.0?”. “Are there any items on the YFAS 2.0 that you feel are not characteristic of food addiction?”, and “Are there

any questions on the YFAS 2.0 that were confusing or hard to understand? If so, which ones?”. As above, follow-up questions such as “Do you have an example of what that might look like?” and “Can you give me more details?” were utilized to gather additional details when necessary. Finally, participants were asked to identify any foods that they believed should be excluded or included on the list of highly palatable foods at the top of the scale, and were asked to provide any additional information they felt might be relevant to the study.

Data Analytic Plan

Qualitative Interviews

All interviews were audio-recorded and transcribed verbatim. Transcripts were uploaded into NVivo (QSR International Pty Ltd, 2020) for review and analysis. The principle investigator used thematic analysis to analyze interviews and generate themes (Braun & Clark, 2006). Thematic analysis was chosen as the method of analysis because it allows for flexibility and the ability to uncover rich, detailed patterns across participants. For the current study, experiential and semantic orientations were employed to develop themes, which center the participant’s experience and assume that language reflects the reality of the participant. A combination of deductive and inductive approaches were used to analyze responses. To determine if participant responses were consistent with SUDs as defined by the DSM 5, a deductive approach was utilized. After responses were analyzed deductively, an inductive approach was utilized to allow themes to emerge within and between deductively coded responses.

The principle investigator read each transcript multiple times to enhance immersion with the data. Initial thoughts and questions were noted, and relevant sections of text were highlighted at this stage. After familiarization, the principle investigator coded all of the transcripts in their entirety. These codes reflected both deductive, theory driven assumptions about FA (whether or

not responses were consistent with a DSM 5 conceptualization of SUDs) and inductive discoveries that emerged organically from participant responses. Memos and annotations were included to track the principle investigators subjective experience of the coding process. Deductive codes were reviewed by the second author using a coding reliability approach, to determine if both researchers agreed on participant's interpretation of items on the YFAS 2.0. Segments of inductive coding were also reviewed and discussed. Next, transcripts were reviewed and codes were added or altered to ensure consistency across the entire dataset. Candidate themes were then identified by reviewing the codes based on patterns that emerged across the data set and relevant sections of text were collated under each theme. Finally, candidate themes were reviewed to ensure they were reflective of participant responses, to determine if themes should be combined, and to determine if additional themes should be added.

YFAS 2.0

All items on the YFAS 2.0 range from 0 (Never) to 7 (Everyday) indicating the frequency that an individual engages in different addictive eating behaviors. Each item on the scale represents a symptom from the DSM-5 diagnosis for SUD (e.g. withdrawal, loss of control, tolerance). Clinical thresholds have been developed for each item on the YFAS 2.0 (Gearhardt et al., 2016). If a participant meets clinical threshold on any item, they meet criteria for that symptom. Based on the criteria for DSM-5 SUD, a participant must meet criteria for two symptoms and experience clinical impairment or distress to receive a diagnosis of FA. Further, the severity of FA is specified based on the total number of symptoms a participant endorses. Mild FA is defined as meeting two to three symptoms, moderate is defined as meeting four to five symptoms, and to receive a diagnosis of severe FA an individual must meet six or more symptoms.

In the current study, twelve participants continued to meet criteria for FA after completing the full YFAS 2.0 at the time of the study. The sample had an average symptom count of 5.81 (S.D. = 3.20). Symptom endorsement ranged from two to 11. Of those who met criteria for FA, two qualified for mild FA, three qualified for moderate, and seven qualified for severe, representing different outcomes relative to the original mYFAS 2.0 scores obtained during screening. The most commonly endorsed symptoms were the inability to cut down, withdrawal, and tolerance. Failure to fulfill role obligation and craving were the least endorsed. Of those who did not meet criteria on the full YFAS 2.0 at the time of the interview, all participants met criteria for multiple symptoms (one with 11, two with four, and one with two) but no longer met threshold for the impairment or distress criterion, preventing them from receiving a FA diagnosis.

Results

Interpretation of individual symptoms

Responses Consistent with the DSM 5. The vast majority of participant responses were consistent with the DSM 5 conceptualization of SUD (see Table 2). The following responses represent common examples of each of each symptom. Where possible, we also included examples where people did not endorse a symptom but included a strong explanation for why their behavior was not reflective of FA.

Loss of Control. The ‘loss of control’ criterion represents consuming highly palatable foods in larger amounts than intended or eating past the point of hunger or until uncomfortably full (American Psychiatric Association, 2013). These items capture the compulsive nature of addiction, where once an individual is in the habit of consuming a substance, it becomes very difficult to stop. For example, a female participant (age 28, moderate FA) stated, “*I was thinking*

about kind of this history over the past two or three years where, if certain foods are put in front of me, I can just eat the entire bag. The entire box of cookies, the entire bag of potato chips, an entire loaf of bread. And usually when I sit down to eat bread, I'm not like, "I'm gonna eat this whole loaf." But it is the thing I do." Here she clearly recognizes her intention to eat a smaller portion of food, but then goes on to eat whatever is in front of her, representing the compulsion to continue once she started eating. Further, a male participant (age 39, mild FA) stated, *"Sometimes I [am] actually full, I feel like I'm done eating or don't wanna eat anymore, but I still will, those types of foods, just because... I don't know, it almost becomes like you're not even thinking about it, you're just grabbing and eating."* This description further underscores the compulsive nature of addiction, even when there is a conscious desire to stop eating.

Cut Down. The second criterion of SUD is the persistent desire or unsuccessful efforts to cut down or control consumption (American Psychiatric Association, 2013). This can be represented by actual efforts to cut down, as explained by a female participant (age 28, moderate FA), *"I can't even count the number of times that I've been like, "This is the last time. I'm not gonna do this again." And I've tried different methods. I've tried keeping a notebook and listing what I did each day, what I eat each day, whether or not I exercised. I've tried keeping a white board on my wall... I've tried making promises to myself..., but of course, I never keep to them."* It is clear that she has made several attempts to cut down but has never experienced long-term success despite her best efforts. Efforts to cut down may also be marked by the persistent desire to cut down on consumption without deliberate actions to do so. For example, a female participant (age 45, mild FA) stated, *"I think about pizza all the time because I know I don't digest the cheese well and I'm like, 'Well, I should really stop eating pizza 'cause I know it makes me not feel that great.' But then it's like, 'Well, pizza sounds kinda good, so I'm gonna have it*

anyway. ’’ Thus, although she had not taken actionable steps to cut down on her pizza intake, she does describe frequent preoccupation with thoughts of cutting down.

Withdrawal. In the context of substance use, withdrawal is considered in two ways. First, it can be marked by negative emotional (e.g., irritability, anxiety) or physical experiences (e.g., headaches, fatigue) after the substances are removed from the system (American Psychiatric Association, 2013). Alternatively, withdrawal is also defined as the use of a substance in order to avoid or relieve those negative consequences (American Psychiatric Association, 2013). For example, a female participant (age 45, severe FA) described the experience of negative physical and emotional consequences when eliminating sugar and carbs from her diet: *“It’s usually when we cut carbs. So, the first couple of days, you kinda feel sluggish. And I was irritable, cutting away those sugar items. I was very short with my daughter, who’s 13. So my tolerance for things that normally wouldn’t bother me, it’s like... Or with the dogs. Like, “Oh my God, here we go, muddy feet again.” It’s not just like, “Oh my God, muddy feet,” no, it’s, “Oh my god! There’s muddy feet! Get out of my house!” I’m just... I have zero patience or tolerance for things that normally wouldn’t bother me. And then stopping carbohydrates, you get the headaches, being lethargic about it. So the first four to six days of stopping eating anything, I think that’s the bulk of when that happens.”* Most participants who endorsed withdrawal symptoms reflected the first pattern, experiencing negative emotions and physical reactions as a result of removing the foods. Fewer endorsed using food to avoid the experience of withdrawal.

Tolerance. Tolerance in the context of addiction is also experienced in two ways. First, it is defined as the need to consume more of a substance in order to achieve the desired effects (e.g., intoxication, pleasure). Alternatively, tolerance is defined as the markedly diminished effect of a substance after repeated exposure (American Psychiatric Association, 2013). For

example, in the context of alcohol use disorder, an individual may require increasing amounts of alcohol to achieve intoxication, or may experience diminishing levels of intoxication with the same amount of alcohol over time. In the current study, most participants who endorsed tolerance reported experiences of diminishing pleasure from the same amount of food. For example, a female participant (age 62, severe FA) stated, *“The food doesn’t give me as much enjoyment as it did before. So I’m eating the same amount but it doesn’t seem to give me the same endorphin high or whatever. I don’t know... I’m just waiting for it to come back.”*

Additionally, many participants acknowledged that tolerance was not relevant to their experience of FA. For example, a female participant (age 45, mild FA) noted, *“I didn’t feel like I had a tolerance that I was developing, and that you had... Like it was another substance, where you gotta keep having more to achieve the same high. I never felt like it was something like that.”*

Her response clearly indicates that she understands the meaning of tolerance items on the YFAS, but felt that tolerance was not relevant to her personal experience.

Craving. In the context of SUDs, craving is defined as a strong desire or urge to use a substance, or significant preoccupation with using the substance making it difficult to think of anything else (American Psychiatric Association, 2013). In the current study, participants described both experiences. For example, a female participant (age 30, severe FA) stated, *“That happens a lot. Last time it happened, I had to wait ‘till my sister got [home] so we could go out for food 'cause we said we were gonna go to a certain restaurant. I had to wait for her to go, so I was just thinking about it all day. We decided we were going to go at 9:00 o'clock in the morning but she doesn't get off until 4:00 or something like that. So it just takes up your whole day thinking about it,”* demonstrating her significant preoccupation with eating specific foods which impaired her ability to focus on other things. Similarly, a female participant (age 30, moderate

FA) described exposure to highly palatable foods and experiencing the strong desire to eat them in the moment. She stated, *"I'm not like... I am craving mashed potatoes and I have to go to KFC right now. But if I see food somewhere at a party, or something, I'm just like "I need to eat that. That's the thing that I wanna eat. And I need to eat it before anyone else does." I make sure, I get to have it."* Thus, both aspects appear to be understood by participants in line with the DSM 5 conceptualization of craving.

Time Spent. The time spent criterion reflects three separate constructs: 1) A great deal of time spent obtaining the substance, 2) significant time spent using the substance, or 3) a large amount of time spent recovering from the effects of a substance (American Psychiatric Association, 2013). All three experiences were endorsed and described across interviews. For example, a female participant (age 26, severe FA) stated, *"The actual amount of time that I've spent eating has been a bit like, "Oh wow, you were eating breakfast and you were snacking all the way until lunch. And then you were still snacking until dinner,"* describing the second construct. Further, a female participant (age 53, severe FA) described spending a significant amount of time obtaining food stating, *"I would literally go from Meijer to Kroger if they didn't have the specific ice... It was coffee ice cream. If they didn't have any, if they were out, I would leave that store and go to another."* Overall, most participants endorsed recovery from excess consumption as the most common experience of this criterion, specifically reporting that sluggishness after eating. For example, a female participant (age 62, severe FA) reflected on feeling tired after dinner stating, *"It's not really the end of the day, it's like, right after dinner, which isn't that late, but I'm done. I'm like, 'Okay, I'm on the couch now, 'cause I'm tired, 'cause I over ate.' And what I ate too... I'm sure that makes me tired too. A lot of carbs."* In addition,

other participants described the sensation of being overly full or feeling ill from overeating in the context of the time spent criterion, but this was a less common than experiences of sluggishness.

Activities. This criterion is defined as important social, occupational, or recreational activities given up or reduced because of substance use (American Psychiatric Association, 2013). For example, in the context of alcohol use disorder, an individual may begin attending fewer social events or engaging in fewer hobbies in order to consume alcohol instead or because they are recovering from the effects of being intoxicated. In the current sample, activities were given up most often in social or recreational settings. For instance, a female participant (age 28, moderate FA) stated, *“That’s most often on those bingeing days when someone reaches out and wants to do something, and I say no. And again, it’s partly so I can keep eating. But the other main reason is I’m so ashamed. And a lot of those times, I feel like I actually appear bloated on those days both because of how much I’ve taken in and fluid retention. And just I’m like, “I don’t wanna go out and have anyone know that this is happening today.”* However, many people who responded in accordance with the DSM 5 conceptualization of substance use recognized that their FA did not get in the way of important activities and thus did not endorse these items. For example, a female participant (age 45, mild FA) stated, *“I didn’t think for me. I mean, no matter what I’ve been doing, it hasn’t kept me from doing something I was committed to doing.”* Thus, participants appeared to interpret these items in a manner consistent with DSM 5 SUD even when they did not have personal experience with the criterion.

Interpersonal Problems. The DSM 5 defines this criterion as substance use causing or exacerbating persistent social or interpersonal problems (American Psychiatric Association, 2013). For example, an individual with a SUD may be more likely to act aggressively and begin arguments leading to interpersonal problems or arguments may result when a friend or loved one

disapproves of an individual's substance use. In the current study, interpersonal problems most commonly occurred when a loved one disapproved of the amount or types of food a participant was consuming. For instance, a male participant (age 63, 4 symptoms, no impairment/distress (-I/D)) described a strained relationship with his daughter, stating "*My daughter telling me, "Dad, you shouldn't eat so much, it's gonna make you sick. Dad, you shouldn't eat so much, that stuff's bad for you. Too much of that can... Gives people heart attacks." And that type of stuff, so right off the bat, I thought about my daughter.*" Alternatively, many people recognized that their FA was not interfering with important social relationships. This was captured by a female participant (age 62, severe FA) when she stated, "*That has not happened. Maybe 'cause everyone else is overeating. [laughter].*" Thus, many participants interpreted these items consistently with the DSM 5 conceptualization despite lacking personal experience with interpersonal problems.

Role Obligations. This criterion is defined as the inability to fulfill major role obligations at work, school, or home as a result of substance use (American Psychiatric Association, 2013). In the context of SUDs, this may be a result of the individual being inebriated (e.g., failing to pick up one's child because they are intoxicated) or in response to recovering from use (e.g., missing work due to being hungover). In the current study, many participants interpreted these items in a manner consistent with DSM 5, but felt that their addictive eating did not interfere with role obligations. However, some participants described experiences of failing to complete important tasks, most commonly reflecting on daily chores and household responsibilities. For example, a male participant (age 32, severe FA) reported, "*Not cleaning up. I let the kitchen just get out of control. Like I said, I won't even get dressed. The kitchen and the rest of the house will be really out of control but all I want to do is get some snacks and get back in the bed and watch TV.*" Interestingly, several participants recognized that their eating did not interfere with role

obligations because of the nature of their lifestyle. For example, a female participant (age 28, moderate FA) noted, *“I think that's less of an issue for me and partly because I don't have a family to take care of. I have no dependents. And household chores... I definitely am lazier on these binge days and would never clean my room, or fold laundry on a day like that, but I don't think that it's been like... There's never been a situation where there's some household chore or someone is relying on me for something very serious and I'm like "No, I'm not doing it.”* Thus, participants recognized how FA might lead to difficulties in fulfilling role obligations but, due to their individual circumstances, did not have these experiences.

Consequences. The consequences criterion refers to the continuation of substance use despite negative physical (e.g., lung cancer, liver cirrhosis) or psychological (e.g., anxiety, depression) outcomes resulting from or exacerbated by problematic use (American Psychiatric Association, 2013). In the current sample, many participants described psychological or emotional problems resulting from their FA. For example, a female participant (age 28, moderate FA) stated, *“The actual eating brings me instantaneous joy. But, far outweighing that is how bad I feel afterward and just whether it's shame, sadness, guilt, whatever. And that has not stopped me for about two years,”* recognizing the significant emotional consequences that result from her eating behaviors. Others reflected on their tendency to continue eating in the same way despite the physical consequences. For example, a female participant (age 26, severe FA) stated, *“I had my annual physical recently and my doctor was like, ‘Yo! You're A1C is in the diabetic range.’ And I was like, ‘Wow, that doesn't make any sense. I'm not diabetic.’ And it's literally just because I've been eating like trash these last two months or whatever. So then I was eating well for a month and a half, got my A1C checked again and it was in the normal range. So I was like, ‘See, I told myself I don't have diabetes.’ Then I slowly slipped back into it. I wasn't eating as*

bad as I was before, but I wasn't eating well [...] If I were to check my A1C now, I'm really not sure where it would be because I've kind of fallen off." As such, many participants interpreted items related to consequences in a manner compatible with the DSM 5 conceptualization SUD.

Dangerous. The dangerous use criterion reflects use when it is physically hazardous. Substance use may be dangerous because an individual may be impaired in a dangerous circumstance (e.g., driving when intoxicated), or because consumption may result in immediate and severe physical consequences (e.g., consuming alcohol despite having liver disease) (American Psychiatric Association, 2013). Participants who interpreted these items in line with the DSM 5 conceptualization of SUD most commonly referenced eating while driving or distracted driving due to preoccupation with food. For example, a female participant (age 45, severe FA stated), *"You make a last minute decision that you need something. So maybe you're not paying close attention and you cut someone off. Or you didn't look if someone was in your blind spot, because you're gonna change lanes because now you need to turn to go to Jimmy John's, or something like that."* Here, her preoccupation with food could have resulted in an accident, representing the dangerous use criterion. Alternatively, many participants interpreted these items correctly but did not have personal experience. For example, a male participant (age 39, mild FA) stated, *"I said never, because I hadn't been diagnosed with heart disease or diabetes. But I do understand that certain foods are dangerous, and I know that I'm probably veering towards some of those conditions if I don't change my ways pretty soon. So I only put "never" just because I don't have them right now but had you said, "If you were at risk for that," then I would say that's every day."* This clearly demonstrates the participants understanding that dangerous use is meant to reflect the immediate consequences of use, rather than the potential for physical harm later on.

Impairment/Distress. Across diagnostic categories in the DSM 5, symptoms of any disorder must result in significant impairment or distress to qualify as a clinically significant disorder. If an individual exhibits the symptoms of a disorder but does not experience negative consequences or emotional impairment as a result, they cannot be diagnosed (American Psychiatric Association, 2013). In the context of SUD, significant distress may be any negative emotional consequences resulting from substance use (e.g., guilt, shame, anxiety, depression) or impairment across social, occupational, or recreational domains. In the current study, participants cited both distress and impairment in response to their FA. For example, a male participant (age 32, severe FA) noted, “*It's like the pre, the before eating. It's this weighing in my head of, 'Do I eat it? Do I not eat it? Is it gonna really hurt me if I just have a little?' And then of course, if I eat a lot, then it turns into, 'Oh, I feel terrible. I feel terrible about myself. I'm just making my health worse. What did I do?'*” Here, the participant describes not only the distress he feels as a result of eating in an addictive way, but also the distress associated with making decisions to eat, thus interpreting these items in line with the DSM 5 conceptualization of SUD.

Responses Inconsistent with the DSM 5. Very few responses were coded as inconsistent with the DSM 5 criteria for SUD. Most inconsistent responses were tied to withdrawal and tolerance related items. Inconsistent responses outside of these symptoms did not result in coherent themes.

Withdrawal. Nine of the sixteen participants interpreted at least one item related to withdrawal in a manner that was inconsistent with the DSM 5 conceptualization of SUD. The majority of these inconsistencies were related to participants describing the tendency to eat to cope with negative emotions rather than the emergence of negative emotion in response to cutting back on highly palatable food. For example, a male participant (age 32, severe FA)

stated, *“The emotional thing is big for me. I definitely eat stuff to feel better”*. Another male participant (age 51, moderate FA) reflected more globally on this experience stating, *“I suppose that’s the problem with a lot of people who overeat. You stuff things into places so you don’t have to feel.”* Thus, participants described a general tendency to eat in response to negative affect rather than abstaining from highly palatable foods. Further, several participants recognized that they misinterpreted the withdrawal questions during the interview. For example, a female participant (age 30, moderate FA) stated, *“I interpreted it as if I was having emotional problems just in my life, not because I hadn’t eaten. I don’t think I have emotional problems from abstaining from food. Maybe, psychological ones... I don’t know, but I definitely eat foods to feel better if I’m sad about life circumstances.”* Additionally, a male participant (age 39, mild FA) said, *“I eat in response to negative emotions/to feel better, but the emotional experience isn’t coming from the food being gone.”*

Tolerance. Five participants interpreted questions related to tolerance in a manner inconsistent with the DSM 5 conceptualization of FA. Across these responses, participants described experiencing less pleasure because of the shame and guilt associated with eating additive foods. For example, in response to item 24, a female participant (age 46, 2 symptoms, - I/D) noted, *“Because of the guilt. When I was a kid, I ate those foods and I loved them. But when I got older I tried to be healthy. Super, super healthy. So I guess the enjoyment is less because of that conflict.”* Thus, the experience of eating the food is not necessarily less pleasurable because her body has adapted to eating a large amount of highly palatable foods, but rather because of the negative emotions she experiences as a consequence of her consumption.

Responses that were Difficult to Categorize. Some participant responses were difficult to categorize across symptoms. These responses clustered around four main themes.

Caffeine. Eight participants responded to items while considering the consumption of coffee or other caffeinated beverages. This is problematic because caffeine can cause physiological changes in the body similar to other addictive substances (Uddin et al., 2017), making it unclear if symptom endorsement was related to the consumption of the nutritional properties of the caffeinated beverages (e.g., sugar, cream). This was particularly common in the context of withdrawal. For example, a male participant (age 63, 4 symptoms, -I/D) stated, *“That’s a funny one... I know what I cut down on coffee I feel bad, but that doesn’t count because it’s not food. I almost consider it a food group though... But it had to do with the cookies that I have with my coffee. If I would go for a day or two, saying ‘I’m going to cut this out’ I end up buying more because I get it in my mind that I’ll feel better if I have one or two with my coffee.”* Similarly, a male participant (age 32, severe FA) stated, *“If I drink a lot of pop then I start to get a headache from not having pop. I might feel like I want a glass of pop too... It’s like if you drink pop and then you stop your body wants that sugar.”* Many participants also discussed coffee and other caffeinated beverages in response to items about craving and cutting down on highly processed foods. For example, a female participant (age 45, severe FA) stated, *“Mountain Dew. I’ve given it up several times and it creeps back into my life. That’s what I was thinking of specifically. I’ve tried to walk away several times”* and a male participant (age 51, moderate FA) stated, *“I definitely go out of my way to get soda. RC number one, followed by Coke. Pepsi if I absolutely must.”* As such, it was difficult to determine if the nutritional properties of the soda drove these symptoms rather than or in conjunction with the caffeine, making it difficult to determine if these responses were consistent with the DSM 5.

Unrelated Causes. Six participants recognized that factors outside of eating led to behaviors measured by the YFAS 2.0, making their responses difficult to interpret. Many of

these participants noted other physical conditions, such as obesity or diabetes, or medications which can cause physical sensations described on the scale. For example, in response to the YFAS item five, a male participant (age 51, moderate FA) stated, *“I wasn’t sure about that particular question. A lot of that goes with being obese. Sluggish and tired is part of the deal. Do I eat myself into food comas? No. But even if you eat a reasonable meal you can feel a little sluggish.”* Further, a female participant (age 25, 4 symptoms, -I/D) noted, *“I probably am sluggish because I’m tired from the day, and I’m on antidepressants and I know that those don’t fill me up with a lot of energy. So I just guessed that maybe once a week it’s because of the food”*. Others noticed generally feeling fatigued due to life circumstances and couldn’t determine if their eating caused their sluggishness. For example, a female participant (age 26, severe FA) stated, *“I feel like I’m always tired anyways...”* Thus, several factors made it difficult to determine if their eating behavior itself led to FA symptoms.

Hard to Answer Noted by the Participant. On several occasions, participants recognized when a question was hard to answer because their behaviors felt relevant to the experience of FA, but were not fully captured by items on the YFAS 2.0. For example, in response to item 28, a female participant (age 28, moderate FA) stated, *“That one was difficult to answer because I was like, ‘I don’t think I’ve reached that level of physical danger.’ But then again my doctor is also concerned about diabetes and I keep eating in the same way.”* Additionally, a male participant (age 32, severe FA) who endorsed regular eating binges noted that emotional withdrawal questions were difficult to respond to stating, *“This was difficult to answer because I feel like any day that is not a binge day is kind of like a cut down day, and I think the overwhelming emotion on those days is shame, like ‘Why did I do this binge eating the last time and all the time before that?’ It’s largely rooted in sadness. I wouldn’t say I’m irritable on those*

days. Maybe nervous...I'm definitely more nervous that I'm going to get on some other uncontrolled eating bend, but it's mostly sadness coming from shame and embarrassment and then nervousness that it will continue." After the structured interview, most participants denied confusion about any items on the scale. However, of those who did find items difficult to interpret, most were related to items concerning tolerance or withdrawal. For example, a male participant (age 51, moderate FA) stated, *"The one's that I felt required interpretation were the ones dealing with physically ill/physical symptoms."*

Inconsistent Foods. Five participants described behaviors consistent with FA but referenced foods that are not highly processed or highly palatable (e.g., fruits, vegetables). For example, in response to spending time eating throughout the day, a male participant (age 63, 4 symptoms, -I/D) stated, *"I pick and pick throughout the day. So, sometimes, just like in the car right now, I've got banana, apple and granola bar. And then at night, I might eat something really nasty for me. So it varies all over the place."* Given that FA posits that only certain, highly processed/palatable foods are capable of triggering an addictive response (Gearhardt et al., 2016), descriptions with minimally processed foods were difficult to interpret. However, the vast majority of responses did reflect the highly processed foods that are theorized to be addictive (e.g., pizza, chocolate, fast food), including responses from participants who made reference to eating minimally processed foods during the interview.

Common Experiences not Addressed by the YFAS 2.0

When asked if there were additional experiences related to FA that were not addressed by the scale, most participants reported that the scale was comprehensive and were unable to provide information above and beyond what they had already discussed in the interview. However, several identified unique experiences that are not addressed by the scale. Further,

throughout the interview many participants referenced common experiences that are not explicitly addressed on the scale but appear relevant to the lived experience of FA. The following themes emerged as constructs that may be relevant to FA but are not included on the YFAS 2.0.

Emotional Eating/Eating to Cope. Fourteen participants identified emotional eating or eating to cope with stress or negative emotions as central to their experience of FA. For example, a female participant, age 30 with moderate FA noted, *“I definitely eat foods to feel better if I’m sad about life circumstances”* and a female participant (age 30, severe FA) specifically noted that she has ‘feel-good foods’ (e.g., ice cream, chocolate) for when she is sad. Other participants explicitly described the use of food to cope. For example, a female participant (age 25, 4 symptoms, -I/D) stated, *“It’s my coping mechanism. It helps me be less distressed”* and another a female participant (age 53, severe FA) stated, *“The evening ice cream comforting thing is used as a coping mechanism.”* Some individuals specifically noted the absence of emotional eating on the scale. For example, a male participant (age 51, moderate FA) stated, *“A lot of people who are overweight are overweight because they’re emotional eaters. That’s not covered on this particular scale. But it’s an issue that’s hard to separate from the issues that are covered. So you feel the absence of those questions because you want to speak [about them].”* Interestingly, many participants who described emotional eating or eating to cope articulated that this was not always an effective coping mechanism. For example, a female participant (age 30, severe FA) stated, *“There have been times when I just feel so sad and I’m like, ‘Okay, well... ‘I’m just going to eat a lot of my favorite thing’ but that doesn’t really work... it kinda just makes you feel worse. I know it doesn’t work”* and participant 9 stated, *“If you’re having a stressful day, you eat. Sometimes it doesn’t work at all, but sometimes it does work.”*

Secretive Eating. Eight participants recognized that secretive eating, or hiding their eating behaviors from other people was relevant to their experience of FA. For example, a female participant (age 28, moderate FA) stated, *“I also try to hide it from the people. So that might involve eating my first plate of food with one group of people and then being like, ‘Oh, I’m just gonna go grab a couple more chips,’ which is me filling a plate. And then moving to a different group so that they don’t know I’ve already eaten a massive amount of this food.”* Further, a female participant (age 53, severe FA) described buying additional items at the grocery store so other people would not judge her, *“Ice cream. That’s all I wanted, but I bought other things just to kind of cover it up.”* Other participants described eating in isolation or late at night so family members or roommates would not notice their behaviors, or lied about consumption to others. For example, a female participant (age 26, severe FA) stated, *“When I was home for the holidays, my mom made a bunch of cookies and I ate almost all of them one night. The next morning she asked if I ate all of the cookies, and I lied and said I only had one or two.”*

Body Shape and Weight. Thirteen participants stated that weight gain was a significant consequence of their FA, and believed weight and shape concerns to be significant a source of distress. For example, a male participant (age 32, severe FA) stated, *“I struggle with my weight and my image and stuff so it really bothers me when I start to gain weight. It’s like I go off and on. I go back and forth and back and forth. The times when I’m overweight and my eating is really bad, I hate myself”* and a female participant (age 53, severe FA) stated, *“I’ve gotten so big. I’ve gained is much weight. I mean, it’s bad. And it’s just from that. Not being able to control it. Not having a sense of being able to say ‘Oh, I can have just one.”* In both cases, while participants recognized that weight gain was a significant consequence, they explicitly recognized it was because they were eating in an addictive way (e.g., not being able to control

how much they ate). Many weight related concerns were related to body image and the potential for social judgement. For example, a male participant (age 32, severe FA) noted, *“People tell me when I gain weight. That’s how I know it’s getting bad, when people start pointing it out,”* and a female participant (age 30, severe FA) said, *“My family would say stuff like, ‘You gotta slow down. You’re gonna gain weight.’ But I didn’t really listen.”* Additionally, a female participant (age 53, severe FA) stated, *“My daughter actually asked me to lose weight for her wedding. Not because she was judging me for it, but because she knew I wouldn’t want to be in any of the pictures at that weight.”* Additionally, another participant (female, age 45, severe FA) highlighted a perceived societal double standard: *“It’s very socially acceptable to consume food. Now, once you get so big, then it’s not socially acceptable. Now you’re morbidly obese and you’re disgusting, and you should be treated like you’re a fat slob and you’re lazy and you can control this. But we don’t do those things about people who have diabetes or cancer. It’s this really big social stigma once you get so big. But getting there, everybody’s like ‘Supersize it!’”* reflecting that people are often encouraged to eat highly palatable foods, but once they gain weight they begin to experience societal shame.

Weight-related distress was also discussed in relation to the physical consequences associated with weight gain and obesity. For example, a male participant (age 32, severe FA) stated, *“If I gain too much weight my knees start hurting and stuff. And fitting into clothes is horrible. It’s horrible outgrowing your clothing. I’ve gained so much weight I can’t fit into my clothes.”* Further, participants discussed obesity-related disease as a consequence of their addictive like eating. For example, a male participant (age 32, severe FA) stated, *“Just the health. It’s like I have to use a CPAP machine [...] and I have to take all these pills every morning for my blood pressure, and things like that. So ya, it’s just like an everyday reminder*

type of thing that it could just all be gone I guess, if I changed.” Thus, in addition to experiences of social stigma, weight gain was also problematic for physical health.

Subthemes. In addition to these main themes, several subthemes emerged.

Planned Binges. Six participants noted that while they did experience a loss of control over their eating behavior, they also engaged in planned binges. In other words, some participants consciously made the decision to eat an objectively large amount of highly palatable foods. A female participant (age 28, moderate FA) described the following experience, *“I decided that it was gonna be a lost day, and so I bought a bunch of food that I love. So a box of chocolate-chip cookie dough pop tarts, a loaf of cranberry walnut bread from Whole Foods, a stick of butter, honey buns, a chocolate bar. Gosh. What else did I get? And that time, it wasn’t like I ate more than I planned. I planned to eat everything.”* Other people described excessive eating experiences as a reward for eating healthier or for getting through the day. For example, a female participant (age 45, mild FA) stated, *“It’s like when you’re doing really good all week. Good about eating, focusing on specific goals. And then it’s like, ‘Now I’m gonna have the big binge cheat meal.’”* and a female participant (age 53, severe FA) stated, *“It was a planned pattern with the ice cream. It was at night, kind of like a comfort thing. Like, ‘I made it through the day and I’m gonna reward myself with this ice cream.’”* Thus, rather than experience a loss of control, several participants actively recognized their intention to eat in an addictive way.

Pre-loading. Six participants described the experience of eating in preparation for another meal or event where they anticipated consuming food. For example, a male participant (age 32, severe FA) noted, *“There were many times where, after work, I’d go to the store and get those foods. It used to be really bad when I’d be on my way home and, knowing I was on my way home for dinner, I would stop off for fast food and eat that on the way and then continue to eat my*

entire dinner at home.” Of the participants who describe this experience, most could not identify a reason for their behavior. For example, after describing her tendency to get fast food before going to events with food, a female participant (age 42, 11 symptoms, -I/D) stated, *“It’s so dumb! It’s like, ‘Why am I doing this?’”* However, other participants were able to identify their motivation behind this behavior. For example, a female participant (age 30, moderate FA) stated, *“There’s this fear that there won’t be enough food there, or that I might get hungry and so I should eat beforehand. Just anxiety that there won’t be enough food. Which is not something I grew up with so... I don’t know.”*

Food Waste/Clean Plate Club. Six participants described the need to finish the food in front of them while responding to items on the YFAS 2.0. This came up most often when responding to items related to loss of control, specifically item two. For example, a female participant (age 62, severe FA) stated, *“I eat it because it’s on my plate. I finish whatever is on my plate, whether I’m hungry or not.”* Additionally, a female participant (age 30, moderate FA) noted that this also occurs regardless of the type of food, *“I definitely feel like I do that with, even the healthy food. I just finish whatever food is in front of me.”* Some participants stated that they felt the need to “clean their plates” due to significant concerns about wasting food. For example, a female participant (age 42, 11 symptoms, -I/D) stated, *“I don’t waste food. I have a big issue with it. I can’t throw it away so I make someone finish it and it’s usually me. Even when I’m doing great [with eating], packing my lunch, low salting everything, there might be an event at work, and they’ll order pizza. At the end there’s always leftovers and someone will say, ‘Don’t let it go to waste!’ And as soon as you say those key words to me, I think it clues me in. So then I eat the pizza or I bring it home and eat it even though I’m not supposed to have it.”* A male participant (age 39, mild FA) was able to recognize that this fear of food waste stemmed from

concerns about the environment stating, *“I’ve gotten a little bit more conscientious about food waste and I don’t wanna waste. I know it sounds silly, but I do want to waste the food so I will finish the meal or another portion.”*

Concerns about Relevance

When asked if items on the scale felt irrelevant to the experience of FA, participants also did not readily identify behaviors or experiences on the scale that felt inappropriate to the concept of FA. However, two main themes concerning relevance still emerged.

Relevant but Not to Me. Thirteen participants articulated that although they personally did not endorse an item on the YFAS 2.0, they could easily understand how someone else with FA could. For example, a female participant (age 25, 4 symptoms, -I/D) stated, *“I think that even the questions that didn’t apply to my experience per se, like social consequences... I can totally see someone else in a similar position having those experiences.”* Similarly, another female participant (age 45, mild FA) noted, *“I think the ones that maybe weren’t relevant to me are still very important. They are probably relevant to someone.”* This pattern primarily arose in response to items related to social consequences and eating when it is physically dangerous. For example, a male participant (age 51, moderate FA) noted, *“Some of these questions are not ones I would have asked. Like, thinking about food so much I might hurt myself. That would have never occurred to me. But seeing the question, yeah, that could be a thing for people, so it’s probably good that it’s there.”* Similarly, a male participant (age 32, severe FA) stated, *“I don’t know that I feel like I’m maybe outcasted by the amount of food I eat... but I could see someone feeling that way.”* Furthermore, when consequences, social problems, or use in dangerous situations were endorsed, participants often described them as infrequent or much less distressing relative to symptoms like loss of control, the inability to cut down, or cravings. For example, a

female participant (age 45, severe FA) recognized that while her FA sometimes leads to arguments with her husband, this is “rare” and their arguments are “never very serious”.

“I’m not that bad”. Participants who did not endorse items on the scale often provided responses indicating that, while they believed they did eat in an addictive way, their FA was not severe enough to result in certain behaviors or consequences. For example, in response to items related to the inability to fulfil important role obligations, a female participant (age 46, 2 symptoms, - I/D) stated, *“I know I’m pretty bad compared to what I was before, but compared to other people, I don’t think I’m that bad.”* and a male participant (age 32, severe) simply stated, *“No. I’m not that bad.”* Similar to the theme described above, the theme of “I’m not that bad” clustered around the same symptom categories, including giving up important activities, interpersonal problems, and the inability to fulfill major role obligations.

Interestingly, not only did individuals with mild or moderate FA describe their addictive-like eating as “not that bad,” but individuals with severe FA also shared with sentiment. One participant (female, age 45, severe FA) compared this experience to individuals who do not recognize their problematic addictive drug or alcohol use as problematic or distressing stating, *“If you would have asked me, “Are you addicted to food?” I don’t know that I would recognize that I did have a food addiction, much like some people that are addicts don’t realize it’s an actual addiction... I think there’s maybe a disconnect in our brains, we’re not making the connection. Every day of your life you’re suffering. But you don’t... It’s like, ‘She’s the alcoholic, not me. Look at her, she’s 600 pounds. She’s got food addiction. I have control over mine.’ But clearly I’m still having issues with food.”* Others recognized that the general perception of addiction in popular culture may prevent people from recognizing their FA or lead them to believe that their consumption isn’t that bad. For example, a male participant (age 39, mild FA)

noted, *“I think of addiction as people that are... That really have a problem. That eat 50,000 calories a day or something like that. That's what I think of as addiction. But for me, it's a different type of thing... It's more of a poor relationship with certain kinds of food,”* suggesting that while he believed himself to have difficulty with food, he struggled to identify as addicted.

Other Considerations for the Validity of the YFAS 2.0

In addition to concerns about interpretation, related behaviors, and relevance, two additional themes emerged.

Overlapping Responses for Problems and Consequences. Over half of the participants responded to problem focused items across symptom categories in a very similar way. That is, rather than thinking of the consequences that may arise from FA as unique, separate experiences (i.e., interpersonal problems, difficulty fulfilling role obligations, or giving up important activities), most participants considered impairment or consequences more globally. For example, in response to item 20, a male participant (age 32, severe FA) stated, *“I put a zero for that one, 'cause like I said, avoiding work or school or stuff because of food, that's not something I ever experience really... or even the next one, avoiding social situations because people wouldn't approve of how much I ate. I don't think it's that bad.”* Further, a female participant (age 30, moderate FA) reflected, *“I don't think eating has ever gotten in the way of work. Maybe if I'm bored I'll distract myself by going and making tea or a snack or something. But that's pretty minimal. Same as in terms of spending time with family or friends. No”*, expressing that her FA had not interfered in any way. Overall, a male participant (age 51, moderate FA) summed up this pattern by simply stating, *“You gotta do what you gotta do.”* Generally, most participants felt that their eating behavior had either not interfered in any way or only interfered minimally across all of these areas.

Opposite Meaning. On many occasions, the lack of endorsement of items on the YFAS 2.0 may have actually been indicative of FA. This pattern emerged most often around three different symptoms; giving up important activities in order to eat, time spent obtaining, using or recovering from substance use, and interpersonal problems.

Important Activities Given Up. Eight participants failed to endorse items related to giving up important activities, but their interview responses suggested that their lack of endorsement was actually indicative of FA. For example, when reflecting on giving up important activities, rather than their lack of avoidance demonstrating normative eating patterns, many participants described the presence of highly palatable, addictive foods as their reason for attending many events. For example, a female participant (age 42, 11 symptoms, -I/D) stated, *“I don’t think I’ve avoided anything. Most of the time I would go to social functions at work because they have the foods. Like this morning, I volunteered for a breakfast function because I knew that I could eat all of the food once I was finished volunteering. They had bacon, and scrambled eggs, and toast, and orange juice. If that wasn’t available I wouldn’t have gone.”* Similarly, a female participant (age 63, severe FA) reflected, *“Maybe I need to change because I’m not afraid to go to work or social activities, or anything, because there’s food. I go because there’s actually food there that I like to eat that I don’t keep at home.”* Thus, many participants recognized that their desire for highly palatable foods was actually a motivational force to go to activities rather than avoid them.

Time Spent. Five participants recognized that spending more time focusing on food or eating may actually be indicative of healthy eating behaviors rather than FA because of how convenient and ubiquitous highly processed foods have are. For example, a male participant (age 39, mild FA) stated, *“I don’t spend a lot of time preparing food, and I think that’s part of the*

problem, because I think when you prepare stuff, any meal to make that's relatively healthy is gonna take some work, some finding certain recipes and getting the ingredients and stuff. For me, eating is really all about just convenience and quickness, how fast... That's why I end up eating a lot of pre-packaged, processed-type foods. So I don't spend a lot of time preparing food. And really, I wouldn't say I spend a lot of time eating, either. I tend to eat in bursts of time”, and another male participant (age 51, moderate FA) described his FA behaviors as “*a military strike sort of thing. Get in, get out, get on with your life*”, meaning he eats quickly before moving on with his day. Further, a female participant (age 30, moderate FA) described spreading out meals and snacks throughout the day as being an adaptive strategy to combat her FA, “*I probably eat five or six small meals per day. I make coffee and then eat breakfast pretty early, like oatmeal or yogurt. Then I'm pretty hungry by 10am and I have a snack. It kind of goes like that*”. As such, the act of spending prolonged time eating throughout the day may not always be maladaptive.

Interpersonal Problems. Finally, nine participants recognized that they did not experience interpersonal problems as a result of their FA because their friends and family also ate in an addictive way. For example, in response to item nine, a female participant (age 62, severe FA) stated, “*I have not had any problems with that. My friends are overweight too. I mean, birds of a feather... I just don't feel uncomfortable being there. I'm not gonna feel bad eating because everyone else is eating. You know?*” and another female participant (age 53, severe FA) noted, “*Me and my co-workers, we're all the same. We're in the same work group. When there's food at work, other people refer to us as the scavengers because we're vultures, just diving into this food. Without them, I might be embarrassed. But with my co-workers? No, not at all. It doesn't bother me at all.*” Other participants went so far as to discuss the broader cultural acceptance of food and eating in the United States as a reason for not endorsing these items. For example, a

female participant (age 45, mild FA) stated, *“As a culture, we swing towards food addiction, I would say. Compared to other cultures, that’s for sure. It’s not necessarily frowned upon.”*

Another female participant (age 45, severe FA) noted, *“I think I answered never to several of them. Because food has been so readily available and socially acceptable, it hasn’t interfered with my life or personal relationships.”* Thus, many participants recognized that the general acceptability and accessibility of highly palatable foods actually perpetuated their FA because social consequences were rare.

Discussion

Insights about the Validity of the YFAS 2.0

Overwhelmingly, participants interpreted items on the YFAS 2.0 in the manner compatible with the DSM 5 conceptualization of SUDs, suggesting that participants understand and engage with the scale as expected. Not only did participants describe the nuances of their experiences with each symptom in alignment with the DSM 5 conceptualization, participants also articulated their reasons for not endorsing symptoms. Thus, the scale does appear to demonstrate face validity in the context of qualitative analysis.

However, some responses were inconsistent, particularly in response to items about withdrawal and tolerance. This may be because, unlike loss of control or cravings, withdrawal and tolerance may be less familiar to the lay public, potentially leading to misinterpretation. To reduce misinterpretation, it may be helpful to modify withdrawal and tolerance items on the YFAS 2.0 to ensure users fully understand these clinical constructs. Additionally, withdrawal items coded as inconsistent were most often related to the tendency to eat when feeling negative emotions rather than experiencing negative emotions because of not eating highly palatable

foods. Thus, it may be helpful to explicitly tell participants not to consider emotional eating or eating to cope when responding to withdrawal-focused items.

Additionally, some participant responses were difficult to classify. This occurred for several reasons, most notably because participants referenced the consumption of caffeine or inconsistent foods (e.g., not highly processed or highly palatable, like fruits or vegetables), they identified that their behavior might be due to factors unrelated to FA (e.g., other health condition), or because they felt an item on the scale was simply difficult to answer. This may also represent a threat to the face validity of YFAS 2.0 as it may lead to endorsement that is not consistent with the DSM 5 conceptualization of FA. Unfortunately, even measures that demonstrate strong statistical validity and reliability can fall victim to misinterpretation because each individual ultimately arrives at their own unique understanding of the measure (Brodey et al., 2018). One potential remedy that may reduce misinterpretation or inappropriate item endorsement is the development of a structured or semi-structured clinical interview. Generally, research demonstrates convergence between clinical interviews and self-report measures (Luther et al., 2018; Stuart et al., 2014). However, the use of multiple assessment methods is recommended in research settings (Eid & Diener, 2006), and clinical interviews are often considered the “gold standard” of assessment in clinical research (Zimmerman, 2003). Most importantly, clinical interviews allow the interviewer to probe for information, which allows for better interpretation of vague or inconsistent responses (Craig, 2012), leading to more accurate diagnosis (Basco, 2003). In the case of responses that were difficult to code in the current study, skilled interviewers could probe more deeply to determine the presence of an FA symptom. For example, if an individual discusses non-processed foods when responding to an item, the interviewer could ask follow-up questions to determine if the behavior also occurs in relation to

the consumption of highly processed foods. Similarly, the development of a clinical interview may also help to alleviate misinterpretation of items that were coded as inconsistent with the DSM 5 conceptualization of FA (i.e., tolerance and withdrawal). For example, a trained interviewer can skillfully disentangle emotional withdrawal symptoms from eating to cope or emotional eating to ensure symptoms are (Boness et al., 2019) appropriately captured.

Problem-Focused Symptoms

Collectively, participants denied that any items on the scale felt inappropriate or unrelated to their experience of FA. However, several items were endorsed rarely or were described as “too severe” to be relevant to their personal experience, even for participants with severe FA. Overwhelmingly, this occurred in relation to items about the consequences of FA (i.e., interpersonal problems, giving up activities, and failure to fulfill role obligations). Of note, this was also a common response to items related to dangerous use (e.g., “I was so distracted by eating that I could have been hurt). Interestingly, this pattern also occurs in the context of traditional SUDs. For example, one study examining problematic alcohol use found that loss of control and the inability to cut down were the most commonly endorsed symptoms, while interpersonal problems, the inability to fulfill roll obligations, and giving up important activities were least endorsed (Lacroix & von Ranson, 2021; Lane & Sher, 2015). Based on these findings, it has been proposed that not all SUD criteria are equal in severity (Boness et al., 2019). Instead, each criterion may fall on a spectrum of severity. That is, endorsement of certain symptoms (i.e., interpersonal problems, failure to fulfil role obligations, and giving up activities) may represent more severe criteria relative to criteria like loss of control or the inability to cut down (Shmulewitz et al., 2011). Further, the DSM 5 explicitly states that across substances, certain symptoms are less salient, and in some cases do not apply to every substance (e.g., withdrawal in

the context of hallucinogen disorder; American Psychiatric Association, 2013). Thus, despite the emergence of themes such as “I’m not that bad” or “relevant but not to me” arising in the current study, these findings are in line with traditional SUDs. To our knowledge, no research has used item response theory in the context of FA to determine if certain criteria are more indicative of severe FA. Future research should use these methodologies to determine if endorsement of problem-focused items similarly reflect a more severe FA profile.

Further, many participants also recognized that specific life circumstances prevented them from experiencing consequences, which may have led to low levels of problem-focused symptom endorsement. In some cases, this was because participants did not have responsibility towards others (e.g., single, no dependents). In other cases, because friends and family also ate in an addictive way, interpersonal problems were unlikely to occur. These findings are parallel a recent qualitative study of opioid use, where participants felt that many of the symptoms of opioid use disorder were a product of contextual issues rather than their actual opioid use (Boyd et al., 2020). Similarly, many researchers have critiqued the current DSM 5 criteria for its overreliance on the consequences of use rather than the mechanisms driving it. For example, Martin, et al. (2014) described the DSM 5 criteria as problematic for several reasons. First, the consequences of substance use are culturally bound, suggesting that certain individuals may be more likely to experience consequences because of their lifestyle or environment. Second, personal factors (e.g., age, socioeconomic status, gender, race) can influence the likelihood of experiencing consequences. Finally, variables such as personality characteristics (e.g., impulsivity) or genetic differences often interact with substance use to result in consequences meaning two individuals with the same pattern of consumption may have vastly different consequences. Thus, failure to endorse problem-focused symptoms in the context of FA may be

more reflective of an individuals' life circumstance rather than a true indication of the severity of their disorder.

Problem-focused symptoms may be particularly challenging in the context of substance use that does not result in intoxication. For example, many studies demonstrate a low prevalence of failure to fulfill major role obligations in the context of tobacco use disorder, as smoking is legal and often permitted in social, occupational, and recreational environments (Shmulewitz et al., 2011). This has led researchers to call the current DSM 5 criteria for SUD into question in the context of tobacco, suggesting that problem-focused items may not increase predictive utility (Baker et al., 2012). This is also true of highly processed foods, which are not only legal but also often incorporated into social, occupational, and recreational environments. Overall, these criteria may simply be less relevant for non-intoxicating substances. In fact, the DSM 5 recognizes the rarity of these symptoms in the context of tobacco, and suggests that endorsement of items such as failure to fulfill role obligation and interpersonal problems may be indicative of a more severe disorder (American Psychiatric Association, 2013). Future research should use item response theory to determine if problem-focused symptoms do add to the predictive utility of diagnosing FA.

Novel Constructs Not Captured by the YFAS 2.0

Certain behaviors that are not included on the YFAS 2.0 such as emotional eating/eating to cope, secretive eating, pre-loading, and planned binges repeatedly came up as central to participant's experience of FA. Interestingly, many of these constructs are also strongly associated with traditional SUDs. For example, in the current study, participants described using food as a method to cope with uncomfortable emotions such as anxiety or boredom. It is well documented that people use drugs and alcohol to regulate their current emotional state, both to

induce a positive mood state and to alleviate negative moods (Berking et al., 2011; Kober, 2014). Negative urgency (e.g., tendency to act impulsively when experiencing negative emotions) and poor emotion regulation are also associated with elevated levels of binge drinking (Smith & Cyders, 2016). Further, in the current study, many participants described hiding their eating behaviors either by eating alone or attempting to disguise their consumption (e.g., hiding wrappers, moving between groups of people while eating). In the context of SUDs, hiding substance use from others is common and often a reaction to perceived stigma around substance use (Luoma et al., 2007). Hiding behaviors has also been included on measures of problematic substance use as an indicator of severity (Dennis et al., 2003). Finally, several participants described “pre-loading”, or eating food prior to activities where they knew food would be available. Intentionally consuming large quantities of a substance prior to other activities where the substance may be available has also been documented in the context of SUDs (Chaney et al., 2019; Cooke et al., 2016). These findings suggest that behaviors common to FA that are not measured on the YFAS 2.0 also overlap with traditional SUD.

Previous qualitative research has also uncovered behavioral and contextual factors that individuals feel are central to their lived experience of FA but are not captured by the YFAS or the YFAS 2.0 (Paterson et al., 2019). Thus, it has been proposed that the FA model does not accurately capture the lived experience of FA and alterations to the YFAS 2.0 are necessary (Paterson et al., 2019). However, it should be noted that while many behaviors and outcomes are known to be associated with problematic substance use (e.g., using to cope, secretive use), this does not mean they are considered relevant diagnostic criteria. For example, although using substances to cope, using in secret, and pre-loading are associated with problematic substance use, none of these constructs are currently used to diagnose SUD (American Psychological

Association, 2013). Instead, these factors are commonly recognized as severity indicators that may help to clarify an individual's clinical presentation. Further, because the YFAS 2.0 conceptualizes FA as a clinically significant SUD, altering the scale to include all relevant experiences would lower the validity of the overall construct, as it would subsequently lack convergence with current diagnostic standards for SUDs.

However, it is worth exploring if factors such as emotional eating, secrecy, and pre-loading do increase the predictive utility of not only FA but of all SUDs. Because quantitative research does demonstrate strong associations between these constructs and SUDs, and they also appear to be relevant in the context of FA, exploring emotional eating, secrecy, pre-loading, and planned binges across diagnoses may improve diagnostic sensitivity (Chaney et al., 2019; Dennis et al., 2003; Smith & Cyders, 2016). Future quantitative research should engage in analyses using item response theory to determine if the addition of these constructs would result in better predictive utility. If they do, it may warrant their inclusion as diagnostic indicators. In particular, we believe emotional eating or eating to cope with negative emotion may be an important construct to explore in the context of diagnostic utility. Specifically, unlike many other associated constructs and the currently recognized problem-focused criteria, emotional eating is a mechanistic variable driving consumption rather than a consequence of consumption (Verdejo-Garcia & Albein-Urios, 2021). As such, emotional use may be particularly important in conceptualizing the overall construct of FA, as well as emotion driven use in SUD more globally.

Relevance of Body Weight and Shape

Finally, the majority of participants repeatedly discussed body shape and weight concern as central to their experience of FA. Further, many reported body shape and weight concern as

the most important consequence leading to impairment or distress. In parallel, recent quantitative research demonstrated that body image concerns partially mediated the relationship between FA and eating-related psychosocial impairment (Paterson et al., 2019). High levels of body image concern in the context of FA has led to significant criticism about the construct. First, because distress and impairment as a result of weight gain may only be a product of societal stigma rather than addictive eating itself, and second because FA is too similar to well-established eating disorders (Meule, 2019). However, significant social stigma also exists against individuals who use traditional substances of abuse which in turn leads to distress and impairment (Kulesza, Larimer, & Rao, 2013; Yang et al., 2017). Further, despite the stigma associated with substance use, rates of SUD remain elevated, suggesting that negative experiences of stereotyping, status loss, and discrimination are not enough to persuade individuals to alter their consumption (Substance Abuse and Mental Health Services Administration [SAMHSA], 2014). We propose that the persistence of addictive eating in spite of social stigma may similarly support the construct of FA. In the current study, participants repeatedly described distress and impairment related to increasing body weight and body image concerns due to their FA. However, in spite of these experiences, participants were still unable to change their eating behaviors to avoid experiences of stigma and distress. From our perspective, this only serves to demonstrate the overwhelming power highly palatable foods have to drive compulsive consumption, even in the face of significant social consequences.

It is also important to note that weight gain not only resulted in distress and impairment in the context of social interactions and the potential for experiencing stigma, but participants also described weight gain as contributing to significant health consequences. For example, participants recognized their weight gain has resulted in elevated blood pressure, increased risk

for diabetes, elevated A1C levels, and decreases in physical performance. Thus, just as liver cirrhosis is a common consequence in alcohol use disorder (Buchanan & Sinclair, 2021), and lung cancer or emphysema are consequences of tobacco use disorder (McRobbie & Kwan, 2020), weight gain may represent the most common consequence in the context of FA, both psychologically and physically. Further, experiences of significant health consequences in the context of FA suggests that even if the social stigma surrounding body shape and weight were to change, weight related consequences in the context of FA would likely still occur, rendering the construct of FA valid.

Conclusion

Together, these findings indicate that, overwhelmingly, the YFAS 2.0 is interpreted in a manner consistent with the current clinical conceptualization of FA. Further, individual items on the scale appear appropriate and relevant to the lived experience of FA, supporting the face validity of the scale. However, it also underscores potential problems with the heightened focus on the consequences of addictive eating, given lower endorsement of problem-focused items and the tendency to think of consequences globally rather than separate concerns. Thus, future quantitative research should use item response theory to determine the predictive utility these symptoms, to determine if problem-focus symptoms should be collapsed into a single construct. Further, there were common experiences associated with FA that are not captured by items on the YFAS 2.0, like emotional eating and body shape and weight concerns. However, it is unclear if these experiences are best conceptualized as diagnostic indicators, or as severity indicators, risk factors or related phenomena. Future research should focus on determining how these factors should be conceptualized to aid in diagnosis and illuminating each individual's clinical picture. Finally, due to the qualitative nature of this study, it is critical to remember that results cannot be

generalized outside of the participants within the sample. However, the unique findings can provide insight for future quantitative research to determine if similar patterns emerge at the population level.

CHAPTER III

The Qualitative Examination of the Development of Food Addiction over the Lifespan

In addition to ensuring that measures of FA are accurately interpreted, qualitative research is also important for understanding the lived experience of FA and the development of FA over the lifespan. While quantitative methods allow researchers to identify the prevalence and correlates of FA at the population level during different developmental stages, the nuance of the lived experience and subjective understanding of the causes and consequences of FA may be lost (Arghode, 2012). Therefore, it is critical to use qualitative methods to uncover the rich details of the lived experience of FA during different developmental stages.

To our knowledge, all qualitative research on FA has been conducted using adult samples, and specifically focuses on the lived experience of FA in adulthood rather than across the lifespan. Thus, there are significant gaps in the literature concerning the lived experience of FA in both childhood and adolescence. It is critical to understand how FA may manifest and be experienced in childhood and adolescence as quantitative research demonstrates that FA symptoms are present in children and adolescence (Gearhardt et al., 2009; Laurent & Sibold, 2016), and these life stages critical to the development of addiction more broadly (Filgueiras et al., 2019; Laurent & Sibold, 2016).

Numerous quantitative studies have examined FA in childhood. The prevalence of FA in childhood ranges from 4-to-24% (Filgueiras et al., 2019; Laurent & Sibold, 2016), and is associated with many negative outcomes (e.g., elevated BMI, elevated appetitive responsiveness, increased consumption of highly palatable foods; Filgueiras et al., 2019; Gearhardt et al., 2013;

Laurent & Sibold, 2016). Additionally, emerging evidence suggests that withdrawal from highly palatable foods may begin as early as childhood. For example, The Highly Processed Food Withdrawal Scale for Children, which measures physical, affective, and cognitive withdrawal symptoms after restriction from highly processed foods, found the presence of withdrawal in children as young as 3-years-old (Parnarouskis et al., 2020). Additionally, one qualitative study interviewing parents about their children's eating behaviors discovered experiences of craving and negative affect, common withdrawal experiences, when their children did not have access to sugar-sweetened beverages (Sylvetsky et al., 2020). Overall, quantitative research demonstrates that eating behaviors as early as infancy tend to persist overtime (Gearhardt et al., 2009; Laurent & Sibold, 2016). Thus, if children demonstrate a drive for highly palatable foods early in life, this may promote addictive eating later in life.

Similarly, to our knowledge, no qualitative studies have examined FA in adolescence. However, it is well known that adolescence is a high risk period for substance use (Gray & Squeglia, 2018), and a high risk period for the development of obesity (Abarca-Gómez et al., 2017). Thus, understanding FA in adolescence is imperative. Numerous quantitative studies have examined FA in adolescence. Prevalence rates for FA vary by sample, with community samples demonstrating lower rates (2.6%; Meule et al., 2015) relative to clinical samples of adolescents seeking weight loss treatment (38%; Mies et al., 2017). FA in adolescence is associated with many negative outcomes including frequent food craving, elevated BMI, objective binge eating, and psychological consequences (e.g., depression, attentional and motor impulsivity; Mies et al., 2017; Schulte et al., 2018; Zhao et al., 2018). Further, some quantitative studies found that overweight and obesity in adolescence is associated with a higher likelihood of smoking

cigarettes later in life (Gearhardt et al., 2018; Lanza et al., 2015). Thus, FA in adolescence may even promote problematic behaviors outside of the context of food and eating.

Understanding the developmental process of FA is critical in that determining which symptoms emerge early in the lifespan may allow clinicians to identify warning signs and implement early intervention strategies to reduce the potential impact of addictive eating. Given that children are exposed to ultra-processed foods in the first years of life (Kay et al., 2018; Laitala et al., 2018), and there is evidence that very young children experience FA symptoms (Meule et al., 2015), understanding the developmental trajectory of FA will be important for informing early prevention interventions. Further, by exploring how individuals believe their early eating behaviors and food environments may have led to the development of FA, prevention efforts can be created and targeted towards individuals most at risk for developing the condition.

Unlike childhood and adolescence, several qualitative studies have been conducted about the lived experience of FA in adulthood. Many of these studies have inquired about the acceptance of FA as a condition and about what FA might look like if it does exist. For example, using cognitive interviewing techniques, Malika et al., (2015) found that the majority of participants believed that FA does exist and that it is characterized by uncontrolled food cravings. Further, most participants agreed that food cravings were less severe and more normative compared to FA, which was viewed as more compulsive and problematic (Malika et al., 2015).

Other qualitative studies asked participants if they personally believe they are addicted to food and what behaviors or experiences led to this belief. Of the participants who did feel addicted to food, psychological preoccupation with food, lack of control around food, frequent

cravings, reward driven eating, the consumption of larger and larger amounts of food, and the inability to stop eating all arose as common themes (Curtis & Davis, 2014; Ifland et al., 2015; Ruddock et al., 2015). However, some individuals exhibiting behavioral patterns similar to addictive-eating did not believe in the concept of FA, arguing that addictions are more severe and lead to more consequences than chronic overeating (Curtis & Davis, 2014).

Further, qualitative studies examining both self-perceived “food addicts” and in one case, individuals seeking treatment for FA, have uncovered themes related to the experience of SUDs more broadly. For example, themes related to the role of reward and emotion, social factors (e.g., parental modeling), and situational cues/triggers have all been identified as key factors in driving addictive eating (Lacroix et al., 2019; Paterson et al., 2019). Importantly, many of these factors are also central to the experience of SUD. For example, using alcohol to cope with negative emotions is well documented and associated with a greater likelihood of developing alcohol use disorder and greater consequences associated with alcohol consumption (Blevins et al., 2016; Creswell et al., 2014). Further, elevated reward sensitivity is highly correlated with problematic substance use and greater likelihood of dropping out of treatment for SUD (Boog et al., 2014; Urošević et al., 2015). Negative consequences, such as experiences of shame/secretcy and physical health consequences are also themes identified in prior qualitative FA research that parallel the consequences of SUDs (Ifland et al., 2009; Lacroix et al., 2019; Paterson et al., 2019; Ruddock et al., 2015). Thus, these results further demonstrate the overlap between the lived experience of FA and of SUDs that have already been established.

Finally, a limited number of research studies have used qualitative methods to explore which foods are perceived to be the most addictive. In all studies, participants emphasized that certain foods were most problematic, with one participant stating that while “all foods to which one

could be addicted could also be craved, not all foods that were craved were also potentially addictive” (Malika et al., 2015). Generally, self-identified food addicts and non-food addicts agreed that foods high in fat and sugar, or highly refined foods (e.g., pizza, chocolate) were the most addictive (Curtis & Davis, 2014; Ruddock et al., 2015).

Despite the existence of some qualitative research into the experience of FA in adulthood, the subjective understanding of many aspects of the condition remain unexamined. For example, no qualitative research has explored the role of dieting in the development of FA. Early psychological research emphasized restraint theory which proposed that dietary restraint has the potential to trigger binge eating episodes in order to compensate for prior caloric deprivation (Herman & Mack, 1975). Thus, dietary restraint counter intuitively can lead to overconsumption and binge eating behavior. However, more recent theories suggest that rather than causing binge eating behaviors, dietary restraint may actually be a response to an elevated hedonic drive (Lowe et al., 2013; Schulte et al., 2016). That is, individuals who find certain foods particularly rewarding may be inclined to overconsume pleasurable foods relative to individuals who do not find the same foods as rewarding. In order to reduce the impact of this excess food consumption driven by elevated reward response, hedonic eaters may then engage in dietary restraint to attempt avoid binge eating behaviors (Schulte et al., 2016). Quantitative research into food addiction does demonstrate that elevated scores on the YFAS are associated with increased weight cycling and the amount of time spent dieting (Flint et al., 2014). However, it remains unclear if dieting emerges prior to the development of food addiction, or in response to addictive-like eating behaviors. By determining how food addiction influences dieting and vice versa, treatment and prevention strategies can be more effectively tailored to reduce the negative impact of addictive eating.

To address these important gaps in the literature, in the current study we will explore the development of FA across the life span by asking participants to describe their early experiences of problematic eating behavior (i.e., addictive-like eating in childhood), the behaviors they noticed first and which ones developed later on, which symptoms are the most problematic/distressing, and how their FA has ebbed and flowed over time. Further, we will ask individuals to describe their history of dieting (e.g., type of dieting, perceived success) and their FA history to determine how addictive eating and dietary restraint interact. This information will be useful in developing treatment and prevention practices specifically targeted towards food addiction, and to guide future quantitative research.

Methods Aims 2 & 3

Participants

The same participants who participated in Aim 1 also participated in Aims 2 and 3. See Aim 1 Methods for demographic information and YFAS 2.0 scores.

Protocol Overview

The protocol for participant recruitment was the same as Aim 1. Ethical approval was obtained from the University of Michigan's Institutional Review Board. After completing the YFAS 2.0 and completing an interview about the scale, participants engaged in a semi-structured interview about the lived experience of FA. Afterwards, participants were debriefed, given the opportunity to ask questions, and offered a list of local resources for the treatment of disordered eating. All participants were compensated \$40 and thanked for their participation.

Qualitative YFAS 2.0 Interview. Interviews about the lived experience of FA were split up into five broad categories: 1) the development of FA over the lifespan, 2) dieting behaviors, 3) types of foods associated with FA, 4) the benefits of FA, and 5) treatment history and

preferences (see table 3 for a list of the specific interview questions). After allowing participants to answer pre-established questions, follow-up questions such as, “Can you tell me more about that?” and “Can you give me an example?” were used to gather additional details.

Following the open-ended questions about treatment, participants were provided with a list of potential interventions for the treatment of FA. Specifically, they received written definitions for CBT, Harm Reduction, and Abstinence (see table 4) and told how these interventions may be applied in the context of FA. Participants were encouraged to ask for more information about each intervention until they felt they understood each treatment. Next, participants were asked about their opinions of each treatment approach, and explicitly asked which approach would be the most helpful to treat their FA and which approach they would be most likely to engage in. Finally, participants were asked, “Is there anything else about your addictive-like eating or your eating-history that you would like me to know about?” to capture other important experiences related to addictive eating.

Data Analytic Plan

All interviews were audio-recorded and transcribed verbatim. Transcripts were uploaded into NVivo (QSR International Pty Ltd, 2020) for review and analysis. Thematic analysis was used as the method of qualitative analysis because it is theoretically flexible, allows for the emergence of detailed themes, and for analytical cohesion with Aim 1 (Braun & Clark, 2006). Similar to Aim 1, experiential and semantic orientations were employed while developing themes to center the subjective experience of the participant throughout analysis. Inductive analysis was used to generate themes, allowing patterns to emerge from participant responses rather than imposing pre-established themes.

Following the guidelines of Braun and Clark (2006), data analysis was conducted in three, recursive stages. First, the principle investigator read each transcript multiple times to enhance immersion and familiarity with the data. At this stage, initial thoughts and questions were recorded and relevant sections of text were highlighted. Next, the principle investigator coded each transcript in its entirety, allowing both manifest (surface level) patterns and latent (deep structure) patterns to emerge from participant responses. Throughout this process, codes were reviewed, altered, and combined to ensure consistency. The primary author also began identifying patterns across the entire dataset. Finally, candidate themes were identified and relevant sections of text were collated under each theme. Candidate themes were then reviewed to ensure they reflected participant responses, to determine if themes should be combined, and to determine if additional themes should be added.

Results

Overall, regardless of the age of onset, all participants felt their FA developed gradually over time, increasing in severity as they aged. Generally, participants described increasing symptoms over time, rather than categorical symptomatic changes over the course of their FA. In the current sample, the development of FA over time fell into three important developmental stages; 1) childhood, 2) adolescence and young adulthood, and 3) middle adulthood. Within each of these life stages, specific themes emerged concerning the lived experience of FA.

Childhood

Most participants did not believe that their FA was fully developed in childhood, either due to lack of severity or because the frequency of their FA behaviors was low. Across participants, only two believed they had fully developed FA in childhood. For example, one female (age 45, severe FA) felt that her FA had clearly developed prior to becoming a teenager,

stating “*Oh, boy, probably third grade, second grade, third grade. By the time I got to [elementary school], my mom was packing diet meals for us, for my sister and I. We both struggled with our weight, so, pretty young.*” However, even if they did not believe their FA was clinically relevant in childhood, most participants described common experiences which they felt contributed to the development of FA later in life. Further, many discussed childhood factors that may have prevented their FA from developing more quickly.

Food Choice Not in My Control. Across participants, most described parents or caregivers as being in charge of the foods they ate in childhood. Many participants believed this was a positive experience, and may have prevented their FA from developing earlier. For example, one participant (female, age 45, mild FA) described her childhood as having a “*Pretty good variety of different foods. My mom was a very good cook and enjoyed cooking, so we had a lot of home-cooked meals. So not a lot of... Not a lot of fast food and not a lot of processed, like throw-in-the-microwave kinda food, so. I had... Was pretty lucky in that aspect.*” Similarly, a male participant (age 39, mild FA) stated, “*When I was a little kid and somebody else was preparing my food for me. And my meals were a little bit more balanced. When I was younger, I would eat breakfast, lunch, and dinner, which would help avoid the crave.*”

However, other participants described the foods that were available in childhood as problematic, potentially contributing to the development of their FA. For example, a male participant (age 32, severe FA) stated, “*My dad used to like candy bars a lot, he would go to the store and he would steal candy bars, and he would steal a whole half of a... He would never steal one candy bar, he would steal 20 candy bars. Always had chips. So as a kid, that stuff was always around. So of course I liked it.*” Similarly, several participants described very large portions of food at meal time, which they felt may have contributed to FA later in life. For

example, one male participant (age 32, severe FA) stated, *“Like I said, it always kind of reminds me of just how portions were really a big deal, but then even just the types of food growing up, it was usually processed, something in a box, or something from fast food or whatever. And I’ve actually confronted my parents about it. And of course their response is, “Well, you were hungry.”* Similarly, a female participant (age 45, severe FA) stated, *“It was like she (her mother) put our food on our plate and you had to eat everything on your plate, so the portion sizes were... There was a disconnect from what a child should be eating to adult portion sizes. So, looking back and reflecting, that’s probably how it started, with portion control and a lack thereof.”* Thus, while some participants felt that being dependent on their caregivers was a positive experience that may have hindered the development of FA, others believed their access to highly palatable foods in childhood contributed to future addictive eating.

Scarcity. Half of the participants described experiences of food insecurity in childhood, which they felt contributed to the development of FA later in life. For example, a female participant (age 42, 11 symptoms, -I/D) stated, *“When I was a kid, there was definitely... We didn’t eat for a couple days in a row and my mother didn’t keep food in the house and we went... I think the longest was three days without any food at all. That became a huge issue with I think a lot of the way I do stuff, I don’t throw food away because of that scarcity, not having enough food, it became very odd for me.”* Similarly, a female participant (age 26, severe FA) stated, *“We ate less ‘cause we had less, if that makes any sense. So it was a little bit different in what we would eat, like cheaper things, like stuff that we can get for a couple of dollars. I knew that it has to be stretched throughout the family. So dinner that was a bit like, if you don’t eat that then, there’s no other option really.”* Further, a male participant (age 63, 4 symptoms, -I/D) reflected, *“We were a family that struggled but always had a meal in front of us, and so our meals were typically,*

there wasn't enough to have second helpings. We didn't have a lot of additional things, like I said, we didn't have sodas and candy and stuff like that, because in a lot of cases, we couldn't afford it.” Although some participants directly connected the development of their FA to these experiences, others simply described experiences of scarcity in childhood without considering how it may have contributed.

Drive for Food. Many participants described a strong desire for highly palatable foods during childhood. For example, one participant (female, age 45, severe FA) recalled, *“So that's, what, eight, nine years old? I remember walking to the store when we would get money, and getting candies and cookies and cupcakes, and then hiding the wrappers in the bathroom, wrapping it up in toilet paper because mom said we couldn't have these things.”* Similarly, a female participant (age 25, 4 symptoms, -I/D) described the following experience, *“I wanna say this is embarrassing but also I was like 10 or 11, so it's not that embarrassing anymore. [laughter] But I remember that I would try to sneak sweets all the time, and one of the things I did was I got a can of cherry pie filling, which is extremely sweet, and I hid it in my room and ate it with a spoon. And I think I ate the whole thing in two sittings, and I realized at the time, too, "This is a lot" but also "Holy crap, that's good.”* Across these participants, while they recognized a strong drive for food in childhood, most did not believe they had clinically significant FA at the time.

Adolescence and Young Adulthood

Seven participants described their FA as emerging during late adolescence or early adulthood. In particular, late high school and the beginning of college were often identified as the period of onset. For example, one male participant (age 39, mild FA) stated, *“I would say I probably first became uncomfortable with my eating habits probably when I got to college, like a lot of kids do... But yeah, I would say, it started when I was about 18 or so, that's when I first*

started to think about it.” Similarly, a female participant (age 62, severe FA) stated, *“It was when I started college. And I know there was this thing about the freshman five or whatever.”*

Within the context of adolescence and young adulthood, three distinct themes emerged concerning the lived experience of FA; 1) increasing autonomy, 2) college life, and 3) weight gain.

Increasing Autonomy. Several participants described increasing levels of independence as directly related to the onset of their FA. Specifically, participants described making money and the ability to drive as important factors allowing them to engage in addictive eating. For example, a female participant (age 30, severe FA) stated, *“It has to be teenage years, stuff like that. So getting more allowance or getting money was more... Yeah, just getting money and so you buy like a lot of kids buy, snacks and junk and stuff like that.”* Similarly, a male (age 32, severe FA) participant described *“I feel like it was maybe my junior year of high school, I guess that was the time when I really think about when I had open campus lunch. So of course I could just go get anything I wanted whenever, whenever lunch was. But then also at the same time, since I was driving to and from school, I could stop anywhere I wanted. So it was kind of like, you didn't have to ask anybody, you didn't have to ask an adult like, “Can I get this?”, or nobody to really control you or anything like that.”* Other participants described having to prepare meals on their own as a contributor to their FA. For example, a male participant (age 32, severe FA) stated, *“I would say probably as I got to an adult and started making my own food and eating for myself, preparing my own food, so maybe around 19-20, up in there somewhere. It's gaining the control of what I eat by myself. Not as much home cooking. So coming from home there's a lot of dinners and home cooking, but then when I transitioned to by myself, it was more pizza, fast food, or even stuff that you cook in the house. It's probably stuff that was just real quick like*

chicken tenders and French fries and stuff like that.” Thus, gaining independence appeared to be an important factor for the development of FA for many participants.

College. College was important to the development of FA for many participants. The specific foods available in college, paired with the stress of courses and exams, appeared to be particularly important contributing factors. For example, one male participant (age 39, mild FA) recalled, *“I just remember, a lot of the dorm food was so... I don't think any college student, unless, you're probably a really high functioning athlete, does particularly well in the eating and drinking department. I started to notice the cafeteria food. I was very particular about what I ate, and I started to realize, a lot of the foods are really by necessity, because they have to feed so many people, really starchy, really heavy type foods that they can make in bulk”*. Similarly, a female participant (age 30, severe FA) described the onset of her FA in college stating, *“Just eating whatever. It was into my first year of college and stuff like that so yeah. So we had a whole lot of convenient foods or microwaveable foods and stuff like that so...“Freshman 15” is real.*” One participant (female, age 62, severe) described the convenience of cafeteria food as directly contributing to her addictive eating stating, *“‘Cause I'm working and going to school, and I don't have time to cook. So I got off of it (a diet) and started eating the food in the cafeteria, which smelled good and was quick and easy, and my homework books were there. So I saw that as a problem... So I didn't graduate with a lot of loans, but I graduated, I think with an eating habit.”* Thus, the availability of highly palatable foods in college appeared to be an important factor in the development of FA for these participants.

Weight Gain. Overall, weight gain was reported as the most common first sign of FA across participants. In particular, weight gain in late adolescence and early adulthood was described as the onset of FA for many participants. For example, a female participant (age 62, severe FA)

recalled, *“I think maybe my second or third year in college, I started gaining weight, and I'm like, "Wow, I need to really change this". And I think that was my first diet I went on too.”*

Similarly, a female participant (age 30, severe FA) described weight gain in young adulthood as the onset of her FA stating, *“I would say that [it started] when I was about 20. That was when I was my heaviest so...”* Interestingly, some participants also described increasing pressure to be attractive in later adolescence as adding to their concerns about weight gain. For example, a male participant (age 32, severe FA) stated, *“I think that was more towards like my senior year in high school. 'Cause at that point, I'd always kinda been heavier than maybe I wanted to be. And at that point, I wasn't working out that much. And then I was going to play football in college and then I was way more like, "I need to do these certain things to get in better shape, like drop weight, add good weight." So definitely being way more aware of it at that point. And then just like anyone else, getting to be an older teenager when you want to look as good as you can.”*

Thus, it appears that late adolescence and early adulthood may be particularly important periods for the development of weight-related consequences.

Adulthood

Seven participants felt that their FA developed during middle adulthood. However, regardless of the onset of their FA, all participants described adulthood as a time when FA addiction symptoms were very pronounced, leading to the highest levels of distress and impairment. Two major themes emerged concerning the experience of FA in adulthood: 1) the worst period and 2) increasing responsibility.

Worst Period. Multiple participants described adulthood, and in many cases their current age, as the worst period of their FA. For example, a female participant (age 62, severe FA) stated, *“This last year it's just been incredible how I've just been eating. And yeah, it feels good. It's hard to*

quit something that makes you feel good. And I think within this last year, I've gained quite a bit of weight within the last year. I've been eating more through the day.” Similarly, another female participant (age 26, severe FA) reported, *“It was probably most severe last year during the two months where I was just eating crappy, where it was just like, “I know what I'm doing is bad. I know that my weight is out of control.” It's never been as high as it has been recently. And I know it's bad for me, I know diabetes runs in my family, I know hypertension runs in my family. I know I've been at risk for these things, like borderline (risk), but I didn't care, and I was gonna eat it anyway 'cause that's what I wanted.”* Interestingly, many participants recognized that their eating was problematic but opted to engage in FA behaviors anyway. For example, another female participant (age 53, severe FA) reported her most severe period as, *“Probably two years ago where I... Since I was making so many trips to the store during the week to get more ice cream I'm like, “This is stupid, just buy two cartons. Instead of buying a 12 pack, buy a case of beer. Less trips to the store.” And because I was by myself, just eat whatever. And I literally was, and not really thinking about it, just knowing that it's not... Physically, emotionally, it's not helping me, but I don't really care right now.”* Thus, adulthood appeared to be the most severe period of FA for most participants.

Increasing Responsibilities. Several participants described increasing responsibilities at home and at work as contributing to the severity of their FA in adulthood. For example, one female participant (age 46, 2 symptoms, -I/D) described her current situation, stating *““Oh great” and then we have a kid, and then you have all the financial obligation, and your married life is maybe sometimes it's not as good as you think. So all together, so when sometimes it's like, oh something like a big deadline or when I argue a lot with my husband for example you just wanna eat something.”* Similarly, another female participant (age 42, 11 symptoms, -I/D) described the

onset of her FA after becoming a parent stating, *“I have gained probably 40-50 pounds since my kids... When my kids were younger I was chunkier, but I was 60 pounds lighter than I am now. What happened was when my kids started getting into sports, I had three kids in high school at the same time... And they were all doing sports. I mean, all of them. So I'd run, and we'd eat on the road. Because of my routine. I didn't have time to cook. And then when you eat like that, then you're tired. So I don't wanna get up and cook.”* Thus, increasing responsibilities in adulthood were consistently described as important factors contributing to the severity of FA.

Non-Developmental Themes

In addition to themes emerging within a developmental context, three major themes emerged about the lived experience of FA: 1) Highly processed/highly palatable foods, 2) comparison to other addictions, and 3) dieting.

Specific Foods Are Addictive. Most participants referenced highly palatable foods as being the most problematic. However, across participants, preferences arose about the specific types of processed foods which they struggled with most. Further, a small number of participants described struggling with less palatable foods, such as vegetables and fruits.

Highly Processed and Highly Palatable Foods. Overwhelmingly, participants identified highly processed, highly palatable foods as the most addictive foods. For example a female participant (age 28, moderate FA) stated, *“Pop-tarts, the honey buns, the bread and butter, when I'm confronted with those foods, if someone else has them at a party, or as a snack, or if I see them in the vending machine and I'm like, "I have to steer clear of this or else I will not stop." So it's like an all-or-nothing sort of response to those foods.”* Similarly, a male participant (age 39, mild FA) explained, *“In many ways, I still eat like I'm a seven-year-old. I'm eating chicken fingers and pizza and stuff like that. I feel silly. I don't... I know I need... Especially with my*

drinking habits, I need to drink a lot more water, I drink far too many sugary drinks.”

Interestingly, most participants described having specific types of foods they preferred rather than struggling with all highly palatable foods. For example, when asked which foods he does not struggle with, a male participant (age 32, severe FA) replied, *“Pretty much most desserts. Like I just... That doesn't matter much to me. No. Yeah, more like the saltier, savory. And never like the sweet things.”* Similarly, a female participant (age 42, 11 symptoms, -I/D) stated, *“I don't like sweets. I'm heavy, and a lot of people assume I eat a lot of sweets. And I don't like donuts. I don't like any kind of sweets at all. I hate cake. But I like those kind of foods (pointing to salty and savory foods).”* Thus, while participants did most often struggle with highly palatable foods, most identified specific types (e.g., fatty, sweet, salty) of highly palatable foods that they struggled with the most.

Any food. Other participants felt that they ate almost all foods in an addictive manner. For example, many stated that they felt compelled to eat large portions of any food, or felt compelled to finish their plates even when the food was not highly processed. However, in most cases, these participants did feel that even though they preferred larger portions of all foods, they did not feel a strong drive to consume less processed or less palatable foods in the same way they craved sweets, fats, or carbohydrates. For example, a female participant (age 26, severe FA) stated, *“There are definitely foods I don't crave when I'm bingeing but since this has all started, I definitely like bigger portions of everything. So even a salad. I will just eat a massive salad, and I am okay with that because it's... I have counted the calories in it, and it's like 250 calories in this massive salad that I'm eating. And I'm like, this is okay, but it is a huge salad to have that many calories from spinach and lettuce.”* However, when asked if she would go out of her way to get these foods, she quickly replied, *“No, no.”* Similarly, a male participant (age 51, mild FA)

stated, *“Now, these all have their very special appeals. I'm sure there are people out there who get addicted to various vegetative products. It seems a shame, to leave it off the list. I'm not one of them. I enjoy a good vegetable I don't have addictive feelings towards them.”* Overall, participants discussed non-processed, less palatable foods in the context of eating a large amount or being unable to stop eating. For example, a female participant (age 26, severe FA) stated, *“Yeah. But even my vegetables, I think I overdo. I don't even know...”* while another participant (female, age 30, moderate FA) stated, *“'Cause there's also the part of it too, that I'm like, “Oh, well, it's a bunch of vegetables. I can eat as many as I want.” Which maybe not... Isn't a bad thing, necessarily. But yeah, that's more of like 'cause it's there, I'm gonna keep having it.”*

Comparison to Other Addictions. Many participants considered FA within the context of other SUDs, both by drawing comparisons and making distinctions between the conditions. Overall, four different themes emerged concerning the comparison of FA to other addictions.

Not Really Different. Most participants felt that FA was not characteristically different from other forms of addiction. For example, one female participant (age 30 severe FA) stated, *“I think addiction is addiction. And they all are... Could be harmful.”* Other participants reflected on the tendency not to recognize addictive behaviors across different SUDs. For example, a female participant (age 46, severe FA) reflected, *“If you would have asked me, “Are you addicted to food?” I don't know that I would recognize that I did have a food addiction, much like some people that are addicts to anything don't realize it's an actual addiction, or... Not correlating these relationships with food, I think there's maybe a disconnect in our brains, we're not making the connections all the way.”* Interestingly, one participant (age 53, severe FA) who was sober from alcohol for several years discussed the similarities between her FA and her alcohol use disorder. Specifically, she stated, *“I think that it was similar to the drinking 'cause I didn't...*

Drinking never impacted my life. I never got in trouble with the law. I never lost a job, never lost friends or family because of it. But it definitely was a huge part of my life and I would spend all non-working hours drinking. I would make arrangements for my daughter's after school activities to be the one to take, so I could go on and drink and another parent would be picking them up, 'cause I wouldn't drink and drive. So I feel like the eating took that place." Thus, many participants did not feel FA was qualitatively different from other forms of addiction.

You Have to Eat. The most common difference between FA and other addictions reported by participants was, unlike other substances of abuse, you must eat to survive. For example, a male participant (age 63, 4 symptoms, -I/D) *"You have to eat to survive. So, in that context, I guess I could say everyone is addicted to food because it's something that you need to survive. However, not everyone has got certain types of things that they just crave and want, and will go out of their way to get."* Another participant (male, 32, severe) described this as a hindrance to recovery stating, *"I feel like with the idea you have to eat to survive. So it's almost like something like you just have to do, no matter how badly you want to eat it or want to eat certain things."* Thus, participants recognized that complete abstinence is not possible like other substances.

Less Visible. When considering FA in the context of other SUDs, some participants felt that FA, relative to other addictions, was less detectable by others. For example, a male participant (age 32, severe) reflected, *"I feel like it's a lot harder to detect, especially with other people. Unless if I were to see their physical changes are much greater than what they usually are, but yeah, that's definitely the thing I've started to recognize, is like I can't... I don't know, I can't rely on anybody to just look at me and go, "Oh, I think you have a problem." Do you know what I mean?"* Similarly, a female participant (age 28, moderate FA) specifically identified the lack of intoxication as making FA less detectable stating, *"I think it's easier to hide food*

addiction because you are typically not mentally altered when you're having a binge day beyond you're making poor choices. But I don't have pinpoint pupils. I am not sweating profusely.”

Thus, because FA does not lead to intoxication or visible withdrawal symptoms, many participants felt that it was easier to conceal their FA.

Less Harmful/Severe. Finally, several participants viewed FA as less harmful relative to other addictions. Like the theme above, this was often described when participants reflected on the fact that the consumption of highly processed foods does not lead to intoxication. For example, a male participant (age 63, 4 symptoms, - I/D) stated, *“I don't think it differs at all with the exception that, like for instance, alcohol and drug addiction can be detrimental and dangerous to other people around you if you decide to get into a vehicle which is then you are weaponizing yourself and you're gonna go injure someone else. If it's a food addiction, I don't see how that is as dangerous to other people.”* And a female participant (age 25, 4 symptoms, - I/D) stated, *“I think food addiction, it seems less harmful, and directly less harmful than for example drinking and driving or something like that.”* Other participants specifically felt that because FA is viewed as less harmful, there is also considerably less stigma surrounding the condition relative to other addictions. For example, a female participant (age 28, moderate FA) stated, *“I think there's stigma around every type of addiction. I'm not really sure how you can quantify the stigma around food addiction compared to illegal substances. I do think in our society overeating is really looked down on and stigmatized especially for women. But I don't think it reaches the same level as cocaine is looked down on. Because it's not illegal. I think it was that food addiction there's definitely a stigma about overeating here that doesn't exist in other societies. But it's not as high as the stigma of using drugs, getting out of control with alcohol, gambling, whatever it may be.”* Similarly, a male participant (age 32, severe) stated, *“I*

guess it was never really deemed as, as a taboo thing or bad thing, or whatever, like eating. So it's like there's not all these anti-eating ads on TV type of thing.”

Dieting. All but one participant described engaging in dieting behavior over the course of their life. Overwhelmingly, participants described their dieting as a response to addictive eating. For example, a female participant (age 30, severe FA) stated, *“I'd say addictive eating (came first), that's why I wanted to diet.”* and another female participant (age 30, moderate FA) stated, *“I think the addictive eating definitely started first.”* Interestingly, some participants described the experience of eating addictively without specifically identifying that they had a problem. For example, one female participant (age 45, mild FA) *“I think probably, without really recognizing it, would be the addictive-type eating, where I was just overeating in general, 'cause I know that that was there much longer than any dietary restriction kinda things.”* Of note, not all participants felt that their dieting behavior followed the onset of their FA. For example, one female participant (age 28, moderate FA) who developed binge eating behavior after a period of dieting stated, *“The dieting started first. That was kind of like the starting point for everything.”* Still other participants felt that their FA was completely unrelated to dieting behaviors. For example, a female participant (age 53, severe FA) explained, *“I don't think [dieting] played in at all. I think it was the conversion from alcohol to sugar to overeating and getting out of control. I don't think that dieting played any impact.”* Thus, dieting appeared to have different impacts on addictive eating across participants. However, dieting was most commonly cited as a response to control addictive eating.

Discussion

Overall, themes about the lived experience of FA emerged across several critical life stages, specifically childhood, adolescence and young adulthood, and adulthood. Although many

individuals recognized important aspects of their childhood (e.g., parenting practices, a strong desire for highly palatable foods, food scarcity) as contributing to the development of their condition, most felt their FA was not fully developed until young or middle adulthood. Further, most participants felt their FA was most severe in adulthood, many citing weight gain as an important indicator of the severity of their condition. Finally, participants discussed several non-developmental themes, including the most problematic foods (e.g., highly palatable foods, personal preference), comparing FA to other forms of addiction, and the role of dieting in their experience of FA.

Childhood

All participants felt that their FA was heavily influenced by eating behaviors in childhood. Specifically, parental control over food choices, food scarcity, and a strong desire for food in childhood were viewed as critical to the development of FA. Altogether, very few participants felt that they had not reached clinically significant FA in childhood. It was not entirely clear why participants felt this way despite displaying signs of FA (e.g., loss of control eating, cravings) at a relatively young age. However, because parents are largely in control of their children's diets, even if participants had a strong desire for highly palatable foods at a young age, it may have been difficult to regularly consume them to excess. Additionally, the consequences and problems associated with FA may be less likely to emerge in childhood because most children have few demanding responsibilities (Schiestl & Gearhardt, 2018). Finally, many participants did not gain weight as a consequence of their FA until adolescence or later potentially preventing them from recognizing the condition during childhood.

Within the context of childhood, participants had mixed feelings about lacking control over their food choices. Many participants felt that the home food environment and their parents'

food choices were helpful, because their diets were balanced and incorporated healthier, unprocessed foods. Further, the highly processed foods, which participants felt were most addictive, were not readily available. On the other hand, some participants were overexposed to highly palatable foods at a very young age, which they felt contributed to their FA later in life. These findings merge with quantitative research on parental modeling and the family food environment (Carlisle et al., 2012). Specifically, research shows that parental eating patterns are associated with child eating patterns in both beneficial and detrimental ways (Campbell et al., 2006; Kral & Rauh, 2010). For example, a recent study found that healthy food in the home was associated with greater fruit and vegetable intake and lower consumption of soda and highly palatable snack foods (Loth et al., 2016). Further, maternal binge eating behaviors are associated with child loss of control eating and children eating in the absence of hunger (Zocca et al., 2011). Additionally, children with more FA symptoms have parents with elevated FA symptoms (Burrows et al., 2017). Thus, parental feeding and eating appear to be strongly associated with child eating behaviors. The influence of parental behaviors on child consumption has also been examined in the context of addiction. For example, parental binge drinking during childhood has been found to predict the onset of alcohol use in adolescence (Rusby et al., 2018). Further, parental supply of alcohol has been found to predict risky drinking in youth (Sharmin et al., 2017).

It is also important to note that while environmental and parenting influences are highly correlated with elevated risk for disordered eating and substance use later in life, these results are also confounded with genetic risk (Kendler et al., 2003). However, quantitative twin studies reveal that in context of SUDs, environmental factors still explain significant variance in the later development of the disorder, suggesting that the interaction of environmental factors with

genetic risk predicts the development of SUDs over and above genetic risk alone (Richmond-Rakerd et al., 2016). Similarly, in the context of BED, environmental factors in conjunction with genetic risk better predicted BED liability over and above genetic contributions alone (Mitchell et al., 2010). Future quantitative research should explore the influence of parenting practices and the presence of highly palatable foods in the home on the subsequent development of FA. Given the perceived impact of the childhood food environment and parental feeding practices on the development of FA in the current study, in conjunction with previous quantitative research on eating and substance use, the childhood food environment may be an especially important target for the prevention of FA and may inform FA interventions. By reducing access to highly palatable foods in childhood, risk for the development of FA may be lowered. However, while parenting practices may be important in the development of FA later in the lifespan, at present it is difficult to disentangle environmental risk from genetic risk. As such, it will also be important for future quantitative research to explore genetic risk related to the development of FA to determine if environmental and parenting practices predict addictive eating over and above genetic risk alone.

Additionally, many participants felt that food scarcity in childhood directly contributed to their FA in adulthood. For example, participants described feeling continued pressure to eat compulsively in adulthood because this behavior was conditioned in childhood when food was scarce. This theme converges with recent research on associations between food insecurity and obesity and binge eating behavior (Rasmusson et al., 2019). For example, a recent study found that, relative to food secure adolescents, food insecure adolescents were more likely to be overweight and to use unhealthy weight control methods (Hooper et al., 2020). Further, another study found that individuals who experienced childhood food neglect were more likely to

develop BED later in life compared to individuals who did not (Coffino et al., 2020).

Additionally, another study found that children in food insecure households were more likely to have an elevated BMI and greater desire to drink sugary beverages (Oberle et al., 2019; Van den Berg et al., 2011). To our knowledge, no quantitative studies have explicitly examined the association between food insecurity and FA. This is a critical future direction given the responses of individuals in the current study, in conjunction with quantitative support for associations between food insecurity, obesity, and binge eating in childhood. If a positive association is found, this may help to inform public policy surrounding access to healthy, less processed foods potentially reducing the risk of developing FA later in life.

Finally, in the current sample, an elevated drive for highly processed foods during childhood was a common. Specifically, participants experienced strong desires for sweets, savory snacks, and junk food beginning at a young age. This theme converges with quantitative research demonstrating that high reward drive and elevated reward sensitivity are strongly associated with elevated BMI and maladaptive eating behaviors in children (De Decker et al., 2016; Van den Berg et al., 2011; Verbeken et al., 2012). For example, one study found that among children with obesity, reward sensitivity positively predicted external eating behaviors (e.g., eating in response to food cues; Vervoort et al., 2020). Another found that reward responsiveness was significantly, positively associated with elevated BMI (Van den Berg et al., 2011). Further, one study found that elevated reward responsiveness was associated with maladaptive eating behaviors including emotional eating, external eating, and dietary restraint (Matton et al., 2013), suggesting that reward sensitivity has broader impacts on eating behavior outside of weight gain alone. As such, participant responses in conjunction with quantitative research, suggest that elevated desire for highly palatable foods at a young age may place

individuals at a greater risk for FA. Future research should employ longitudinal methods to determine if this theory is supported. If elevated reward drive in childhood is associated with future FA, interventions can explicitly target children with heightened reward drive to prevent the later development of addictive eating.

Adolescence and Young Adulthood

Many participants described the emergence of FA in adolescence and young adulthood. These responses align with research on traditional SUDs, which demonstrates that adolescence and young adulthood are a periods of heightened risk for the development of SUDs (Gray & Squeglia, 2018). Further, adolescence and young adulthood are also periods of elevated risk for obesity (Abarca-Gómez et al., 2017). This is thought to in part be driven by changes in the neurobiological reward system, impacting impulsivity and reward responsiveness (Volkow et al., 2008). However, there are many social and interpersonal factors that also influence substance use in adolescence and young adulthood, many of which were described by participants in the current study in relation to their FA.

Specifically, autonomy over food choice and increasing independence was thought to contribute to the development of FA by many participants. For example, participants reported that increased access to personal money, and greater ability to make food choices may have increased FA behaviors. Overall, it is known that parental involvement in adolescents' social lives (e.g., active monitoring, pursuit of knowledge about their child's behaviors) decreases over time, while independent decision making is encouraged more and more (Russell & Gordon, 2017). Broadly, studies show that elevated parental monitoring is associated with reduced substance use (Ewing et al., 2015; Russell & Gordon, 2017; Yap et al., 2017), while low levels of parental monitoring predicted increased substance use (Rusby et al., 2018). One meta-analysis

in particular found that parental monitoring was the largest protective factor against substance use relative to parent-child relationship quality, parental support, and parental involvement (Yap et al., 2017). Interestingly, in a qualitative study exploring adolescent's perceptions of parenting, adolescents themselves recognized the importance of parental monitoring in preventing substance misuse (McLaughlin et al., 2016). Parental monitoring is also associated with maladaptive eating behaviors in adolescence. Like substance use, elevated parental monitoring is associated with lower levels of binge eating and may protect against unhealthy weight gain (Gubbels et al., 2011; Inguglia et al., 2021). Alternatively, lower levels of monitoring is associated with elevated symptoms of bulimia and greater body dissatisfaction (Krug et al., 2016). Given these findings, it appears that participant reflections about gaining autonomy over their food choices and eating behaviors in the current study aligns with findings about adolescent and young adult substance use and disordered eating. Specifically, that increasing levels of autonomy and less parental control over food choice were commonly attributed to the emergence of FA.

However, over parenting practices (e.g., excessive involvement in a child's daily life, despite good intentions), which demonstrate strong, positive correlations with parental monitoring, can also have aversive effects in adolescence and young adulthood. Specifically, over parenting has been found to predict substance use and disordered eating (Cui et al., 2019; Gagnon & Garst, 2019; Nelson et al., 2015; Patrick et al., 2013; Perez et al., 2021). Excessive parental monitoring may impede the development of age appropriate critical thinking skills. This in turn may make an adolescent more susceptible to peer pressure and risky behavior, like substance use (Russell & Gordon, 2017). An abundance of mediating factors have been proposed to better understand the relationship between parental monitoring and adolescent risky behaviors

(e.g, parental warmth, authoritarian parenting styles; Patrick et al., 2013; Russel & Gordon, 2017). For example, one study found that elevated monitoring paired with parental warmth predicted lower adolescent substance use relative to high parental monitoring and low parental warmth (Perez et al., 2021). Thus, before speculating about the role of parental monitoring versus parental autonomy granting in the development of FA, future quantitative research must use longitudinal methods to explore the effects of parenting on FA in adolescents and young adults. Predictive modeling using factors such as parental monitoring, parental autonomy granting, parental warmth, and parenting styles may help to inform our understanding of the development of FA in adolescents and young adults. This in turn may aid in informing targeted interventions for these age groups.

College also emerged as a critical period of influence on FA behaviors in the current sample. In many cases, factors related to autonomy and individual food choice were also discussed. Interestingly, parenting practices have also been shown to influence substance use past adolescence and into college aged individuals (Cui et al., 2019). This suggests that the influence of parenting practices during childhood and adolescence should also be examined using longitudinal quantitative methods. Aside from elevated autonomy, participants also reported other important aspects of the college experience which they felt contributed to the development of their FA. First, many participants described the college food environment as saturated with highly palatable foods, making it difficult to access healthy, less processed foods further perpetuating highly palatable food cravings. Quantitative research exploring the college food environment largely supports these experiences. For example, a study examining food availability and student opinions found that healthy items were less available, accessible, promoted, and affordable than unhealthy items. Further, students reported the desire for more

healthy options that were cost-effective (Roy et al., 2019). Additionally, another study found that purchasing food on campus was associated with a greater percentage of daily calories coming from energy dense, nutrient poor foods (Whatnall et al., 2021). Still another study found that across 15 campuses in the United States, only 40% of all food outlets offered a healthy main dish (Horacek et al., 2013). Given the convergence of our findings with the quantitative literature, it will be important for future studies to explore the impact of the college/university food environment on FA. If the college/university food environment emerges as a significant factor predicting or exacerbating FA behaviors, policy initiatives could be created to reduce the risk of overexposure to highly palatable foods. Further, intervention strategies could be adapted to specifically focus on environmental risk factors within this environment to allow individuals to develop strategies to combat cravings.

Additionally, participants felt that stress associated with the college environment (e.g., transition to living independently, academic pressure, social pressures), led to increased FA behaviors. Stress is known to trigger both substance use and maladaptive eating behaviors (Cleck & Blendy, 2008; Naish et al., 2019; Sinha, 2008). Further, personality traits and other factors are known to interact with stress to exacerbate overconsumption. In particular, negative urgency, or the tendency to act impulsively when experiencing negative emotions, is strongly associated with both maladaptive substance use (e.g., binge drinking) and maladaptive eating behaviors (e.g., emotional eating; Magel & von Ranson, 2021; Ralph-Nearman et al., 2020). This may be particularly true of college-aged individuals. In adolescence and young adulthood, the neurobiological reward system is developing rapidly while the prefrontal cortex, responsible for executive functioning like inhibitory control is less developed (Koob & Volkow, 2016). This is thought to contribute to risky behaviors, including substance use (Koob & Volkow, 2016). A

recent study found that among college students in the United Kingdom, individuals with risky drinking and binge eating behaviors reported greater levels of negative urgency relative to individuals with no risky eating or drinking behaviors (Ralph-Nearman et al., 2020). Further, a study examining undergraduate students found that both negative urgency and difficulties with emotion regulation were associated with elevated bulimic symptoms, including bingeing (Christian et al., 2020). Qualitative research in an undergraduate sample similarly found that emotional eating a common response to stress for female participants, and male participants used food as a distraction when experiencing anxiety or boredom (Bennett et al., 2013). Thus, in the current sample, the speculation that elevated stress in college led to increased highly palatable food consumption and emotional eating is well aligned with both quantitative and qualitative research. Future research into FA should use quantitative methods to determine if the relationships between negative urgency, emotional eating, and FA are supported. If these relationships are demonstrated, such research will be critical in informing intervention strategies for FA. Specifically, evidence-based strategies to cope with stress and negative emotions such as distress tolerance and emotion regulation may be critical for treating FA.

Finally, weight gain in adolescence and young adulthood was viewed as a major consequence of FA. Along with the inability to cut down on intake and eating larger quantities of highly palatable foods over time, weight gain was often identified as one of the first signs of FA in the current sample. The emergence of obesity as a potential consequence of FA in adolescence and young adulthood is clinically relevant. Quantitative research suggests that elevated adiposity in adolescence is associated with long-term health consequences including diabetes, hypertension, ischemic heart disease, asthma, polycystic ovary syndrome, and stroke (Reilly & Kelly, 2011; Reinehr, 2018). Many studies also demonstrate that adolescent obesity is associated

with premature mortality (Reilly & Kelly, 2011). The consequences of weight gain and obesity in adolescence and young adulthood also extend beyond physical health. For example, one study of adolescent girls found that elevated BMI is associated with higher levels of depression and lower self-esteem (Kaveh Farsani & Khabazi, 2020). Additionally, a large systematic review found that elevated BMI in childhood and adolescence is associated with psychological consequences including elevated rates of depression, higher frequency of negative mood states, reduced self-esteem, and high incidences of teasing and bullying (Rankin et al., 2016). Overall, these findings suggest that weight gain may be the first significant consequence of FA in adolescence and young adulthood, and may have significant long-term physical and psychological consequences, including the impact of weight stigma. Future quantitative research should examine the impact of weight gain specifically in the context of FA in adolescents and young adults to determine if similar physical and psychological outcomes emerge. Further, because weight gain is not a common treatment target in interventions for traditional SUDs, it will be important to determine if including information about weight stigma, body dissatisfaction, and body image may improve treatment outcomes for adolescents and young adults with FA. For example, it may be useful to combine components of CBT for eating disorders, such as challenging cognitive distortions about body weight and body image, in conjunction with traditional SUD interventions to improve treatment outcomes.

Adulthood

Several participants felt that their FA develop in adulthood, while others believed it extended from adolescence/young adulthood and remained clinically significant in adulthood. Of note, young adulthood was commonly delineated from adulthood as being college age and younger, versus referring to adulthood as the early to mid-20s and older. Generally, participants

did not discuss adulthood using a developmental perspective, but rather focused on this life stage as a whole. That is, participants did not tend to consider FA in their 20s, compared to their 30s, compared to their 40s, and so on. Instead, most participants considered their current experience when discussing FA in adulthood. Participant responses gave rise to two main themes; FA in adulthood as the worst period of their condition and increasing responsibilities in adulthood contributing to FA.

Overall, most participants identified adulthood as the worst period for their FA, with many describing the last year as the most severe. Interestingly, these findings partially parallel national data about the prevalence of SUD across the lifespan. Specifically, while substance use is commonly initiated in adolescence, the development of clinically significant SUDs often does not occur until adulthood (Substance Abuse and Mental Health Services Administration [SAMHSA], 2020). For example, in 2019, only 1.7% of adolescence qualified for alcohol use disorder while 9.3% of individuals ages 18-to-25 and 5.1% of adults ages 26 and older met criteria (SAMHSA, 2020). Per the same report, young adults show higher rates of clinically significant SUDs relative to middle and older adults. Specifically, only about half of the individuals diagnosed with a SUD in their teens and twenties continue to qualify for the disorder after age 35 (Lopez-Quintero et al., 2011; SAMHSA, 2020). Many researchers believe this is due to a phenomenon labeled “aging out” (Bachman et al., 2014; Staff et al., 2010; Stone et al., 2012). That is, as individuals reach common developmental transitions such as changes in family roles (e.g., marriage, parenthood), work responsibilities, and social roles, substance use tends to decrease because the demands of these new roles are considered incompatible with substance use (Bachman et al., 2014; Staff et al., 2010). However, this is inconsistent with the experiences of participants in the current study who felt FA was most severe in adulthood. Interestingly, it

should be noted that, unlike the use of alcohol and illicit substances which peak in young adulthood, tobacco consumption was higher in individuals 26 and older compared to those ages 12-to-17, and 18-to-25 in the same national survey (SAMHSA, 2020). This may be due in part to the non-intoxicating nature of tobacco. Whereas intoxicating substances are more likely to impede individuals from fulfilling role obligations or lead to hazardous use, tobacco use may not interfere with responsibilities that come with aging (e.g., parenting, increased demands at work; Baker et al., 2012). As such, there may be lower incentive or motivation to reduce consumption, leading to a reduce aging out effect.

A similar phenomenon may also occur in the context of FA. Because highly palatable foods are not intoxicating and easy to obtain, impairment may be less common relative to intoxicating substances. As such, clinically significant FA may remain elevated in adulthood because there is less incentive to decrease consumption. Additionally, given the requirement that participants meet criteria for FA, our sample may have been more likely to feel that their FA was most severe at the time of the study. Future qualitative research may benefit from conducting interviews with individuals with past FA to determine if their lived experiences differ from those in the current sample. This may help to identify factors which aided individuals in eliminating their addictive eating, thus informing intervention strategies and help to determine if constructs such as “aging out” are relevant to FA. Further, quantitative research using longitudinal methods may also be used to determine if there are distinct trajectories beginning in childhood for differing levels of FA severity later in life. Much like models of substance use (Brook et al., 2015), these methods could track at-risk individuals over time to determine not only who is most likely to develop clinically significant FA, but also different trajectories of severity and

prolonged use. This may help to streamline prevention efforts by identifying who is most at risk for severe pathology and inform FA interventions.

Finally, in direct opposition to the aging out phenomenon, many participants in felt that increasing responsibilities in adulthood actually fueled their FA. First, many participants believed that the stress associated with increasing responsibilities led to more emotional eating or eating to cope. This is well documented in the context of substance use and binge eating, where individuals commonly engage in substance use, binge drinking, and binge eating, to cope with negative emotions (Magel & von Ranson, 2021; Ralph-Nearman et al., 2020) which was discussed in depth in the context of college above. Further, participants also discussed the burden of preparing healthy, less processed foods in addition to their many other responsibilities, which they felt exacerbated FA symptoms in adulthood. Specifically, participants reflected that, unlike other substances of abuse which can be completely eliminated, it is impossible to abstain from all foods. Thus, challenging FA requires significant time and effort not only to combat cravings and other symptoms, but also to engage in meal planning, grocery shopping, and meal preparation in order to consume less processed, non-addictive foods. Further, highly processed foods were viewed by participants as more accessible and less expensive, further increasing the burden of combating FA. Thus, rather than the consumption of highly processed foods impeding social, familial, and work responsibilities, participants felt that the consumption of less processed foods was incompatible with their increased responsibilities in adulthood. These concerns are well supported in the quantitative research which demonstrates an overabundance of highly palatable foods and a relative dearth of less processed foods in our current food environment (Olendzki et al., 2015; Walker et al., 2010). Further, quantitative research also supports the notion that less processed foods are more expensive (Gupta et al., 2019). Given these findings, policy initiatives

should be developed to increase access and affordability to healthier food options. Further, the need to replace highly palatable food consumption with safer, less triggering food options is unique to the experience of FA, as complete abstinence is not attainable. Thus, interventions for FA should be explicitly tailored to address this unique concern.

Non-Developmental Themes

In general, participants referenced highly palatable, highly processed foods as the most implicated in their FA. Specifically, participants referenced sweets, sugary beverages, fast food, and salty snacks as the most problematic in their own experiences of FA. This is in line with well-established quantitative research (Lennerz & Lennerz, 2018; Schulte et al., 2015). However, while most participants acknowledged that almost all highly processed foods can be addictive, most described clear preferences for specific kinds of highly palatable foods. For example, in the current study, many individuals described a clear preference for savory and salty snacks as opposed to sweets which they disliked, while others did not have an addictive tendency towards savory foods but experienced extremely difficulty with sweets. The emergence of preferences in the current sample parallels patterns of traditional substance use. For example, individuals who smoke cigarettes often have a preferred brand, suggesting certain tobacco products are preferred over others (Glasser et al., 2016). This is also true of alcohol consumption, where individuals often prefer a specific type of alcohol (e.g., vodka, whiskey, beer, wine), and even specific brands within that category (Siegel et al., 2013; Tanski et al., 2011). Thus, in the context of FA, preferences for specific types of food may be similar to the preference of a brand or specific type of alcohol or tobacco product. Research on brand preference in the context of substance use suggests that preferred brands tend to be correlated with media advertisements (Siegel et al., 2013; Tanski et al., 2011). That is the brands most advertised tend to be the most consumed. In

the context of food consumption, advertisements have also been shown to increase consumption of sugar-sweetened beverages and fast food in both children and adults (Andreyeva et al., 2011; Mills et al., 2013). Thus, future quantitative research should determine if food preference in FA is similarly associated with exposure to advertisements to determine if policy interventions may help to prevent FA or overeating more broadly. Further, quantitative research should explore the effectiveness of interventions that specifically identify preferred foods versus those that discuss highly palatable foods more broadly. It may be that interventions specifically targeting the most problematic foods on a case-by-case basis are more effective in combating FA.

In addition to highly processed foods, less processed foods were also discussed in the context of FA. Specifically, many participants discussed the tendency to clear their plates or overeat even when consuming fruits or vegetables. These experiences could be potentially problematic in the context of FA given that only highly palatable foods are thought to trigger an addictive response. However, in the current sample, important differences between the consumption of less processed, healthier foods and highly processed foods arose. First, most participants felt the desire to overconsume less processed, healthier foods only after consuming highly processed foods. That is, they often did not binge on less processed, healthier foods without consuming highly palatable foods first. In the context of substance use, this is also demonstrated in animal models. Specifically, rats with intermittent access to nutritional chow do not engage in binge eating behaviors. However, after rats have been exposed to sucrose, if they are primed by a dose sucrose after a period of no access, rats will binge on normal nutritional chow (Avena et al., 2005; Avena et al., 2008; Corwin et al., 2011). In the case of the current study, participants may be priming this over consumption of less processed foods by first consuming highly processed foods. Future quantitative research should examine the over

consumption of less processed healthier foods in the context of FA to determine if a priming effect may also occur in humans. This may have important implications for intervention and may help explain why individuals engaging in moderation may not be successful. Further, future quantitative research should examine if there are significant differences between individuals who report overconsumption of less processed foods compared to individuals who only have an addictive response to highly processed foods, to determine if these may represent distinctive eating profiles.

Further, it is possible that the desire to consume large amounts of less processed foods may represent a gastrointestinal adaptation to the repeated overconsumption of highly palatable foods rather than an addictive response. Specifically, after repeated episodes of bingeing, gastric capacity may increase requiring larger and larger amount of less processed foods to generate feelings of satiety outside of the context of binge eating episodes. This theory is supported by research which has demonstrated that individuals with BED and bulimia nervosa require greater amounts of food and water to experience fullness relative to individuals without eating disorders (Latner et al., 2008; Sysko et al., 2007; van Dyck et al., 2021). Further, recent research on individuals with BED and bulimia nervosa found that one hundred percent of the foods consumed during binge eating episodes can be classified as ultra-processed foods (Ayton et al., 2021). Therefore, within eating disorder populations, even though less processed foods may be consumed in larger than intended amounts, these experiences do not reflect the loss of control seen during binge episodes. For participants in the current study, the need to consume greater amounts of less processed foods may not reflect an addictive response, but may be a consequence of the gastrointestinal adaptations that occur after repeatedly consuming excessive amounts of highly processed foods. Future quantitative research should further explore this

possibility to determine if the overconsumption of less processed foods in the context of FA does truly reflect an addictive response or is better represented by increased volume due to gastrointestinal adaptations.

Additionally, participants reflected that their perceived relationship with less processed, healthier foods felt qualitatively different than their relationship with highly palatable foods. Specifically, when probed, participants stated that while they do eat more unprocessed healthier foods than planned, they denied experiencing other addictive tendencies towards them. For example, many participants noted that while they would go out their way to obtain highly processed foods, it was unlikely that they would do the same to obtain less processed, less palatable foods. Further many participants did not feel the need to cut down on these less processed, healthier foods, suggesting that eating more than planned did not lead to distress or impairment. Thus, it appears that while participants do sometimes consume large quantities of less processed foods, this is a qualitatively different experience than the addictive tendency they have towards highly processed foods. None the less, it will be important for quantitative research to further determine how less processed foods may be associated with FA.

In the current study, participants also discussed their perception of FA relative to other addictions. Most participants felt that FA was no different, or at least very similar, to other SUDs. This pattern is reflected by previous qualitative research. For example, in studies where participants were asked what FA might look like, most described common symptoms of traditional SUDs (e.g., craving, preoccupation with food, loss of control, and tolerance; Curtis & Davis, 2014; Ifland et al., 2015), as well as associated (e.g., emotional eating, situational cues/triggers; Lacroix et al., 2019; Paterson et al., 2019). However, many participants in the current study also felt that while similar to other addictions, FA may be less severe, harmful, and

visible. These perceptions may be tied to the non-intoxicating quality of highly processed, palatable foods. Specifically, because highly processed foods do not cause significant changes in cognitive functioning, motor skills, or decision making like alcohol or other intoxicating substances (Garrison et al., 2021; Spinola et al., 2017), it may be difficult for other people to recognize their FA. Further, because highly processed foods are legal, easily accessible, and non-intoxicating, they may lead to fewer interpersonal problems and less interference with role obligations or important activities, much like tobacco (Shmulewitz et al., 2011). In turn, this lack of impairment may lead individuals to believe that their condition is less severe relative to other SUDs, which may reduce treatment seeking or adherence to treatment. It will be important for quantitative research to explore this theory. If these perceptions about severity and harm do appear to hinder motivation for treatment, public education initiatives may be developed to increase treatment engagement which may prevent future negative outcomes from FA.

Finally, the majority of participants in the current sample believed that their dieting behaviors developed after their FA, or around the same time period. Further, many described their dieting behaviors as a specific response to control their addictive eating and subsequent weight gain. This is an important theme, as relationship of dieting or dietary restraint and of loss of control or binge eating is hotly disputed, particularly in the context of eating disorders. First, it has long been proposed that dieting and restrained eating can lead to the onset of binge eating and other maladaptive eating behaviors later in life. Specifically, restraint model postulates that prolonged dietary restraint results in binge eating behaviors (Polivy & Herman, 1985). Further, the dual pathway model suggests that failure to maintain dietary restraint results in negative affect, such as guilt or shame, which then leads to bingeing behaviors in an effort to relieve these negative experiences (Goldschmidt et al., 2012; Stice, 2001). Overall, there is evidence that some

individuals who engage in dietary restraint do go on to develop eating disorders, such as BED and bulimia nervosa (Dakanalis et al., 2014; Holmes et al., 2014; Stice & Van Ryzin, 2019). This has led many scientists to believe that dietary restraint is harmful and should be avoided in treatment settings. However, not all individuals who engage in dieting go on to develop binge eating behaviors (Fairburn et al., 2005). For example, in sample of 2,992 young woman, only 104 (3.47%) developed a clinically significant eating disorder at two-year follow-up (Fairburn et al., 2005). Further, in a study examining a behavioral weight loss intervention for adolescents, there was no evidence of increased eating disorder behavior at the end of treatment (Colman et al., 2018). Thus, dietary restraint does not appear to be inherently dangerous for all people, nor does it always appear to predict binge eating behavior.

Alternatively, other researchers have proposed that the hedonic aspect of eating may be what drives loss of control consumption (Espel-Huynh et al., 2018; Papies et al., 2008). That is, eating for the purpose of pleasure rather than homeostatic need may be responsible for binge eating behavior, rather than breaking dietary restraint. This model has been supported numerous times using quantitative methods. For example, in a sample of 46 healthy weight women, eating in the absence of hunger, as measured by caloric intake following a meal, predicted hedonic hunger, loss of control eating, and weight gain over a month period (Feig et al., 2018). Further, in a sample of college females at risk for weight gain, those reporting a greater hedonic drive for food at baseline predicted loss of control eating at two year follow-up (Lowe et al., 2016). Thus, demonstrating a higher drive to eat foods for reward related reasons seems to be associated with loss of control eating, even when dietary restraint is not present.

In the context of the current study, it appears that more participants fall into the hedonic eating category. That is individuals in the current sample may have had heightened baseline

hedonic eating tendencies, thus experiencing an elevated drive to consume highly palatable foods early in life. This in turn may have led to loss of control eating and weight gain, which may have subsequently prompted our participants to engage in dieting in order to re-gain control over their addictive eating. Further, very few participants in the current sample ($n = 3$) demonstrated past or present eating disorders. Thus, it appears that although all but one participant engaged in dietary restriction at least once, very few developed significant disordered eating pathology outside of the context of FA. However, it is critical to recognize that qualitative research cannot be generalized past the participants within the study. Thus, future quantitative research should engage in longitudinal research to determine if hedonic drive predicts subsequent FA which in turn prompts dieting behavior. Simultaneously, it is critical to monitor individuals with FA who do engage in dieting behaviors to determine if they may predict additional eating disorder pathology. Such research may help to inform prevention efforts to reduce the impact of hedonic eating early in life, potentially reducing an individual's risk of developing full FA. Further, longitudinal models may help us to identify unique trajectories of different forms of maladaptive eating. For example, we may be able to discover specific factors which predict FA versus other conditions such as BED or bulimia, further allowing providers to tailor treatment to an individual's specific needs.

Conclusion

Overall, participants identified three important life stages in their lived experience of FA. First, while most participants didn't feel like their FA was fully developed in childhood, most identified important factors which they believed influenced their FA later in life. Specifically, lack of control over food choice was seen as both a protective factor and a risk factor for FA. Thus future quantitative research is needed to delineate helpful and harmful aspects of parental

feeding practices and the home food environment. Alternatively, in line with traditional substance use, many participants felt that their FA did develop in adolescence or young adulthood, suggesting a similar developmental trajectory across addictions. Important factors concerning the lived experience of FA in adolescence and young adulthood included an increase in autonomy over food choices, weight gain, and specific aspects of the college environment (e.g., stress, accessibility of highly processed foods). These findings have many implications for prevention (e.g., quantitative identification of protective parenting practices/risky parenting practices, policy changes targeting the college food environment, early identification of risk for weight gain) and intervention initiatives. As expected, adulthood was also a period of elevated FA, with participants either developing FA in adulthood, or experiencing ongoing symptoms. FA was considered to be at its worst during adulthood, and unlike other substances of abuse where increased adult responsibilities (e.g., parenting, increasing work responsibility) often lead to an aging out effect, the stress of these activities often exacerbated FA symptoms. This may be due to the unique feature of FA, where one cannot completely abstain from food but must instead increase consumption of less palatable foods which are more expensive, less available, and more time consuming to prepare. Thus, future research should consider the implications of this added barrier to recovery. Finally, when reflecting more broadly on their lived experiences, all participants described highly palatable foods as being the most implicated in their FA, although most described having a preference for certain highly palatable foods, supporting the FA theory. Further, in the current sample, dieting was most commonly viewed as a response to FA and its associated consequences (e.g., weight gain). Thus, a hedonic model of loss of control eating may help to explain the development of FA. As such future research should determine how the role of high reward drive influences the development of FA to determine appropriate early intervention

strategies. Overall, it is critical to remember that results of this study cannot be generalized outside of the participants within the sample due to its qualitative nature. However, these findings can provide insight for future quantitative research to determine if similar patterns emerge at the population level.

CHAPTER IV

The Qualitative Examination of Treatment Approaches for Food Addiction

Qualitative research may help researchers to identify potential treatment options for FA. Specifically, qualitative researchers can inquire about the different methods individuals have used to try to combat their addictive-eating, both successfully and unsuccessfully, and identify motivations and preferences for treatment. This may inform future quantitative research and clinical interventions to most effectively reduce the impact and severity of FA symptoms and increase the efficacy of prevention efforts. Further, by understanding what types of interventions are most desired and accepted by individuals with FA, tailoring treatments to match those desires may enhance motivation to engage in treatment.

Currently, because FA is not an official diagnosis in the DSM 5, even quantitative research into treatment is scant. Overall, very few studies have examined interventions directly designed to target symptoms of FA. One study used motivational interviewing and schema therapy (i.e., a form of psychotherapy that combines elements of CBT, psychoanalysis, attachment theory and emotion-focused therapy) to address symptoms of FA (Masley et al., 2012; Oliveira et al., 2020). In schema therapy, patients work with a therapist to uncover unhelpful patterns that develop in response to unmet emotional needs in childhood, which are thought to contribute to maladaptive coping strategies later in life. Preliminary results found a significant reduction in YFAS symptoms from pre- to post-treatment (Oliveira et al., 2020). Unfortunately, no control condition was used, making it unclear if the reduction of symptoms was a result of the intervention. In another study, a three-session, motivational interviewing-

based intervention for individuals with comorbid obesity and FA found no difference between groups on YFAS 2.0 symptom count at three month follow up, but did find that the intervention group reduced their consumption of “non-core foods” (i.e., foods with added or high amounts of salt, sugar and/or fat) relative to the 3-month wait-list control group (Burrows et al., 2021).

While few treatments have been specifically developed for FA, several interventions for weight-loss have measured symptoms of FA as a treatment outcome and found that rates of FA declined with treatment. For example, one study found that, in a sample of bariatric surgery candidates, surgery induced weight-loss resulted in remission of FA in most participants who had pre-surgery FA and no additional cases of FA developed post-surgery (Pepino et al., 2014). Further, in another surgical sample, rates of FA diminished from 57.8% to 13.7% one year following bariatric surgery (Sevinçer et al., 2016). Non-surgical interventions for obesity have also resulted in reductions of FA. For example, a study examining a group-based intervention for weight-loss involving cognitive, behavioral, acceptance and commitment, and mindfulness techniques, found a significant reduction in FA symptoms post-treatment (Miller-Matero et al., 2019). However, a study of adolescents with obesity and signs of addictive eating examined the use of a mobile app designed to promote weight-loss through the omission of problematic foods, avoidance of snacking, and reduction of meal size, did not find a significant reduction of FA despite significant weight-loss (Vidmar et al., 2019). Finally, a stress reduction approach for weight loss in a sample of adults with overweight and obesity found that symptoms of FA significantly diminished after seven weeks of treatment (Webber et al., 2017). However, these results were not maintained at seven-week follow-up, despite maintenance of weight-loss. Thus, the utility weight-loss interventions for the treatment of FA appears to be mixed, with some studies demonstrating a reduction in symptoms and others demonstrating no change.

Despite the relative lack of research into the treatment of FA, several academic review articles have proposed potential behavioral and dietary strategies for the treatment of FA including CBT, motivational interviewing, emotion regulation, schema therapy, behavioral nutrition, and psychotropic medications (Dimitrijević et al., 2015; Gearhardt et al., 2011; Schulte et al., 2017). CBT in particular has been emphasized as a good potential treatment option for FA due to its efficacy in the treatment of BED and other eating disorders, and its utility in promoting weight-loss in individuals with obesity (Sawamoto et al., 2017). CBT for eating disorders involves recognizing the connection between thoughts, feelings, and behaviors and the use of cognitive and behavioral strategies to improve mood, challenge unhelpful thoughts about food and eating (e.g., “My cravings are unbearable”, “I already ate a bad food, I might as well binge”), and reduce eating-disorder behaviors (e.g., bingeing, dietary restriction). Unfortunately, CBT has never been empirically examined in context of FA, thus its clinical utility remains unknown. However, research has demonstrated the efficacy of CBT in reducing binge eating episodes in BED across multiple studies (Agras et al., 1997; Ashton et al., 2009; Grilo et al., 2011; Wilfley et al., 2002). Given the similarities between FA and BED (e.g., loss of control eating) CBT may be a useful strategy to combat addictive eating.

In addition to psychotherapy, traditional interventions for SUD have been applied to the treatment of FA, such as abstinence-based models. Abstinence-based models for addictive eating or compulsive overeating require individuals to completely abstain from addictive foods (e.g., sugar, flour, wheat), and often involve peer support through the form of group meetings and sponsorship (Food Addicts Anonymous, 2021). Of note, these models do not require their members to abstain from all foods, but only foods perceived to be addictive. However, the definition of abstinence appears to differ based on the program. For example, Food Addicts

Anonymous specifically references flour and sugar as well as abstinence from “foods we find ourselves craving” (Food Addicts Anonymous, 2021). Alternatively, Overeaters Anonymous defines abstinence in multiple ways, ranging from the action of refraining from addictive behaviors, to successfully following a food plan that eliminates binge-trigger foods (Rodríguez-Martín & Gallego-Arjiz, 2018). Thus, it is unclear specifically what abstinence may look like in the context of FA. Despite their popularity, little empirical research has been conducted to understand the efficacy of abstinence-based models for FA due to the anonymous nature of many programs. However, mixed results have been found across the studies that have been conducted. For example, Weinstein and colleagues (2015) measured symptoms of depression, anxiety, and FA in 60 women at the beginning of joining Compulsive Eating Anonymous, after one year of participation, and after five years of participation. They found that despite lower rates of anxiety and depression after one and five years in the group, symptoms of FA did not decrease (Weinstein et al., 2015). In contrast, another study found that 92% of a convenience sample of individuals attending Food Addicts Anonymous were successfully abstinent from flour and sugar, and reported positive benefits such as weight loss, decreased depression and anxiety, lower compulsive dieting, and reduced food cravings (Stokey, 2012).

Although abstinence is the most dominant model for treating SUD in the United States (MacMaster, 2004), dropout is common and may not be appropriate for all individuals. For example, in a qualitative study of individuals who sought substance use treatment, all but one participant reported negative perceptions of abstinence-based models (Lee & O’Malley, 2018). Among these individuals, it was commonly reported that “the threat of treatment severance if abstinence was not maintained” prevented them from fully engaging in treatment and caused them to feel “inauthentic” during their participation (Lee & O’Malley, 2018). Further,

abstinence-based treatment models often perceive individuals who are not interested in complete abstinence as resistant to treatment or untreatable, preventing many individuals from receiving treatment at all (MacMaster, 2004). In the context of FA, individuals may also express hesitancy about complete abstinence from highly palatable foods. Thus, it is important to understand the motivations and preferences of individuals with the condition to identify the most successful forms of treatment.

Another form of therapy that may be useful in treating FA is harm-reduction, a treatment for SUDs that aims to reduce the adverse health, social, and economic consequences of substance abuse. In harm reduction, abstinence from the addictive substances itself is not the treatment goal. Instead individuals are taught methods to prevent the negative outcomes (e.g., legal or medical consequences, interpersonal problems) that often result from problematic substance use (Drucker et al., 2016). This may include societal methods, such as clean needle exchange programs to prevent the spread of disease (Strathdee & Vlahov, 2001), or may be done on an individual level using methods like substitution (i.e., replacing a riskier substance like opioids with a less harmful option such as Suboxone®; Wilson et al., 2015). Harm reduction is an empirically supported treatment for many substances of abuse, including alcohol, cannabis, opioids, and tobacco (Tatarsky, 2003). For example, in a sample of homeless individuals with tobacco dependence, harm reduction using nicotine replacement therapy (e.g., substituting tobacco consumption with nicotine gum, patches and lozenges) resulted in a significant reduction in cigarette dependence and frequency of smoking (Collins et al., 2019). Further, in a sample of individuals with alcohol use disorder, treatment involving education about safer drinking practices including altering the manner in which they drink (e.g., not mixing alcohol with drugs, drinking in safe places), changing the amount they drink, and staying healthier while drinking

(e.g., staying hydrated, taking vitamins to prevent thiamine deficiency) resulted in decreased peak alcohol use, alcohol-related harm, and alcohol use disorder symptoms relative to a treatment-as-usual control condition (Collins et al., 2019). Unfortunately, no studies have examined the utility of harm reduction in the context of FA. However, because abstinence may actually increase the harms of drug use by alienating individuals unwilling to permanently eliminate their substance use (Drucker et al., 2016), harm reduction is an important method to examine in the context of FA to ensure that individuals with differing treatment goals receive the appropriate intervention. Further, harm reduction may represent an important alternative between abstinence and CBT, where abstinence is not desired but moderation promoted by CBT may not be achievable.

Like quantitative research into the treatment of FA, qualitative research is also limited. Of note, one study qualitatively examined the impact of the concept of FA on treatment seeking and perceived stigma in a sample of Australian individuals with overweight and obesity, approximately half of whom met criteria for FA. Researchers found that while many participants believed that the concept of FA might increase stigma (both self-stigma and stigma from others), participants also felt that education about FA would be useful in treatment (Cullen et al., 2017). Further, many participants felt that psychological services would be beneficial in addressing the behavioral aspects of FA, while pharmaceutical or surgical treatments were thought to be ineffective (Cullen et al., 2017). Additionally, a small number of studies utilized qualitative methods to explore the experience of individuals attending abstinence-based programs for FA, particularly Overeaters Anonymous. Specifically, Russell-Mayhew, von Ranson and Masson (2010) interviewed Overeaters Anonymous members about their reasons for entering the program, the structure of the program, and how they perceive the program to help with

overeating. With regards to how the program works, participants identified the spiritual aspects of recovery, as well as the emotional aspects of the program as the most important variables leading to change (Russell-Mayhew et al., 2010). Of note, participants did acknowledge that abstinence in the context of overeating was more difficult to define relative to other substances of abuse, and that the program allows each individual to define abstinence in their own terms complicating the notion of recovery (Russell-Mayhew et al., 2010). Further, Ronel & Libman (2003) interviewed members of Overeaters Anonymous to examine how their worldview shifted as a result of participation. They found four main forms of transformation across members; experiences of self (e.g., a shift from self-criticism to self-confidence), the development of a belief in a universal order or god, a shift from superficial relationships to deep friendships, and a change in the perception of their problem (e.g., from weak will power to physical and mental disease; Ronel & Libman, 2003). Like the previous study, participants also felt abstinence in the context of overeating was more complicated relative to the abstinence promoted in Alcoholics Anonymous or Narcotics Anonymous (Ronel & Libman, 2003).

Outside of these studies, to our knowledge, no qualitative research has explored which specific methods individuals have attempted to ameliorate their FA, nor the barriers they encountered when trying to modify their eating. Further, there is a dearth of information related to the motivation to engage in different empirically treatments, and the perceived efficacy of these strategies among individuals with FA. It is apparent that few clinical researchers have asked people with FA about their specific motivations and preferences for treatment, excluding the very individuals suffering with addictive eating from participating in the development of their own care. It is critical that treatments are developed with the input of individuals actually

impacted by FA to ensure that interventions will be accepted and effective in targeting the most distressing and impairing aspects of the disorder.

In the current study, we obtained subjective accounts of what has been helpful in modifying or eliminating addictive eating behaviors, which may help to inform more structured treatments for FA. For example, these interviews may be useful in determining the utility of moderation-based approaches versus abstinence-based approaches, potentially increasing the likelihood that interventions will be successful. Individuals with firsthand experience of FA may also be better suited to identify unique approaches that clinicians may not be aware of. Further, we explored the barriers participants have experienced or perceive as problematic in recovering from addictive eating. Additionally, we will provide information about common approaches to SUDs, specifically CBT, abstinence, and harm reduction, to determine which treatments individuals prefer and are motivated to engage in. By understanding which interventions are most desired or accepted, treatments may be tailored to match those desires, and motivation to engage in treatment may be enhanced. Finally, while both quantitative and qualitative research has focused on the consequences of FA (e.g., overweight/obesity, social stigma, failure to fulfill responsibilities, social consequences), no researchers have asked about the perceived benefits of addictive eating. By asking individuals to describe the rewarding aspects of their addiction in the current study, we may uncover potential variables that maintain FA and help to address these barriers in treatment.

Methods

Methods for Aim 3 are described on page 57.

Results

Four distinct themes arose from the data concerning unique aspects of treatment and recovery from FA: 1) Unsuccessful Attempts, 2) Helpful Strategies, 3) Barriers to Treatment, and 4) Treatment Preference. Multiple subthemes also emerge within these categories.

Unsuccessful Attempts

The first theme encompassed participant's attempting to control or treat their FA and subsequently failing. All but one participant described this experience during the interview. Responses fell into four distinct subthemes.

Short-Term Success. Eight participants described periods of short-term success followed by relapsing back in to addictive eating. In most cases, participants did not identify a specific trigger for their relapse, but described the experience of “falling off the wagon”. For example, a female participant (age 26, severe FA) stated, “*I think that I can do good for anywhere from three days to two weeks, and then I fall off for three days to two weeks.*” Another female participant, (age 42, 11 symptoms, -I/D) criterion stated, “*I can't seem to stop. I try, go for a week, two weeks. See great results, I feel good and then usually I fall off the wagon, one way or the other.*” Less frequently, participants identified a conscious decision to revert back to addictive like eating. For example, a female participant (age 28, moderate FA) stated, “*I've gone through times before trying to do carb cycling kinda things where I was like, "I'm gonna cut down on having as much of that, or maybe certain types of fats." Then eventually you have the mindset of, you're good for a certain amount of time. But then it's like, "Well, you gotta have a big cheat, blowout binge kinda thing at some point.*” Across these participants, whether or not a specific trigger was noted, most described a timeframe of several days to a few weeks of successfully controlling their FA.

Multiple Methods to Change. Ten participants described the use of multiple different methods of dieting, behavior change, and lifestyle modifications to try and combat their FA. For example, a male participant (age 32, severe FA) stated, *“I’ve tried anything between low carb dieting, or the low-carb high-fat, or even clean eating, like the whole 30 diet where it’s just no sugar, all natural organic foods for 30 days to try to kind of cleanse my body. But of course, it’s 30 days and it’s a diet, so I always goes back.”* Another male participant (age 51, moderate FA) summed this experience up nicely by stating, *“If someone’s thought of it, for the most part... Unless it’s one of those whacky juice cleanses or something like that, I’ve done it at some point.”* Of note, this sub-theme often arose in conjunction with the sub-theme above. However, not all participants who described short-term success also described multiple different methods to combat their FA, but rather repeated attempts using the same method, leading to two distinct sub-themes.

Strategies that Backfire. Five participants described unintended negative consequences as a result of attempting to change their FA. Consequences ranged in nature and in severity across participants. For example, one male participant (age 32, severe FA) stated, *“In the past, I used tracking apps for breaking down calories [and] macronutrients for each meal. And I was doing that probably to the point where it wasn’t healthy, then it was stressing me out ‘cause I had to be on there checking how much do I got left for the day and stuff like that, and I knew that that was more distressful.”* Alternatively, one female participant, (age 42, 11 symptoms, symptoms, -I/D) stated, *“I don’t diet anymore, because it doesn’t work for me. Every time I do it, I gain more weight back.”* The most extreme example was described by a female participant (age 28, moderate FA) who stated, *“After college, when I figured out I was actually eating a pretty dense caloric load, I was like, “I could cut this down,” and did and lost a lot of weight. Then I*

maintained that for a few years, and then developed this binge eating behavior.” Thus, not only did participants fail to successfully address their FA, these attempts actually led to unanticipated physical and psychological consequences.

Hopelessness/Nothing Works. While describing efforts to change their addictive eating, many participants reported an overwhelming sense of hopelessness, believing that no matter what they did to address their FA, nothing would be successful. For example, one male participant, age 32 with severe FA stated, *“She (a friend’s mom) was doing a diet thing where they were holding money into the whole thing, and you’d put a wager on yourself type thing. And even that didn’t really incentivize anything for me. It seemed like it would, but [...] I feel like kind of hopeless about it. Like almost like there is no kind of cure for it.”* In a particularly emotional statement, one female participant (age 45, severe FA) who has undergone bariatric surgery expressed, *“I literally cut my body open, took parts of my body, rerouted it, and I still struggle with food, so I don’t know that there’s anything else you could do to change that. It’s a pretty profound thing to think about. You cut your body and rerouted s*** so that you could control, have more control over food.”*

Helpful Strategies

Although most participants described unsuccessful efforts to combat their FA, many also described helpful strategies that did help to improve their addictive eating, either temporarily or for longer periods of time. Three specific subthemes emerged from participant responses: 1) accountability, 2) replacements/swaps, and 3) control at home.

Accountability. The most common helpful strategy reported by participants was accountability in the form of social support. This theme emerged most prominently among participants who had engaged in a structured program for weight-loss or dietary change. For example, a male

participant (age 51, moderate FA) described his experience at a metabolic clinic, stating *“It’s always nice when you have to go weigh-in in front of a large group of people. That certainly helps keeps you on the wagon. The good rules introduced there were not anything new, but the going in, exercising with a group four times a week, very helpful.”* Another female participant (age 30, moderate FA) described her use of a mobile app, Noom® to lose weight, stating *“Something that I was surprised that I liked was the group aspect of Noom® where people would be like, ‘I over ate’, and people would be like, ‘Yeah, you’re okay’, or ‘You’re bad’, and I really liked that part of it. Whereas something like just a calorie counter just feels stark, you’re like alone, so I definitely liked that aspect.”* Interestingly, when explicitly asked what might help to treat FA, many participants discussed accountability as well. For example, a female participant (age 26, severe FA) commented, *“I sometimes wonder if I confided in the right person about it, if that would get me to stop or... I’ve wondered, should I tell my dad about this and have him check in on me and be like, “Did you overeat today? No, you’re doing good?”* Thus, not only does it appear that accountability has already been helpful for some participants, it also appears that accountability a new strategy participants may be willing to try.

Replacements/Swaps. Another helpful strategy that several participants described was finding satisfying low-risk foods to eat in place of their personally problematic, highly palatable foods to combat overconsumption. For example, a female (age 28, moderate FA) said, *“I’ve made it a habit of always bringing my own lunch to events because I’m so worried that if I eat the free lunch that will start this snowball effect.”* Similarly, another female participant, (age 53, severe FA) stated, *“When we have birthdays at work, the person that makes the cake all the time, she makes really good cake. But knowing that, I will bring in yogurt or something to sit with the group. I’m not gonna have this cake, because it’s just not gonna happen. And it’s fine. I like*

yogurt.” Like the accountability subtheme, participants who had not yet tried replacement foods also spontaneously identified this strategy when asked what might be helpful to combat their FA. For instance, a male participant (age 32, severe FA) suggested, “*Learning stuff that I could eat that still satisfies me would be helpful. Yesterday I had some Skinny Pop® popcorn, it was white cheddar. Actually it was alright. Even though it didn't have a crazy amount of flavor, it still was enough where it was good [...] I kinda wanna find more stuff... Or even vegan recipes and stuff that is healthy, but I actually like the way it taste.*” again suggesting that this may be a particularly useful strategy.

Control at Home. Finally, some participants described the ability to control which foods were allowed in their home as a helpful way to address their FA. Specifically, participants described the ability to keep highly processed foods out of their home as particularly helpful. For instance, a female participant (age 26, severe FA) stated, “*Usually I can try to cut out sweets by not keeping them in my apartment.*” Similarly, a female participant (age 30, moderate FA) specifically described control while shopping for food, stating “*I have a roommate, but we don't share food, so it's what I bring into the house. If I can control myself when I'm at the grocery store and then that usually isn't a problem.*”

Barriers to Change

The third large theme that emerged encompassed the various obstacles participants experienced when trying to challenge their FA. This theme was further split into two umbrella themes, internal barriers and external variables.

Internal Barriers. Internal barriers to change were described by participants as factors within themselves making it challenging to control their FA. This theme was further broken down into three unique subthemes; enjoyment and pleasure, food as a coping mechanism, and wavering

motivation. Overall, every participant described at least one internal barrier to change, and many described more than one.

Enjoyment and Pleasure. The most common barrier to changing addictive eating behavior, across both internal and external factors, were experiences of pleasure and enjoyment while consuming highly processed foods. This was most explicitly stated by a female participant (age 28, moderate FA), when she said, *“For me, the main emotional outcome of the eating is the intense pleasure while it's happening.”* Other participants explicitly compared the experience of eating highly palatable foods to foods less processed. For example, when asked why it is difficult to change her eating behaviors, a female participant (age 45, severe FA) stated, *“Just the joy of eating the better tasting, good foods. They're just better.”* Enjoyment and pleasure were also specifically referenced when participants were asked about the benefits of eating in an addictive way. For example, one female participant (age 46, 2 symptoms, symptoms, -I/D) stated, *“I think there's enjoyment with the food. I often think that... if you don't take the time and enjoy the things that are pleasurable, that taste really good, are you living at that point?”* and a female participant, age 45 with mild FA replied, *“I'm always searching for a new food to eat. So that's the only real part of the pleasure, of not [being] afraid to try anything. So there's always something new.”* Thus, the pleasure and enjoyment were seen as both a barrier and a benefit to the experience of FA.

Food as a Coping Mechanism. Many participants described their ongoing use of addictive foods as a means of alleviating negative emotion and stress as a significant barrier to change. For example a female participant (age, 30, moderate FA) described the experience of being prepared to eat well, only to have a negative emotion interfere with her intention, *“Just like even today, I'm gonna bring, “Here are my snacks. Here's my lunch.” And then, oh.*

Something went off with the day. I'm in a bad mood now, so I'm gonna hit up the vending machine.” Interestingly, many participants who described the use of addictive foods as a coping mechanism simultaneously mentioned their ineffectiveness. For example, a female participant (age 30, severe FA) stated, *“If I'm sad, those are my feel-good foods like sweets. You eat the ice cream and the chocolate or yeah... It's been a couple of times where I just feel like so sad and I'm just like, “Okay, well... I like my favorite thing so let me just eat a lot of my favorite thing.” But that doesn't really... It kinda just makes you feel worse a little bit.”*

Like the enjoyment and pleasure subtheme, food as a coping mechanism was also viewed as a benefit for some participants. For example, a female participant (age 28, moderate FA) described an “immediate relief” when she decides to eat addictive foods stating, *“On days when I decide to eat like this, on the first bite, there's just this relief of, “I don't have to try so hard today to not eat. I can just eat whatever I want.” And it's... The relief is a rush in itself, because it's this huge stress ball has just eased away. I'm taking this rock out of my backpack.”* This sentiment was reinforced by another female participant (age 26, severe FA) who stated, *“Food can make you feel happier. So if you're having a stressful day, you get... Sometimes it doesn't work at all, but sometimes it does work. And so when you're not able to have those (addictive foods), then there's the extra added stress of the other stress that's going on, too.”* when asked about the benefits of FA.

Wavering Motivation. Participants also described experiences of ambivalence and frequent changes in motivation as a significant barrier to combating their FA. Most described the experience of being extremely motivated followed by gradually declining interest. For example, one female participant (age 45, severe FA) described attempting a low-carb diet with her husband saying, *“Monday, there's great resolve. Tuesday, I'm waning. Wednesday, I'm like, “If I*

eat it at work, he won't know". Another participant (male, 32 severe FA) described this experience as an almost subconscious process, stating *"Sometimes it's a very weird feeling... almost like I have a bout of amnesia and I just completely forget what my goal was for the day or for the week or whatever. I might set myself up for a diet plan and the first day or two days go really well, and then before I know it I'm just completely forgetting all about it."* Less frequently participants described abrupt changes in motivation as exemplified by a male participant (age 51, moderate FA) who stated, *"You get sick and tired of thinking about food all the time when all you wanna do is not think about food at all. It's not like you have an explosive binge or anything, you just stop thinking about it. Just, "You know what? I don't care about this anymore, I'm not gonna worry about this." And you just go back into your same old same old."* Thus, waning motivation was experienced in different ways across participants.

External Barriers. External barriers were any obstacles in the participant's micro (home, work, or social) or macro (societal) environment that made it challenging to change their FA. This theme was also further divided into subthemes including accessibility, affordability, friends and family, and time and effort. Overall, each participant described at least one external barrier while describing their experiences of FA.

Accessibility Thirteen participants described the overabundance of highly palatable, rewarding foods in their regular environments as a significant barrier to changing their FA. Participants found this to be particularly disturbing in their work environments, where they experienced a lack of control over what foods they were exposed to. For example, one woman (age 53, severe FA) who was recently sober from alcohol described an experience at work stating, *"They bring in these trays [of desserts], and I'm just sitting there, staring and thinking, "Oh my God, just one, just have one." But I don't want to because I know what's gonna happen.*

So I'm like, "You gotta walk away, you can't stand there." It's like going to the wine aisle. I couldn't stand there and look at wine, but I have to stand here and look at a tray full of desserts? It's dumb." Another woman, who worked in a school, described the seeming paradox of the promoting health for their students while simultaneously encouraging unhealthy foods, *"We have all these programs for kids to eat healthy and we're supposed to push that for kids. But all this food is around us. I go in the classroom, I'm pushing donuts to the side, boxes of donuts. I'm just like, "What's this for?" [...] Everywhere I go is saying, "It's okay, although you should be healthy, but you know what? It's okay to have this candy and these cookies and these cupcakes and doughnuts"*. Other participants discussed their social environments as overly saturated with highly processed foods. For examples, a female participant (age 45 severe FA) commented, *"When we do family functions, food's always part of that. Work, there's always food somewhere in the office. Like, "Please people, can you just keep your food to yourself?" But everyone wants to share and bring in stuff."* exhibiting obvious frustration about frequent exposure to highly palatable foods.

Many participants discussed the over availability of food, not only in their personal lives, but also within their broader communities. For example, a male participant (age 39, mild FA) described the difficulty of living near fast food outlets stating, *"It's the convenience of processed foods and fast foods and those types of things. I moved closer to a Dairy Queen, so now [chuckle] just because of the proximity, I go more often."* Importantly, a small number of participants also described difficulties related to the inaccessibility of less processed, healthier foods. For example, a male participant (age 32, severe FA) stated, *"There's not really a grocery store. I have to drive crazy far. And then sometimes if you gotta get on the bus to go to the grocery store, when it's on the weekend, it's like... No."* Thus, it appears that both the over

accessibility of highly palatable foods and, to a lesser extent, the difficulty of accessing less processed foods were seen as barriers to combating FA.

Affordability. Another external barrier was the relatively cheap price of highly palatable foods compared to more expensive, less processed foods. For example, one female participant (age 30, moderate FA) stated, *“I tried to stop eating fast food numerous times for numerous different reasons, but I’m still eating it anyway, whether it was for convenience or financially. “It’ll be easier to just spend four dollars on this”.*” Another participant (age 28, moderate FA) even described the relatively low price of highly processed foods as a “justification” for her consumption stating, *“The foods that I binge on are really cheap and I think it would be harder for me to justify the binges, if it was expensive. And unfortunately the healthier foods I eat, tend to be more expensive ‘cause those are things like vegetables and fresh greens and... Yeah, the fact of the matter is in our society, those are just more expensive things. [...] I know that sometimes when I am driving to the grocery store and I’m like, “This is bad.” But then I’m like, “No, it’s okay ‘cause I’m not going to spend that much money.”* Still other participants described how their income seriously impeded their ability to afford less processed foods. For example, when describing his experience with food banks, a male participant (age 32, severe FA) stated, *“It’s like, having the money to come and get this stuff you wanna get, or get the stuff that’s healthier, compared to what you can afford. So it’s kinda like... That’s how it’s affecting my life. I wanna eat nicer stuff, but what can I afford that’s still kinda healthy?”*

Friends and Family Eating HP Foods. Over half of the participants discussed how the eating patterns of their friends and family made it challenging to combat their FA. This was described most often when participants had recently begun to change their eating behaviors. For example, a male participant (age 32, severe FA) recalled, *“I think it’s just a huge combination of*

myself and other people when it comes to the peer pressure of eating certain things. Like I said, I don't know how many times I've been on a diet or something, and people just have to somehow always ask or inquire why, "Oh, you sure you don't want any of this?", that type of thing. So yeah, I feel like it's kind of always been a struggle. It seems like almost a lot more with other people than anything." Interestingly, several participants also described a tendency to associate with others who ate in a similar way in order to feel "accepted". For example, one woman (age 45, severe FA) stated, *"Birds of a feather flock together. We're big girls, we hang with big girls. We do big girl things, right? We go to lunches together, we go to dinners together, we eat the foods that we love together. So you start partnering up and pairing with people who have similar addictions. [...] So, I just found people who liked the same things that I did and it makes it socially acceptable to eat at that point."* This sentiment was summed up nicely by another woman, (age 62, severe FA) who expressed, *"I'm not gonna feel bad eating it because everyone else is eating it."*

Several participants discussed the unique difficulty of living with friends or family who eat highly processed foods, particularly those who do not struggle with addictive eating. For example, one man (age 32, severe FA) described ongoing problems with his girlfriend stating, *"Like my girlfriend wants to buy BS types of food, and then I wanna buy healthy types of food. And then if she buys the BS food, I wanna eat it. One of the things my girlfriend says... She always says, "Just 'cause we have it, don't mean you gotta eat it."* Similarly, another woman (age 42, 11 symptoms, -I/D), described ongoing conflict with her husband stating, *"I'll buy a very small bag of [chips], and I'll eat them. And I feel that's portion control for me, where he wants the big bags in the house, because they're cheaper. But when I have a big bag, I don't seem to*

stop. So that's really a big problem for me... Even if I don't want it, if it's in my house, I can't let it go to waste I have to eat it.”

Time and Effort. Finally, half of the participants discussed the overall amount of time and effort it takes not only to combat addictive eating, but also to prepare healthier, less processed foods as a significant barrier to recovery. For example, one female participant (age 26, severe FA) stated, *“I'll buy food that's healthy and takes time to make, but then I feel super busy and so I'll go get the fast food.”* Another participant (age 51, moderate) discussed how FA was difficult to overcome due to the numerous other stressors in his life, *“Well, you have so many thing going on in your life. You've got project one, project two, project three. Project 400 is no more Coke, no more dessert, meat only once a day kinda thing. Whatever it happens to be it's another thing in there, and you have a ton of things to worry about.”* Most profoundly, one woman (age 62, severe FA) even compared her attempts at combating her FA to a fist fight stating, *“I just got tired of the dieting, all the diets. You cut down on your grains, your carbs, and I just got tired of that because it was like I was in the boxing ring with Mike Tyson or something. It's like, I wasn't living. Even though I don't like overeating, I don't like being overweight. But I couldn't get anything done. The quality of life was really bad.”*

Perceptions about Established Treatments Applied to FA

The following themes primarily arose from participants reactions to the list of established treatments we provided during the interview. However, some participants discussed abstinence or CBT during earlier portions of the interview, and these experiences were also considered during theme development. Overall, most participants had not engaged in structured therapy or treatment for their FA, relying instead on dieting to combat their symptoms. While several participants described practicing abstinence, none sought support in the form of a twelve-step

program such as Overeaters Anonymous or Food Addicts Anonymous. Alternatively, one person (age 25, 4 symptoms, -I/D) used the mobile app Noom ®, which follows a CBT approach for weight loss, to address her addictive eating behaviors. Similarly, one male participant (age 51, moderate FA) had experience with CBT for the treatment of depression which he considered while discussing his experience of FA during the interview. Finally, no participant had experience with harm reduction in the context of FA.

Abstinence. Despite being the most common method used by participants, opinions about abstinence to treat FA were mixed. Some participants viewed abstinence from highly palatable foods as critical to recovery, whereas others viewed abstinence as a liability, actually leading to more eating problems. As such, two main themes emerged.

All or Nothing. Many participants described abstinence as necessary because of their inability to moderate the consumption of highly processed foods. For example, a female participant (age 53, severe FA) stated, “*All or nothing. Yeah, that's it. I just can't moderate it. Eliminating the things that are causing me problems, and knowing that I can do that, it makes it so much easier. I've never dealt with cognitive behavioral therapy. I don't believe in harm reduction. I would hope that that would be a good thing for some people maybe but for me personally it wouldn't work.*” Others believed abstinence was the best approach because they anticipated interpersonal problems related to modifying their eating habits and avoiding triggers. For example, one participant (female, age 45, mild FA) appeared to settle for abstinence, stating “*It would probably just have to be the abstinence one, just because like I mentioned, I just feel like there'd probably be some weird social issue that I'd have if I was just to eliminate myself from these [triggering] environments.*” One female participant (age 28, moderate FA) very insightfully discussed how abstinence may be a positive stepping stone on her way to other

treatments stating, *“I always have this thought that I need to cut these foods out until I feel more in control of myself and once I have established some sort of control and I don't know how I would define that whether it's like I met a goal weight, or I just feel healthier. I don't know when I would reach the threshold of, “Now I'm in control.” But I have this feeling I could eat those foods again in moderation, once I'm in control. I don't think that for food you need to be abstinent from foods that are fatty or more calorie-dense, or more sugary. I think that everything in moderation is fine. I just know that right now, if I eat those things I will not stop, so abstinence now and CBT later.”*

Abstinence is Stressful. Alternatively, other participants felt that complete abstinence from addictive foods either would not work, or may exacerbate FA symptoms. For example, when asked which treatment he thought would be the most successful, one male participant (age 32, severe FA) stated, *“Probably not that (pointing to abstinence). Banning things completely never seems to work with anything that I found.”* Similarly, a female participant (age 45, mild FA) stated, *“I know for me, like I don't wanna be in a situation in my life where I don't feel like I can't have something for the rest of my life. That, to me, is distressful.”* One male participant (age 51, moderate FA) went on to describe how abstinence contributes to unhelpful thoughts about food stating, *“It's extremist thinking, where you're cutting down or cutting out soda, so “I will never have a glass of Coke again in my life!” Well, of course you'll have a glass of Coke again in your life, but at the moment it doesn't feel like that. Some people are going to be very successful with abstinence, whereas it feeds into my sense of extremism. “I can never have a cupcake ever again!” No. I think the abstinence mindset, for me, is just problematic because I know I'm going to go to an emotional extreme on it.”*

CBT. Many participants felt that CBT would be the most helpful for treating FA. However, many simultaneously felt they would be unlikely to engage in CBT because of the time and effort it requires. These two sentiments fell into distinct themes.

CBT Gets to the Source. When describing their preference for CBT as a treatment for FA, many participants felt that it would be more likely to address their addictive eating at a deeper level than abstinence or harm reduction. This was stated most explicitly by a female participant (age 45, mild FA) who said, “*Ultimately, trying to eat all foods in moderation, completely removing the restrictive thoughts is, I think, ultimately the most successful. That one is... The CBT, that one gets to the root cause of whatever it is that's causing it in the first place to truly address the problem.*” Other participants expressed excitement about identifying important “associations” with her problematic eating. For example, one participant (female, age 45, severe) stated, “*I think with food, sitting down and thinking through and actually working to figure out those associations, and acknowledge that this is a problem and that these are the triggers and these are the foods that take you down that path, I think that's kind of cool. I like the CBT idea.*”

Too Much Work. Many of the same participants who described CBT as the best method of treatment simultaneously felt it was the least likely treatment they would engage in. This was predominantly because of the perceived amount of time and effort it takes to do CBT. For example, one male participant (age 51, moderate FA) described his experience in a CBT group for depression and reported being least likely to engage in CBT despite its effectiveness. He qualified this sentiment by exasperatedly stating, “*CBT. That's not a helpful thought, it's not a true thought. Okay, let's change that thought. So much work.*” Similarly, the female patient who described CBT as getting to the root of the problem (age 45, mild FA) qualified this statement by adding, “*I mean, effective CBT, at the end of the day, is gonna be the most successful, I think,*

approach to most things. But doing it and doing it well is another thing. [chuckle] It takes a skilled person on the other end to be able to go through with that.” She also described how lack of motivation would be an impediment to engaging in CBT by saying, *“You have to be very invested in doing that. Would I be invested in doing that right now? No, I don't think so. I don't think I am someone that would need that to feel okay at this time.”* Thus, while many participants felt that CBT would be highly effective in combating FA, many also recognized significant barriers to successfully implementing the treatment, including finding a competent provider.

Harm Reduction. Unlike abstinence and CBT, harm reduction received considerably less attention from participants. Most commonly, it appeared that participants considered harm reduction as an afterthought relative to abstinence and CBT. For example, a male participant (age 39, mild FA) stated, *“I think I would be more likely to change probably with CBT. I think [harm reduction] would be close, yeah. If I had someone guiding me through the harm reduction, I think I would be willing to try either one of those two.”* and a female participant (age 45, severe FA) stated, *“The harm reduction, I think that might be successful too.”* Across participants, few had strong opinions either way. However, a small number of participants did feel harm reduction would be successful strategy. For example, one female participant (age 45, mild FA) stated, *“I think the harm reduction sounds like it is more on the right track. I think something like that is something I'm more into now, like there's certain things that I just know like are not healthy, I guess, and I don't have a problem not having but letting yourself have more of the other things. I think I'd probably fall more into the harm reduction path thing 'cause I know I can do that myself, like in a healthy way, in a healthy environment.”* Alternatively, a small number of participants felt harm reduction would be unhelpful in treating FA. For example, a male participant (age 51, moderate FA) stated, *“Harm reductions, fine, but it doesn't feel like you're*

doing much, when you're saying, "Oh, I'm going to avoid this. Whatever happens, happens, but I'm gonna keep these ideas in mind. These are the rules that I'm essentially going to follow, and I will try not to... I'll try to remember that if the line is crossed, it's not the end of the world." Like I said, with the harm reduction, great, but I don't feel like I'm actually doing anything." Overall, participants carried fewer opinions about harm reduction relative to abstinence and CBT.

Discussion

Overall, participants discussed four major themes related to treatment that were relevant to the lived experience of FA; 1) unsuccessful attempts to overcome FA, 2) helpful strategies, 3) barriers to change, and 4) opinions and preferences about empirically based treatments. Broadly, participants engaged in multiple kinds of diets and behavior change to combat their FA, but experienced only short-term success, and in some cases negative consequences from dieting. Despite these failed attempts, factors such as accountability, replacement foods, and controlling the home environment appeared useful in reducing the impact of FA. Further, numerous barriers, both internal (e.g., pleasure, motivation) and external (e.g., accessibility, affordability) were identified. Finally, most participants showed a preference for CBT or abstinence as interventions for FA.

Unsuccessful Attempts to Change

Overall, participants reported dieting on their own as the main tactic for overcoming FA. Only three participants sought external support, one receiving treatment through a metabolic clinic, one used the mobile app Noom© which uses a CBT approach, and one received bariatric surgery. No participants reported receiving therapy or attending support groups for FA. Interestingly, this parallels nation data on treatment seeking for SUDs. For example, in 2019, while 21.6 million individuals age 12 and older qualified for and SUD, only 4.2 million

(19.44%) sought treatment of any kind (e.g., self-help groups, outpatient treatment; SAMHSA, 2020). This suggests that, like the current sample, most individuals with SUDs either attempt to change on their own or do not wish to alter their behavior. As such, it may be important for future quantitative research to determine the overall rates of individuals who are seeking treatment for FA. Additionally, qualitative methods can be used to uncover the reasons people are not seeking formal treatment for FA. Such research could help to inform public education initiatives about FA treatment to reduce misconceptions about intervention and encourage treatment seeking.

Further, in the current sample, despite reporting multiple attempts to combat their FA through dieting, almost every participant reported limited, short-term success, lasting at most for a few weeks. Thus, for most participants FA is characterized by a cycle of normal eating periods followed periods of relapse. This parallels quantitative research, which found that individuals with higher YFAS scores demonstrate higher rates of weight cycling and spend significantly more time dieting relative to individuals with low YFAS scores (Flint et al., 2014). This cyclical pattern is also well documented in the context of SUDs, which are commonly referred to as “chronic relapsing conditions” (Gutman, 2006). In fact, only approximately 10% of individuals with severe SUDs achieve long-term abstinence, and it is more common for an individual to experience relapse than not (Sellman, 2010). Additionally, quantitative research has demonstrated that individuals with FA have poorer treatment outcomes in weight loss interventions compared to individuals without FA. For example, one study found that individuals with FA gained more weight post-bariatric surgery relative to individuals without FA (Yanos et al., 2015). Another found that individuals with FA were more likely to drop out of weight loss treatment relative to individuals without FA (Sawamoto et al., 2017). Further, in a randomized

control trial for weight-loss, a higher level of FA was associated with treatment attrition and elevated weight gain at 12-month follow-up relative to individuals with lower levels of FA (Fielding-Singh et al., 2019). Thus, it appears that short-term success and relapse are associated with both FA and SUDs. Future quantitative research should confirm the tendency for short-term success and relapse in the context of FA and dieting to gain a better understanding of the nature of this phenomenon. This will help to inform treatment interventions as we may gain information about when an individual with FA may become most vulnerable to relapse and treatments can specifically target these high-risk periods to reduce the likelihood of the reemergence of FA behaviors. Further, given that very few participants engaged in formal treatment for FA in the current sample, quantitative researchers should conduct studies to explore the overall rates of treatment seeking among individuals with the condition, and reasons behind hesitancy towards treatment. This may inform public education initiatives that target individuals with FA, making them more likely to seek treatment.

In addition to short-term success from dieting, some participants described negative consequences related to dieting. Specifically, several individuals in the current study described gaining more weight than they initially lost after dieting. This phenomenon, commonly referred to as the “rebound effect” is well documented by quantitative research on dieting (McNay & Speakman, 2013; Sheperd, 2003). To our knowledge, the rebound effect has not been examined quantitatively in the context of FA. Thus, future research should examine the prevalence and correlates of the rebound effect in individuals with FA who engage in dieting. Further, it will be important to understand what kinds of dieting behavior may be more likely to result in rebound weight gain in the context of FA, and who may be most susceptible to weight rebound. This will help to inform treatment interventions, not only for FA, but for individuals with FA seeking

weight loss intervention. Additionally, in the current study, one participant reported the emergence of binge eating behaviors after a prolonged period of dieting and caloric restriction. This experience is a clear example of the restraint theory which posits that caloric restriction triggers binge eating behaviors (Polivy & Herman, 1985), and may be exemplar of the dual pathway model, where failure to maintain dietary restraint can lead to feelings of shame and guilt which subsequently lead to binge eating behaviors as a coping mechanism (Stice, 2001; Stice & Van Ryzin, 2019). This pattern is documented in quantitative research studies, which shows that some individuals who engage in dietary restraint go on to develop BED and other eating disorders (Dakanalis et al., 2014; Holmes et al., 2014; Stice & Van Ryzin, 2019). However, it should be noted that, while all but one participant in the current study engaged in dieting, only one went on to develop clinically relevant BED. Further, quantitative research demonstrates that not all individuals who engage in dieting behaviors go on to develop disordered eating (Fairburn et al., 2005). Thus, it should not be assumed that dieting or dietary change is inherently problematic for everyone with FA. As such, future studies should explore which specific aspects of dieting may lead to disordered eating in the context of FA. It may be that certain dieting behaviors are riskier than others for individuals with FA. Further, future quantitative research should identify which individual factors (e.g., history of eating disorder, comorbid mental illness, high trait impulsivity) may place a person with FA at greater risk for developing maladaptive eating behaviors due to dietary restraint. This will help clinicians tailor treatment to the needs of each individual, increasing the likelihood of success and limiting potential negative outcomes.

Finally, many participants described an overwhelming sense of hopelessness when it came to recovery from FA. That is, because of their repeated attempts at overcoming FA and subsequent failures, many participants felt that there was nothing they could do to overcome

addictive eating. Given this sentiment, motivational interviewing may be a useful strategy to include in interventions for FA to increase not only the motivation to change, but also confidence in one's ability to change. Motivational interviewing is an evidence-based treatment technique that is commonly used in the context of SUDs (Barnett et al., 2012; Lundahl et al., 2010). Specifically, motivational interviewing helps individuals to identify their personal reasons for changing their substance use, as well as personal factors that demonstrate their ability to change (Smedslund et al., 2011). For example, an individual with SUD may describe things like improved productivity at work, better interpersonal relationships, and greater physical health as important reasons to change their substance use. Further, they may recognize personal factors such as facing previous challenges in the past with success and having a supportive social network as evidence that they can change their substance use. Future quantitative research should explore the efficacy of motivational interviewing in the context of FA to determine if this treatment technique may reduce feelings of hopelessness about recovery, and to determine if the addition of motivation interviewing to other evidence-based treatments (e.g., CBT, harm reduction) may improve treatment outcomes.

Helpful Strategies

Despite experiences of short-term success with dieting, and limited experience with other forms of treatment for FA, participants did identify three strategies which were perceived to be helpful in the context of FA. First, some participants stated that accountability from others was helpful in reducing FA behaviors. Further, others stated that they felt accountability would be helpful but did not have personal experience using this strategy. It is important to note that accountability is a component of many treatments for SUDs including 12-step abstinence-based models, and CBT, particularly in a group format (Kelly, 2017; Yalom & Leszcz, 2020). Further,

qualitative research also emphasizes the importance of accountability in treatment for SUDs. For example, in a study of nurses recovering from SUDs, accountability emerged one of the most important factors leading to successful recovery, particularly accountability that was non-punitive and centered around trust (Horton-Deutsch et al., 2011). The perception that accountability would be helpful in the context of FA is also supported by the supportive accountability model, which proposes that human support increases treatment adherence for health-related behavior change (Mohr et al., 2011). Quantitative research demonstrates support for the model. For example, one study examining the efficacy of a technology-based weight loss program found that support for exercise habits, support for healthy eating habits, and perceptions of accountability accounted for 69% (Chhabria et al., 2020). Not only can treatment itself be a form of accountability, but interventions can also focus on helping individuals foster accountability within their own personal relationships to further increase recovery from FA. For example, therapists can encourage patients to identify supportive individuals with whom they can share their treatment goals to raise accountability outside of the context of therapy. Overall, future quantitative research should explore the role of accountability in the context of FA to determine if it predicts positive treatment outcomes. If these hypotheses are confirmed, interventions for FA can be adapted to incorporate strategies for increasing accountability to further promote recovery.

Additionally, several participants discussed the use of replacement foods to avoid the overconsumption of highly palatable foods. Specifically, participants described identifying alternative, less processed foods that they still found satisfying to eat in place of highly processed, ultra-palatable foods to avoid eating addictively. Interestingly, this is an established practice in the context of harm reduction, an evidence-based treatment for SUDs (Marlatt &

Witkiewitz, 2002; Wilson et al., 2015). For example, in the context of alcohol use, individuals may opt for alcoholic beverages that have a lower alcohol by volume (e.g., beer, wine) instead of higher alcohol by volume beverages (e.g., liquor) to reduce the chance for negative consequences (Ritter & Cameron, 2006). Similarly, in the current study, participants described opting for less processed foods (e.g., yogurt) in place of highly processed foods (e.g., cake) to reduce the risk of eating addictively. As such, it appears that some harm reduction techniques may be useful in the context of FA, and that individuals are motivated to engage in this practice. Future quantitative research should examine the use of food replacements in the context of FA to determine if this is an effective strategy to reduce addictive eating.

Finally, participants described eliminating highly processed, addictive foods in their home environment as helpful for reducing FA behaviors. Specifically, participants described eliminating foods such as sweets, salty snacks, and fast foods from their homes as helpful in reducing their addictive eating. This is a common practice in evidence-based treatments for SUDS, including CBT and relapse prevention, which emphasize reducing exposure to items or scenarios that may trigger use (McHugh et al., 2010). For example, in CBT for alcohol use disorder participants may be instructed to identify and remove objects within their home environment which trigger use (Morin et al., 2017). In the context of alcohol use disorder, this may look like removing items such as wine and bottle openers, wine glasses, or mixing containers, as well as alcohol itself from the home to reduce cravings and prevent consumption (Morin et al., 2017). In the context of FA, similar methods may be employed to reduce FA-related cues or triggers. For example, individuals can eliminate highly processed foods in their home environment, as well as related items such as fast food menus. Future quantitative research should examine how these exercises help to reduce food cravings and overall FA behaviors. If

they appear to reduce the impact of FA, future treatments should explicitly help individuals identify triggering food and items in their home to reduce symptoms of FA.

Barriers to Change

While reflecting on their personal experiences of FA, every participant recognized at least one barrier to changing their addictive eating behaviors. These barriers were split into two categories, internal barriers to change (i.e., reward/pleasure of highly palatable foods, eating to cope with negative emotions, and waning motivation) and external barriers (i.e., accessibility, affordability, important others eating addictively, time and effort). Many of these barriers also commonly occur in the context of SUDs and maladaptive eating behaviors. For example, a strong hedonic drive for substances of abuse is a known risk factor for the development of SUDs (Koob, 1996). Specifically, individuals who display strong reward responsiveness are more likely to develop addictions compared to individuals with lower reward responsiveness (Boog et al., 2014; De Decker et al., 2016), paralleling the strong reward experiences from highly palatable foods in the current study. Further using substances and overeating to cope with negative emotions are well documented (Magel & von Ranson, 2021; Ralph-Nearman et al., 2020), reflecting the emotional eating experiences of participants in the current study. Additionally, changes in motivation have been documented in the context of SUDs, and treatments often incorporate methods to enhance motivation for change in order to improve treatment adherence (Barnett et al., 2012; Macdonald et al., 2012; Powell et al., 2010).

Outside of internal barriers, many of the external barriers described by participants are also documented in the context of addiction. For example, accessibility to a substance is a known risk factor for the initiation of substance use in adolescence (Rhee et al., 2003), and was reported as a primary reason for problematic substance use in a sample of college students (Gupta et al.,

2013). Further, policy change related to the sale of alcohol and other substances has been shown to influence problematic substance use, with policies that increase access leading to more consumption (Yörük, 2014), and policies that reduce access to substances leading to less problematic use (Marcus & Siedler, 2015). Affordability of substances is also known to influence substance use and is often related to the accessibility of substances, with cheaper products being viewed as more accessible (Anderson, 2006; Gupta et al., 2013). Finally, social relationships are known to influence substance use. For example, individuals with better social support are more likely to initiate and complete treatment and remain abstinent after treatment relative to individuals with poor social support (Spohr et al., 2019). Alternatively, when social supports are unaware or insensitive to the needs of an individual recovering from substance use, it becomes more difficult to maintain recovery (Spohr et al., 2019). Because traditional substances of abuse are not required for survival, the necessity of spending time and effort preparing less processed healthier foods in the context of FA is less relevant in the context of traditional substance use disorders. However, this has been reported as a barrier to healthy eating more broadly, with many studies reporting that the time and effort to cook homemade meals often increases the likelihood of consuming convenience food options (Ana et al., 2007; Brunner et al., 2010). Thus, all of the barriers reported by participants in the current study appear to be relevant to traditional SUDs and other forms of maladaptive eating behaviors.

However, it is important to recognize that only a small number of these barriers can be addressed through individual behavior change. Specifically, emotional eating, changes in motivation, and the influence of others who eat addictively are all barriers to change that can be addressed on an individual level. Further, there are well-established, evidence-based techniques that have been developed and applied to the treatment of SUDs that may help to overcome each

of these barriers. For example, distress tolerance, a central element of Dialectical Behavioral Therapy, teaches individuals various skills to improve their ability to withstand negative emotional and/or other aversive states (Jeffries et al., 2016; Zvolensky et al., 2010). Distress tolerance has been employed in the context of SUDs to help individuals tolerate cravings and the urge to use substances as a method to cope with negative emotions (Bornovalova et al., 2012). Research demonstrates significant improvements in the ability to withstand negative emotional experiences and clinical improvement of SUD symptoms after treatment including distress tolerance skills (Bornovalova et al., 2012), suggesting that this may also be a useful in the context of FA.

Further, motivational interviewing techniques may be used to address fluctuations in motivations for recovery in the context of FA. As mentioned previously, motivational interviewing involves eliciting change talk from substances users including their reasons for change/recovery (e.g., improved physical health, improved interpersonal relationships) and their ability to make a change (e.g., strong social support, the ability to face challenges in the past; Dray & Wade, 2012; Smedslund et al., 2011). Quantitative research demonstrates that motivational interviewing can increase adherence to treatment and can improve treatment outcomes (Barnett et al., 2012; Lundahl et al., 2010; Macdonald et al., 2012). Thus, motivational interviewing may be an important addition to treatment in the context of FA, particularly for individual who experience regular shifts in motivation.

Finally, for individuals who struggle because important others also engage in addictive-eating, interpersonal effectiveness may help individuals with FA set important boundaries and communicate their needs. Interpersonal effectiveness, another component of Dialectical Behavioral Therapy, teaches individuals to manage interpersonal conflict, use assertive

communication to address their needs, and develop new supportive relationships or end destructive relationships (Linehan & Wilks, 2015). In the context of FA, individuals may learn how to end relationships or distance themselves from individuals who eat addictively or use assertive communication to describe their needs related to which foods may be allowed in the home. In quantitative research, less is known about the specific impact of interpersonal effective skills on SUDs over and above the impact of Dialectical Behavioral Therapy more broadly. However, interventions for SUDs that include interpersonal effectiveness skills do demonstrate improvement of SUD symptoms and reductions in substance use (Bornovalova et al., 2012; Courbasson et al., 2012). Thus, future research should explore the specific utility of interpersonal effectiveness in the context of both FA and SUDs to determine if these skills uniquely contribute to positive treatment outcomes. Overall, future quantitative research should explore the utility of distress tolerance skills for managing cravings and negative affect, the use of motivational interviewing for addressing fluctuations in motivations for recovery, and interpersonal effectiveness and assertive communication with important others in the context of FA to determine if these specific skills lead to improved treatment outcomes. If these hypotheses hold, such research will help to inform treatment interventions for FA, potentially reducing the negative impacts and duration of FA.

On the other hand, accessibility, affordability, the time and effort it takes to buy and prepare less processed foods, as well as the overwhelming reward of highly palatable foods remain out of the control of individuals suffering from FA. It is well established that our current food environment is over saturated with highly processed, highly palatable foods, making them highly accessible and hard to avoid (Olendzki et al., 2015; Walker et al., 2010). For example, one study in the United States found that of the 1,273 food establishments across three

neighborhoods, 30% were fast food outlets, 22% were convenience or liquor stores, while only 2% were supermarkets or grocery stores (Azuma et al., 2010). Further, highly processed foods are often cheaper than less processed, healthier foods (Azuma et al., 2010) incentivizing the purchase of highly palatable foods and potentially placing an even greater burden on low-income individuals with addictive eating behaviors. Additionally, unlike legal substances of abuse which carry sales regulations (e.g., age restrictions, limited times of purchase; Marynak et al., 2014; Wen et al., 2015), highly processed foods can be purchased by anyone able to pay regardless of age, and are often available at any time of day (Min & Min, 2013). Further, while there are environmental restrictions on substance use (e.g., no smoking zones) and societal norms about when it is and is not appropriate to use substances which help to reduce consumption (Barrientos-Gutierrez et al., 2007; Bauer et al., 2005), highly palatable food consumption is largely accepted across social and work environments, further increasing ease of access. Finally, highly processed foods have specifically been developed to be ultra-rewarding. In fact, researchers have uncovered a phenomenon in the food industry called the “bliss point”, where producers actually engineer food to achieve the most rewarding effect, to increase cravings for their product and to result in intense hedonic reward upon consumption (Moss, 2014). As such, there are numerous barriers to recovery from addictive eating that are outside of the control of the individual with FA.

Thus, without recognizing the significant influence of the food environment and the ultra-rewarding aspects of food itself on the development of and recovery from FA, we place blame on the individual for their inability to overcome their addictive eating. This increases the stigma surrounding overeating, weight gain, and obesity. This is not only problematic because initiatives to remove these barriers are ignored, but stigma leads to experiences of shame and guilt which

further perpetuate both compulsive overeating and other forms of substance use (Nolan & Eshleman, 2016). Overall, even if an individual learns emotional regulation and distress tolerance skills, builds awareness of their FA triggers, and engages in techniques like motivational interviewing to increase their motivation for change, the current food environment forces individuals with FA to constantly fight against their drive for consumption, making the risk of relapse likely. As such, it is imperative for broader, public policy change to address the current food environment in order to support individuals with FA to engage in successful recovery. Future quantitative research should further explore these barriers in the context of FA to determine how common they are across samples. If these barriers emerge as statistically significant, public policy initiatives should be developed to aid in recovery from FA.

Opinions about Empirically Supported Treatments

Overall, abstinence and CBT were the most preferred methods of treatment across participants, while harm reduction was less preferred. However, despite harm reduction being the least preferred treatment option by participants, many described using aspects of harm reduction as discussed above (e.g., replacement foods) to control their FA. As such, future quantitative research should still explore to efficacy of harm reduction interventions in the context of FA.

While discussing evidence-based treatment options, many participants believed abstinence was the only strategy that would ultimately result in FA recovery. This was largely driven by participants who felt that there was no way to control their eating once they began to eat highly processed, addictive foods, and as a result did not believe in moderation in the context of FA. Abstinence-based, 12-step models do demonstrate effectiveness for some individuals in the context of SUDs (Krentzman et al., 2011), and abstinence-models are the most common forms of recovery for SUDs in the United states (MacMaster, 2004). Further, for individuals with

severe SUDs, abstinence is often considered the most appropriate form of treatment (Morin et al., 2017) as these individuals may be the most likely to struggle with moderation. Thus, an abstinence-based approach in the context of FA may be appropriate for certain people, particularly those with severe FA.

However, other participants spoke about how abstinence from highly palatable foods created a mindset of deprivation, which they felt triggered addictive eating behaviors. Further, many felt that an abstinence-based mindset caused them to overeat if they did consume even a small amount highly palatable food. This phenomenon is labeled the abstinence violation effect and is well documented in the context of SUDs (Collins & Witkiewitz, 2013). For example, in the context of alcohol use, an individual who has had a prolonged period of abstinence but then consumes a small amount of alcohol may engage in binge drinking behavior because they have violated the rule of abstinence. Interestingly, these findings also align with restraint theory, suggesting that individuals may become more prone to overconsumption when dietary restraint (e.g., refraining from the consumption of all highly processed foods) is present. Additionally, experiences of guilt and shame are common which may lead to further consumption in an effort to reduce these negative emotional experiences (Menon & Kandasamy, 2018). Thus, abstinence-based treatments may be more harmful than helpful for individuals with FA prone to the abstinence-violation effect. It will be important for future quantitative research to identify individual factors that may make an individual more likely to experience the abstinence violation effect (e.g., perfectionism) in the context of FA. This line of research will then help to inform treatment interventions to ensure they are tailored to best address the needs of each individual and prevent potential consequences related to abstinence from highly processed foods.

In the current sample, CBT was also a commonly preferred method of treatment for FA. Specifically, many participants felt that CBT was more likely to get to the source of their addictive eating and felt it was a more holistic approach relative to abstinence, which they would lead to more significant behavioral change. However, despite being the preferred method of treatment, many individuals did not believe they would be capable of engaging in CBT because of the time and effort it can consume. This assumption is not unfounded, given that CBT often requires working with an experienced professional for at least one hour per week, for an average of 16 weeks, and also includes exercises and activities outside of treatment (McHugh et al., 2010). Further, many participants felt that CBT may be inaccessible because it requires work with a skilled therapist. However, CBT interventions for both SUDs and binge eating interventions have been converted to digital platforms (Hildebrandt et al., 2020; Nesvåg & McKay, 2018), and self-help models have been created (Newman, Szkodny, Llera, & Przeworski, 2011; Striegel-Moore et al., 2010) making them considerably more accessible. Further, digital and self-help variations of CBT for both binge eating and SUDs show positive results for the reduction of binge eating and substance use (Carrard et al., 2011; Hildebrandt et al., 2020; Newman et al., 2011). Thus, future quantitative research should explore the possibility of creating digital, CBT-based models for FA to increase treatment seeking and engagement with therapy. Further, if these interventions are proven to be effective, it may be helpful to engage in public education efforts to promote digital forms of CBT to increase engagement in treatment for FA. Additionally, motivation interviewing may increase motivation to engage in CBT treatment for individuals with FA, despite the time and effort it may take, by encouraging individuals to reflect on their motivations for change (Dray & Wade, 2012). In the context of eating disorders, the addition of motivational interviewing to evidence-based treatments resulted in significantly

improved motivation to engage in treatment (Macdonald et al., 2012). Thus, as suggested previously, quantitative research should explore the utility and effectiveness of motivational interviewing in the context of FA to determine if it improves treatment seeking and treatment outcomes. This may in turn inform future interventions for FA.

In general, these findings shed light on the importance of understanding each individual's unique experience when making treatment recommendations for FA. Quantitative methods should be used to clarify which treatment techniques may be suited for specific individuals. For example, regression analyses can be used to determine who may benefit most from abstinence-based models, relative to other approaches. Not only will this allow for more effective treatment, this may also help us to identifying individuals in need of treatment faster, potentially limiting the severity of FA and reducing long-term consequences of the disorder.

Conclusion

Overall, participants identified four important areas of their lived experience of FA, critical to informing our understanding of recovery and treatment. First, most participants experienced limited success in overcoming their FA, stating that despite multiple attempts to overcome their addictive eating, most experienced only short-term success. Additionally, some participants experienced consequences as a result of dieting. Generally, these experiences led many participants to feel hopeless about recovery from their FA. These experiences are also documented in the context of recovery for SUDs. Despite limited success, some participants did recognize helpful strategies to control aspects of their FA. Specifically, participants felt that accountability, the use of less palatable foods to replace highly palatable foods, and controlling the home environment as helpful in reducing the impact of their FA. Similarly, many of these strategies are supported in evidence-based treatments for SUDs. Next, participants identified

both internal (e.g., reward/pleasure of the food, emotional eating, changes in motivation) and external (e.g., affordability, accessibility, time and effort, others eating addictively) barriers to changing their FA. Fortunately, many evidence-based techniques, such as distress tolerance, motivational interviewing, and interpersonal effectiveness, may be adapted to the treatment of FA to address these concerns. However, many of these barriers (e.g., affordability, accessibility) are not in control on individuals with FA. As such, broad policy change may be necessary to reduce the overall impact of FA. Finally, participants overwhelmingly preferred abstinence and CBT interventions relative to harm-reduction for the treatment of FA. However, both treatments were also perceived to have limitations. For example, many felt that abstinence can lead to a sense of deprivation which may in turn lead to the abstinence violation effect, while others felt that CBT was too time consuming and effortful, lowering motivation to engage in treatment. Overall, quantitative methods should be used to clarify which treatment techniques may be best suited for specific individuals. By tailoring treatment to the individual, interventions may not only be more effective, but individuals may become more motivated to engage in treatment. Like all qualitative research, it is critical to remember that results of this study cannot be generalized to participants outside of this sample. However, these findings can provide insight for future quantitative research to determine if similar patterns emerge at the population level.

CHAPTER V

Limitations, Future Directions, and Overarching Conclusions

Limitations and Future Directions

While it was important to obtain a sample of individuals who endorsed YFAS FA for this initial study, individuals who meet criteria for YFAS food addiction but do not self-identify as food addicted were missing from the current study. As such, the experiences and insights of individuals who exhibit addictive eating behaviors, but do not perceive themselves to be addicted were missing in our analyses. In the context of SUDs, many individuals exhibit problematic substance use, but deny having a SUD or fail to seek treatment (Bettinardi-Angres & Angres, 2010). Research demonstrates that many individuals with problematic consumption underestimate their consumption, the duration of their problem and the impact a substance has on their well-being and the well-being of others, and overestimate their ability to control substance use (Rinn et al., 2002). Further, in a qualitative study of individuals receiving residential treatment for a SUD, participants described multiple factors (e.g., fear of stigma/rejection, ambivalence about quitting, lack of awareness of the problem) leading them to deny a diagnosis of SUD prior to receiving treatment (Howard et al., 2002). Given these findings, it is reasonable to believe that lack of insight may also occur in the context of FA. Thus, future research should prioritize the recruitment of these individuals who do not believe themselves to be addicted to food but still demonstrate problematic eating behaviors in order to understand how their experiences and perceptions of FA may differ from individuals who do believe themselves to be

addicted to food and their reasons for disagreeing with the diagnosis. This may help to improve interventions for FA and increase treatment seeking. Further, there may also be individuals who perceive themselves to be addicted to food but do not meet criteria for FA according to the YFAS 2.0. That is, individuals may feel like they are addicted to food despite failing to experience loss of control eating, the inability to cut down or other symptoms of FA. Thus, these individuals may be demonstrating addiction in a way we are failing to capture or may be labeling non-addictive eating behaviors, or low frequency addictive eating behaviors as an addictive disorder. It will also be important for researchers to examine these individuals to determine how their experience as a self-identified addict differ from individuals who do qualify for FA on the YFAS 2.0. This may help to clarify the difference between clinical and subclinical presentations of FA. Further, if these individuals do appear to be subclinical, prevention efforts can be developed to reduce the risk of the development of future FA.

Additionally, while our intention was to recruit only participants who met clinical threshold on the YFAS 2.0, four participants did not meet full criteria for FA because they did not meet threshold on the impairment and distress criterion. However, all of these individuals did meet threshold for two or more symptoms, the minimum number required for diagnosis (Gearhardt et al., 2016), and all individuals still perceived themselves to be addicted to food. Importantly, research has demonstrated little difference in pathology between individuals who meet for full FA criteria, including the impairment and distress criterion, and those who meet only the symptom threshold (e.g., have two or more symptoms but do not meet for impairment or distress; Ouellette et al., 2018). For example, in a sample of individuals with severe obesity seeking bariatric surgery, psychological distress (e.g., depression, quality of life) and non-addictive pathological eating behaviors (e.g., dietary restraint, disinhibition towards food, and

susceptibility to hunger) were equivalent between individuals meeting for impairment and distress and those who did not, but still met the symptom count threshold for FA (Ouellette et al., 2018). Further, endorsement of withdrawal was the only symptom to differ, with the impairment and distress group being more likely to endorse withdrawal items relative to the no impairment or distress group (Ouellette et al., 2018). In the current study, participants who did not reach criteria for FA on the YFAS 2.0 still produced detailed descriptions of their experiences with addictive-eating that clearly fell within the DSM 5 conceptualization of FA, and many of their lived experiences paralleled other participants who did meet full criteria. Therefore, future research, both qualitative and quantitative, may benefit from recruiting individuals who self-identify as addicted to food but do not meet criteria on the YFAS 2.0. This may help to ensure that all individuals impacted by addictive eating are included in empirical research.

Overall, the qualitative nature of this dissertation must be kept in mind. Because qualitative methods were employed, and our sample was not intended to be representative, the results of this study cannot be generalized outside of this specific sample. While the themes and insights that arose from this research can help to inform future quantitative research, they should not be used to support interventions or prevention efforts without quantitative support. Further, as with all qualitative research, the subjective experiences and theoretical orientation of the primary author and other research staff influenced the interpretation of participant responses and the development of subsequent themes. As such, it is important for other qualitative researchers to explore the validity of the YFAS and the lived experience of FA to reduce the impact of experimenter allegiance effects.

Despite these limitations, the current study provides numerous insights about the face validity and subjective interpretation of the YFAS 2.0, the developmental experiences of FA

across the lifespan, and treatment implications for FA. Future quantitative research should use these insights to inform future research studies which will ultimately increase our understanding of the lived experience of FA and help to improve treatments and prevention efforts.

Specifically, regarding aim one, although most items on the YFAS 2.0 were interpreted in line with the clinical conceptualization of FA, participants did on occasion provide inconsistent responses or provided responses that were difficult to classify as consistent or inconsistent. Further, items regarding withdrawal and tolerance were most commonly misunderstood. Given these inconsistencies, future quantitative research should be used to determine if modifying items on the scale may result in fewer inconsistent responses, particularly for items related to withdrawal and tolerance. Further, it may be important to develop a semi-structured clinical interview to allow trained clinicians to ensure that participant responses are in alignment with the DSM 5 conceptualization of SUDs. Aim one also emphasized potential problems with the heightened focus on problem-focused symptoms in the diagnosis of SUDs. Participants had the tendency to endorse these items at a lower rate and also seemed to consider the consequences of FA more globally rather than as separate concerns (e.g., role obligations, interpersonal problems). Future quantitative research should use item response theory to determine the predictive utility of individual problem-focused symptoms to determine they should be collapsed into a single construct. Additionally, novel experiences such as emotional eating and secretive eating emerged as common to the lived experience of FA that were not included on the YFAS 2.0. Currently, it is unclear if these experiences should be conceptualized as diagnostic indicators, indicators of severity, or as separate phenomena correlated with FA. Future research should explore the statistical prevalence of these constructs among individuals with FA. Further, item response theory may also be used to determine the predictive utility of these constructs.

Regarding aim two, childhood, adolescence and young adulthood, and adulthood emerged as important life stages regarding the lived experience of FA. These findings generated important implications for prevention and intervention at each life stage. In childhood, a home environment with limited access to highly processed foods was viewed as protective, while elevated exposure to highly palatable foods in childhood was viewed as a significant risk factor for the later development of FA. Thus, future quantitative research is needed to delineate helpful and harmful aspects of the home food environment to aid in prevention and early detection of FA. Further, food scarcity/food insecurity and a heightened drive for highly palatable foods in childhood were viewed as significantly contributing to the later development of FA. These findings highlight the need for future longitudinal studies to determine the statistical significance of these experiences in childhood on the later development FA at the population level. In adolescence and young adulthood, an increase in autonomy over food choices, weight gain, and the college food environment emerged as important to the lived experience of FA. Future quantitative research should be used to determine if specific parenting practices (e.g., parental monitoring, autonomy granting, parental warmth) are associated with greater risk for the development of FA. Further, quantitative research should explore the role of the college food environment on the severity of FA and determine the significance of weight gain as a consequence of the condition. These findings have many implications for prevention (e.g., quantitative identification of protective parenting practices/risky parentings practices, policy changes targeting the college food environment, early identification of risk for weight gain) and intervention initiatives. Finally, adulthood emerged as the most severe period of FA for the current sample and rather than discouraging addictive eating, increasing role responsibilities

(e.g., work responsibilities, parenting) were believed to contribute to FA. This may be due to the fact that one cannot abstain from all foods, and less processed foods are often more expensive, harder to access, and take more time and effort to prepare. Future research should determine if these barriers to recovery remain significant at the population level. If so, public policy initiatives may be adapted to reduce the burden of FA by increasing access to less processed foods. Finally, because most participants felt that dieting was a direct response to their addictive eating, future quantitative research should explore this phenomenon at the population level. If this trend remains significant, it lends support to the hedonic model of loss of control eating suggesting that early identification of individuals with a high reward drive may promote the prevention of FA.

Finally, concerning aim 3, participants identified several important experiences related to the treatment of FA which may help to inform future quantitative studies about prevention and intervention. First, most participants experienced limited success recovering from FA, citing short term success, multiple attempts to recover, negative consequences in response to attempts to recover, and an overwhelming sense of hopelessness about their ability to recover from FA more broadly. These experiences should be explored quantitatively to determine their prevalence and significance at the population level. Additionally, many participants identified helpful strategies to control aspects of their FA including accountability, replacement foods, and control over their personal food environment. These practices should be explored using experimental, quantitative methods to determine if they lower the impact of FA or promote recovery from the condition over and above other treatment interventions. Next, participants identified both internal (e.g., emotional eating, changes in motivation) and external (e.g., affordability, accessibility) barriers to changing their FA. Because many evidence-based treatments for SUDs and other

mental health conditions specifically target these constructs (e.g., distress tolerance, motivational interviewing) quantitative research should be employed to determine if these interventions are successful in treating FA. Additionally, because barriers such as affordability and access ability cannot be addressed via individual treatment, quantitative research should be used to determine if broad policy changes may be necessary to reduce the overall impact of FA. Finally, participants overwhelmingly preferred abstinence and CBT interventions relative to harm-reduction for the treatment of FA, despite voicing concerns about both interventions. Overall, quantitative methods should be used to clarify which treatment techniques may be best suited for specific individuals depending on their motivations and preferences for treatment. By tailoring treatment to the individual, interventions may not only be more effective, but individuals may become more motivated to engage in treatment.

Overarching Conclusions

Overall, this dissertation aimed to qualitatively examine the validity of the YFAS 2.0 and better understand the lived experience of FA in a sample of individuals with FA. Aim 1 demonstrated that participants overwhelmingly interpret items on the YFAS 2.0 in line with the clinical conceptualization of SUDs. In conjunction with strong evidence from quantitative research, this provides additional support for the validity the measure. Further, few items were considered irrelevant to the lived experience of FA, suggesting that YFAS 2.0 appropriately captures participants individual experiences. However, there were items related to withdrawal and tolerance that were prone to misinterpretation, and problem-focused items were often perceived globally rather than as individual constructs (e.g., role obligation, interpersonal problems). Further, novel constructs such as emotional eating, secretive eating, and weight gain

also emerged as important to the lived experience of FA that are not currently measured by the YFAS 2.0.

Aim 2 found that individuals in the current sample identified three important life stages related to FA; childhood, adolescence and young adulthood, and middle adulthood. While most participants did not believe their FA reached clinical severity during childhood, all participants did reflect on common experiences, which they felt contributed to FA later in life. Specifically, food scarcity and a strong desire for highly palatable foods were thought to contribute to the development of FA, while parental control of food choices was seen as positive by some participants and negative by others. Alternatively, many participants felt that their FA did reach clinical severity in adolescence and young adulthood. Further, constructs such as autonomy over food choice and the college environment were thought to contribute to FA. Additionally, weight gain appeared to be a relevant consequence of FA beginning at this life stage. Finally, most participants thought adulthood was the most severe period of FA and believed increasing family and work responsibilities contributed to worsening symptoms. Dieting was also considered throughout the lifespan, and most participants believed dieting was a response to weight gain and FA, rather than dieting contributing to addictive-eating.

Finally, Aim 3 demonstrated that most participants only experienced short-term recovery from FA despite multiple attempts and methods to control their addictive eating. However, participants also identified helpful strategies that reduced the overall impact of their FA, including accountability and finding healthier but satisfying alternatives to highly processed foods. Further, participants recognized internal (e.g., emotional coping, waning motivation) and external (e.g., affordability, accessibility) barriers that prevented them controlling their FA.

Finally, while participants preferred both abstinence and CBT to harm reduction, participants also recognized potential problems with all evidence-based treatment techniques for FA.

Together, these findings support the notion that FA is a valid construct that can impact individuals at every life stage of life. The emergence of novel constructs from each study provides direction for future quantitative research to explore them at the population level to determine their statistical significance and generalizability. This will allow researchers to gain a more accurate understanding of the lived experience of FA. Further, if these patterns hold in future quantitative analyses, they may have important implications for the prevention and treatment of FA at each life stage.

TABLES

Table 1. Participant Demographics, YFAS Scores, and Eating Disorder Status

ID	Sex	Age	Race/Ethnicity	BMI	mYFAS 2.0	YFAS 2.0	Eating Disorder Status
1	Male	51	White	60.9	Mild	Moderate	None
2	Male	39	White	26.4	Severe	Mild	None
3	Female	62	Black	28.2	Severe	Severe	None
4	Female	53	White	35.5	Severe	Severe	None
5	Female	42	White	53.2	Severe	Severe, Impairment not met	None
6	Female	45	White	31.7	Severe	Severe	None
7	Male	32	Black	28.7	Severe	Severe	Past Bulimia Nervosa
8	Female	25	White	32.4	Severe	Moderate, Impairment not met	None
9	Female	26	Black	36	Severe	Severe	Current BED
10	Female	30	White	22.5	Moderate	Moderate	None
11	Male	63	White	26.4	Mild	Moderate, Impairment not met	None
12	Female	30	Black	34	Moderate	Severe	None
13	Female	46	Asian	21	Mild	Mild, Impairment not met	None
14	Female	28	White	Not reported	Mild	Moderate	Current BED
15	Male	32	White	39.7	Mild	Severe	None
16	Female	45	Hispanic	29.3	Mild	Mild	None

Table 2. Examples by Symptom

	Consistent with DSM 5	Inconsistent with DSM 5	Can't be Categorized
Loss of Control	<p>“I transferred my alcohol addiction to ice cream and sugar. It got to be that I would buy a carton of ice cream and I'm like, "I'm only gonna have a half a bowl", or whatever, and I would end up eating the entire carton. There's just no stopping.”</p> <p>Female, 53, severe FA, YFAS item 3</p>	<p>“I started using that app, Noom. And tracking calories and I was able to lose 10 pounds which I felt helped and was really good for self-esteem, but tracking calories, I was like, "Oh, wow. I don't need to eat nearly as much as I do normally." And since then, I've noticed like, "Oh... " I wouldn't even identify this as a feeling before of where I feel sluggish, or just bloated.”</p> <p>Female, 30, moderate FA, YFAS item 3</p>	<p>“I think a lot of the times, I'm just bored, so I'm eating even though I don't actually feel the signs of hunger. It's like if I'm in front of the computer for a really long time or especially if other people are eating, I just feel like I need to be eating too.”</p> <p>Male, 63, 4 symptoms, -I/D, YFAS item 2</p>
Inability to Cut Down	<p>“I can't even count the number of times that I've been like, "This is the last time. I'm not gonna do this again." And I've tried different methods. I've tried keeping a notebook and listing what I eat each day. I've tried keeping a white board on my wall [...] I've tried making promises to myself, or making deals with myself... 'If I don't overeat this month, I can eat as much as I want on Thanksgiving.' And, of course, I never keep to it.”</p> <p>Female, 28, moderate FA, YFAS item 31</p>		<p>“I would go back to times where you're trying to be more carb-restrictive, especially. But I think my body knew, whether I was trying to deny it or not, that I needed more of something like that if I wanted to have the same physical activities that I was trying to do.”</p> <p>Male, 51, moderate FA, YFAS item 31</p>
Time Spent	<p>“I would literally go from Meijer to Kroger if they didn't have the specific ice cream... It was coffee ice cream. If they didn't have any, I would leave that store and go to</p>	<p>“I eat in short chunks of time and I kinda do it as I'm doing something else. If I'm heading out to go walk in the woods for pictures, I'll grab an apple and eat that while I'm out,</p>	<p>“I wasn't sure about that particular question because a lot of that goes with being 300 months pregnant. Sluggish and tired is part of the deal that directly relates</p>

	another [...] So yeah, I would definitely go out of my way. It was really pathetic, leaving a store to go to another and get ice cream. Why couldn't I have vanilla?" Female, 53, severe FA, YFAS item 7	when I begin to walk [...] Or snack in the car. So that I'm not spending a lot of time dedicated to it 'cause I got so many other things going on." Male, 63, 4 symptoms, -I/D, YFAS item 6	to food." Male, 51, moderate FA, YFAS item 5
Activities Given Up	"I didn't wanna go to this event, because I kind of had it in my head that I was done eating for the day and if I go there, I'm going to order a drink, and get a snack and stuff, and I don't want to do that even though I probably should be more social." Female, 30, moderate, YFAS item 10	"Could not eat, it was definitely a self-imposed, "I cannot eat these things, if I'm on a diet." Not like I'm actually allergic to anything there, but it's just like, "Yeah I'm gonna lose control, so I can't be in that situation." Female, 30, moderate FA, YFAS item 20	"I think that I'm not as focused with people around me 'cause I'm thinking of food, and I'm not able to do as much because I feel like the important things have been done when I eat. That's the most important thing." Female, 62, severe FA, item 18
Interpersonal Problems	"My husband. Sometimes, he's just like, "Really? You know how much you can eat. How does this happen?" So, he gets frustrated." Female, 45, severe FA, YFAS item 9		
Withdrawal	"Stopping sugar is... that's definitely an irritating thing. Once you get past three or four days, it's fine. But you can definitely tell it's not a good thing. I get very short-tempered, kinda like quitting smoking. Just, "Don't talk to me." I wanna just pretend that nothing is going on and just get through this. And once you do that it's fine. It's like, "Wow, I feel so much better after this." Female, 53, severe FA, YFAS item 11	"I definitely eat foods to feel better if I'm sad about life circumstances." Female, 30, moderate FA, YFAS item 11	"I'm so emotional that it's physical... I think I do feel a tiredness... Even though I feel sluggish after eating, when I don't eat certain foods, I feel tired. It's probably psychosomatic." Female, 62, severe FA, YFAS item 12
Tolerance	"The food doesn't give me as much enjoyment as it did before, so I'm	"I suppose that that's the problem with a lot of people who overeat.	"I was thinking about how when you were a kid and you got a slice of pizza or

	<p>eating the same amount but it doesn't seem to give me the endorphin high or whatever. I don't know, I just... I'm just waiting for it to come back.” Female, 62, severe FA, YFAS item 24</p>	<p>You're stuffing things into places so you don't have to feel, right? So, if I'm having a bad day, "I wanna have a cookie, I'm gonna have a cookie"” Female, 45, severe FA, YFAS item 26</p>	<p>two, and you were just so happy with that one or two slices. And now I have one or two slices and I'm like, "This was nothing, I need something else." And it's either more pizza, or some type of vegetables or something.” Female, 30, severe FA, YFAS item 24</p>
Role Obligation	<p>“Not cleaning up. I let the kitchen just get out of control. I won't even get dressed. So it's like the kitchen and the rest of the house will really be out of control, and all I want to do is get some snacks and get back in the bed and watch TV.” Male, 32, severe, YFAS item 19</p>		<p>“When I get a hungry or if I want food, I'm gonna eat. So whatever, it's gonna have to hold on for a minute.” Female, 30, severe FA, YFAS item 19</p>
Consequences	<p>“I shouldn't say it has not in any way made me happy because the actual eating brings me instantaneous joy. But, far outweighing that is how bad I feel afterward... whether it's shame, sadness, guilt, whatever.” Female, 28, moderate FA, YFAS item 16</p>		<p>“I [had] just left the doctor's office, and of course things were getting a little better, but I'm still not in the clear. So it's just on my mind but I would still go out and get whatever I want to eat afterwards and not think about it. Then it comes back later about the guilt, but yeah, it seems like sometimes it's almost like even if I was just reminded five minutes ago, it won't matter five minutes from now.” Male, 32, severe FA, YFAS item 22</p>
Craving	<p>“When I have certain cravings, like nothing is satisfying. So that's... I would go to the store to get that certain food or that certain taste. If I... Like I have a taste for chocolate then I have to have chocolate. It doesn't matter if I got other snacks or candy or anything, I want the chocolate ones.” Female,</p>		

	30, severe FA, YFAS item 30		
Hazardous Use	<p>“Driving the car [...] if I'm grabbing lunch somewhere or something, there's always the possibility of killing someone or myself. I'll reach in the back seat for something, and instead of just waiting until I got to where I was going, no, I'm gonna grab it, and then I'm like, "I could kill somebody." Female, 45, severe FA, YFAS item 33</p>		<p>“I have high blood pressure and I know I should cut out all the salt and fat or whatever, but I still eat them.” [asked if doctor has said anything]” No, usually they just say, "Oh, eat lean chicken, or whatnot.” Female, 45, mild FA, YFAS item 28</p>
Impairment or Distress	<p>“I've gotten so big, I've gained so much weight, I mean, it's bad. And it's just from that, not controlling it, not have any sense of being able to say, "Oh, I can have one." It's really... It's depressing to think about.” Female, 53, severe FA, YFAS item 16</p>		<p>“I would feel more distress 'cause I've, in the past, used the tracking apps for breaking down calories, macronutrients for each meal. I was doing that probably to the point where it wasn't healthy, then it was stressing me out 'cause I had to be on there checking how much do I got left for the day.” Female, 45, mild FA, YFAS item 16</p>

Table 3. Interview Schedule by Category

Categories of Questions	Specific Questions
Development of FA Over the Lifespan	<ol style="list-style-type: none"> 1. When did you first feel like you were addicted to food? What did your eating look like at that time? 2. What addictive eating symptoms did you notice first? What came next? (Continued until participants could no longer indemnify new behaviors) 3. When was your food addiction most severe? What did your eating look like at that time? 4. When do you feel like your food addiction was least severe? Why did you choose this time in your life? 5. Have there been periods when you didn't feel addicted/as addicted to food? What did that look like? What was happening in your life at the time?
Dieting Behaviors	<ol style="list-style-type: none"> 1. Have you engaged in dieting/dietary restriction at any point in your life? (If participants said they had not engaged in dieting, the following questions were not asked.) 2. When did you first start dieting/restricting? What was happening at that time? 3. Why did you start dieting? 4. What did you do to change your eating? 5. Overall, how do you think dieting fits into your experiences with addictive-like eating?
Which Foods	<ol style="list-style-type: none"> 1. What foods do you struggle with the most? What does it look like when you are confronted with those foods? 2. What foods do you struggle the least with? What does it look like when you're confronted with those foods? 3. How have the foods that you have struggled with changed over time
Benefits	<ol style="list-style-type: none"> 1. What benefits do you experience from eating in the way that you do? 2. What do you enjoy about eating in this way?
Treatment	<ol style="list-style-type: none"> 1. What makes it difficult to not eat in an addictive-like way? 2. What have you done to address your addictive eating? 3. What do you think would help you alleviate your food addiction? <p>Specific Follow Ups to the Treatment Handout</p> <ol style="list-style-type: none"> 1. Which method of treatment would you be most likely to engage in? Why? 2. Which treatment do you think would be the most effective? Why?

Table 4. Intervention Descriptions

Intervention	Description
Cognitive Behavioral Therapy	<p>CBT models believe that all foods can be consumed in moderation using a variety of psychological skills to manage eating behaviors. CBT may include cognitive strategies such as recognizing unhelpful or unrealistic thoughts about food consumption, behavioral strategies (e.g., eliminating trigger foods from your home/work environment, replacing addictive eating with another, non-harmful pleasurable behavior), or mindfulness/relaxation strategies to help an individual recover from food addiction. Practicing CBT for Food Addiction may include:</p> <ol style="list-style-type: none"> 1. Trying to eat all foods in moderation 2. Creating a list of trigger foods/foods that are the most problematic 3. Tracking eating behaviors, thoughts associated with eating, and emotional reactions to food over time. 4. Challenging thoughts about food and addictive-like eating such as “This craving will never go away.”
Harm Reduction	<p>Harm reduction recognizes that some foods are clearly riskier than others and that certain situations are more or less likely to lead to risky food consumption (e.g., when you are stressed, when you are by yourself late at night). Harm reduction requires an individual to identify which foods and situations are the most likely to lead to addictive eating. While the most problematic foods may require abstinence, other less risky foods may be consumed in safer, less triggering environments. Overall, harm reduction involves matching the food to the situation to reduce the negative consequences of addictive eating. Practicing harm reduction may include:</p> <ol style="list-style-type: none"> 1. Creating a list of your least-to-most problematic/triggering foods 2. Creating a list of the people, places, and situations you are most and least likely to engage in addictive-like eating. 3. Practice pairing lower-risk foods and with higher-risk situations, or higher-risk foods with lower-risk situations to minimize the occurrence of addictive like eating or the negative consequences of food addiction.
Abstinence	<p>Abstinence based strategies for food addiction involve completely eliminating all addictive foods (e.g., highly processed foods high in sugar and/or fat) from your diet. Abstinence models assume that food addiction is an organic disease that cannot be cured and as such, any amount of addictive food may be capable of triggering an addictive response resulting in negative consequences. Practicing abstinence may include:</p> <ol style="list-style-type: none"> 1. Complete abstinence from the consumption addictive foods 2. Engagement in support groups with other individuals who identify as “food addicts” such as Food Addicts Anonymous.

APPENDICES

APPENDIX A

The Yale Food Addiction Scale 2.0

This survey asks about your eating habits in the past year. People sometimes have difficulty controlling how much they eat of certain foods such as:

- Sweets like ice cream, chocolate, doughnuts, cookies, cake, candy
- Starches like white bread, rolls, pasta, and rice
- Salty snacks like chips, pretzels, and crackers
- Fatty foods like steak, bacon, hamburgers, cheeseburgers, pizza, and French fries
- Sugary drinks like soda pop, lemonade, sports drinks, and energy drinks

When the following questions ask about “CERTAIN FOODS” please think of ANY foods or beverages similar to those listed in the food or beverage groups above or ANY OTHER foods you have had difficulty with in the past year

All items are rated on the following scale:

- 0 = Never
- 1 = Less than monthly
- 2 = Once a month
- 3 = 2-3 times a month
- 4 = Once a week
- 5 = 2-3 times a week
- 6 = 4-6 times a week
- 7 = Every day

IN THE PAST 12 MONTHS:

1. When I started to eat certain foods, I ate much more than planned.
2. I continued to eat certain foods even though I was no longer hungry.
3. I ate to the point where I felt physically ill.
4. I worried a lot about cutting down on certain types of food, but I ate them anyways.
5. I spent a lot of time feeling sluggish or tired from overeating.
6. I spent a lot of time eating certain foods throughout the day.
7. When certain foods were not available, I went out of my way to get them. For example, I went to the store to get certain foods even though I had other things to eat at home.
8. I ate certain foods so often or in such large amounts that I stopped doing other important things. These things may have been working or spending time with family or friends.
9. I had problems with my family or friends because of how much I overate.
10. I avoided work, school, or social activities because I was afraid I would overeat there.
11. When I cut down on or stopped eating certain foods, I felt irritable, nervous or sad.
12. If I had physical symptoms because I hadn't eaten certain foods, I would eat those foods to feel better.
13. If I had emotional problems because I hadn't eaten certain foods, I would eat those foods to

feel better.

14. When I cut down on or stopped eating certain foods, I had physical symptoms. For example, I had headaches or fatigue.
15. When I cut down or stopped eating certain foods, I had strong cravings for them.
16. My eating behavior caused me a lot of distress.
17. I had significant problems in my life because of food and eating. These may have been problems with my daily routine, work, school, friends, family, or health.
18. I felt so bad about overeating that I didn't do other important things. These things may have been working or spending time with family or friends.
19. My overeating got in the way of me taking care of my family or doing household chores.
20. I avoided work, school or social functions because I could not eat certain foods there.
21. I avoided social situations because people wouldn't approve of how much I ate.
22. I kept eating in the same way even though my eating caused emotional problems.
23. I kept eating the same way even though my eating caused physical problems.
24. Eating the same amount of food did not give me as much enjoyment as it used to.
25. I really wanted to cut down on or stop eating certain kinds of foods, but I just couldn't.
26. I needed to eat more and more to get the feelings I wanted from eating. This included reducing negative emotions like sadness or increasing pleasure.
27. I didn't do well at work or school because I was eating too much.
28. I kept eating certain foods even though I knew it was physically dangerous. For example, I kept eating sweets even though I had diabetes. Or I kept eating fatty foods despite having heart disease.
29. I had such strong urges to eat certain foods that I couldn't think of anything else.
30. I had such intense cravings for certain foods that I felt like I had to eat them right away.
31. I tried to cut down on or not eat certain kinds of food, but I wasn't successful.
32. I tried and failed to cut down on or stop eating certain foods.
33. I was so distracted by eating that I could have been hurt (e.g., when driving a car, crossing the street, operating machinery).
34. I was so distracted by thinking about food that I could have been hurt (e.g., when driving a car, crossing the street, operating machinery).
35. My friends or family were worried about how much I overate.

APPENDIX B

Diagnostic Criteria for DSM 5 Eating Disorders

Anorexia Nervosa

- A. Restriction of energy intake relative to requirements, leading to a significantly low body weight in the context of age, sex, developmental trajectory, and physical health. Significantly low weight is defined as weight that is less than minimally normal, or for children and adolescents, less than minimally expected.
- B. Intense fear of gaining weight or becoming fat, or persistent behavior that interferes with weight gain, even though at a significantly low body weight.
- C. Disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or persistent lack of recognition of the seriousness of the current low body weight.

Subtypes

Restricting type: The individual has not engaged in recurrent episodes of binge eating or purging behavior (i.e., self-induced vomiting or the misuse of laxatives, diuretics, or enemas). This subtype describes presentations in which weight loss is accomplished primarily through dieting, fasting, and/or excessive exercise.

Binge-eating/purging type: The individual has engaged in recurrent episodes of binge eating or purging behavior (i.e., self-induced vomiting or misuse of laxatives, diuretics, or enemas).

Bulimia Nervosa

- A. Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:
 - a. Eating an amount of food in a discrete period of time (e.g., within a 2-hour period) that is definitely larger than what most individuals would eat in a similar period of time under similar circumstances.
 - b. A sense of lack of control over eating during the episode (e.g., feeling that one cannot stop or control what or how much one is eating).
- B. Recurrent inappropriate compensatory behaviors in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, or other medications; fasting; or excessive exercise.
- C. Binge eating and compensatory behaviors occur at least once a week for three months
- D. Disorder does not occur exclusively during episodes of anorexia nervosa.

Binge Eating Disorder

- A. Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:
 - a. Eating an amount of food in a discrete period of time (e.g., within a 2-hour period) that is definitely larger than what most individuals would eat in a similar period of time under similar circumstances.

- b. A sense of lack of control over eating during the episode (e.g., feeling that one cannot stop or control what or how much one is eating).
- B.** Binge-eating episodes are associated with three or more of the following:
 - a. Eating much more rapidly than normal.
 - b. Eating until feeling uncomfortably full.
 - c. Eating large amounts of food when not physically hungry.
 - d. Eating alone because of feeling embarrassed by how much one is eating.
 - e. Feeling disgusted with oneself, depressed, or very guilty afterward.
- C.** Marked distress regarding binge eating is present.
- D.** Binge eating occurs at least once a week for three months.

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