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Need States Based on Eating Occasions Experienced by Midlife Women Section of the Journal for which the manuscript is intended: Research Brief

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Abstract

Objective—To identify a comprehensive set of distinct “need states” based on the eating occasions experienced by midlife women.

Design—Series of 7 focus group interviews.

Setting—Meeting room on a university campus.

Participants—A convenience sample of 34 multi-ethnic women (mean age = 46 years).

Phenomenon of Interest—Descriptions of eating occasions by “need states” - specific patterns of needs for the occasion.

Analysis—Interviews were audio taped, transcribed verbatim and analyzed for common themes using qualitative data analysis procedures.

Findings—Eight need states suggested a hypothetical framework reflecting a wide range in emotional gratification. Need states with a low level of emotional gratification were dominated by sets of functional needs such as coping with stress, balancing intake across occasions, meeting external demands of time and effort and maintaining a routine. Food was a means for reinforcing family identity, social expression and celebration in need states with high levels of emotional gratification. Occurrence of need states varied by day and meal/snack occasion, with food type/amount dependent on need state.

Conclusions and Implications—Eating occasions are driven by specific sets of needs ranging from physical/functional to more emotional/social needs. Addressing need states may improve weight intervention programs for midlife women.

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Keywords

midlife women; eating occasions; need states; prevention of weight gain

INTRODUCTION

Overweight and obesity are major risk factors for the development of associated diseases such as type 2 diabetes and heart disease in midlife women (1-2). Several studies have documented the tendency for women to gain weight with age or that older women (40-60 years) weigh more than younger women (20-39 years) (3-5). Age-related changes in body composition for women include loss of lean mass and gains in weight, fat mass and central fat deposition (6-7). Other challenges to maintaining energy balance for this age group are decreases in total energy expenditure and basal metabolic rate (8-9).

Positive energy balance implicated in the increasing prevalence of overweight and obesity in midlife adults is dependent in part on physiological changes due to aging (6-9), but also on environmental and behavioral factors that influence eating behavior. Environmental changes occurring in midlife that may affect eating patterns include changes in household composition and social context (10-11), disposable income (12), and work responsibilities and time for food preparation (13).

A social-ecological model may be useful in explaining how eating behaviors of individual women are influenced by multiple socio-environmental and personal factors (14). From an ecological perspective, these factors are influential within the situational context of eating occasions at an intrapersonal level (e.g., the individual's attitudes, norms, self-efficacy), an interpersonal level (e.g., her family, friends, co-workers) and an organizational level (e.g., her community). Results from recent studies have identified how socio-environmental and personal factors impacted eating behavior within eating situations. For example, structure of the day, regularity and habit were important influences on meal frequency, location, and intake by adults (15-17). Social setting as an attribute of an eating occasion was described as including the dimension of "presence of others" and social processes such as celebration or bonding (18). Situational norms for food intake were dependent on the eating situation with portion size served and social influence often dictating intake (19). It was suggested that the perception of time scarcity contributes to intake of more convenience products, pre-prepared meals and eating meals in restaurants (20). Emotional triggers of food intake and response to eating situations vary according to individual characteristics (21).

Market researchers define need states as the inner and outer influences (or triggers) impacting on an individual that result in a purchase or usage decision (22). As applied in the context of this study, need states comprise the occasion and all of the internal and external drivers filtered by the individual and perceived as needs surrounding an eating occasion. These drivers may operate at intrapersonal, interpersonal or organizational levels. A comprehensive approach to understanding eating behavior in the context of needs within eating occasions for midlife women has not been previously utilized. The purpose of this descriptive research study was to identify a comprehensive set of distinct "need states" based on eating occasions experienced by midlife women. A measurement instrument can be developed based on the set of need states identified to assess relationships between participation in various need states and eating behaviors. These findings can then be used to develop an intervention for midlife women by tailoring strategies to address problematic eating behaviors that are specific to particular need states.

DESCRIPTION OF THE PROJECT

We conducted 7 focus groups with 4-8 women in each group (total n=34) in evening sessions during June and July 2005 in a meeting room at a University campus building. Inclusion criteria were 1) female aged 35-55 years, 2) no chronic medical conditions, 3) no special diet such as vegan or therapeutic diet, 4) not breastfeeding or pregnant, and 5) ability to speak and read English. Subjects were recruited from fliers posted at a university in a large Midwestern metropolitan area. Volunteers were asked to provide information regarding a range of lifestyle, physical and attitudinal factors including having children under the age of 16 living at home, being employed outside the home, perceived weight status, and concern about health. We included all women volunteers according to their availability based on our scheduled meeting dates and times. Women received \$45 for their participation. The University Institutional Review Board approved the use of human subjects in this research study and informed consent was obtained prior to participation.

Interview Guide

The focus group interview guide was developed by study investigators with expertise in marketing research and nutrition. Questions were written to first identify common eating situations and then to further explore into the context surrounding the situation. Broad exploratory questions were used to elicit information about attitudes and needs based on influences at the intrapersonal, interpersonal or organizational levels (Figure 1). Results regarding food attitudes will not be presented here. Participants started by introducing themselves and describing their household make-up. Then they listed and described different types of eating occasions experienced over the past 24 hours in terms of location, meal/snack, type of food consumed and rationale for choosing the foods consumed. Moderators selected 3-4 common occasions and asked more specific questions to further probe the underlying situational and emotional/social needs within each occasion. Moderators wrote notes on a flip chart to summarize needs and benefits and keep participants engaged in the process. Finally, a projective exercise was conducted asking women to generate an analogy relating the occasion to a movie, television show, book or destination and to explain their choice. Interview sessions took an average of 60-90 minutes and were audiotaped. Assistant moderators took notes.

Two moderators conducted the focus groups according to standard focus group procedures (23). One had previously attended focus group training conducted by R. Krueger (23) while the other had over 25 years of experience conducting focus groups. Both moderators conducted the first two groups together to ensure that procedures for the remaining groups would be consistent.

All transcribed text was first read independently by three investigators. Next investigators met and worked together to identify portions of text that were related to specific types of eating occasions from all focus group sessions based on similar characteristics regarding location, meal/snack, type of food consumed and rationale for choosing the foods consumed. These segments of text were combined and analyzed as a unit describing a specific type of occasion. Initially, all three investigators used an open coding structure to independently code the combined text pertaining to needs and benefits within two types of occasion. Investigators then met to compare and refine the coding categories. Next, all investigators used the agreed upon coding categories to independently code the combined text for all remaining types of occasions. Lastly, investigators met to read through all segments of text with common codes within each type of occasion and to generate common themes based on the constant comparative method (24). Discussions were also held to identify representative quotes.

PROJECT FINDINGS/DISCUSSION

Focus group findings were used to develop a hypothetical framework for describing the full range of eating occasions experienced by mid-life women as defined by the needs experienced in specific eating occasions (Figure 2). The framework is comprised of a total of eight need states which vary dramatically with respect to the combinations of needs experienced by individuals in given situations. The need states can be characterized by dominant sets of needs that distinguish them from one another.

Although each need state reflects a unique combination of needs, the continuum displayed reflects a wide range in emotional gratification from the lowest to highest levels based on a hierarchy similar to that described by Maslow (25). The order follows the concept where eating at the lowest level is essentially a motor activity to meet physical needs while at the higher levels, food becomes a means to reinforce family identity, for social expression and celebration, or to gain recognition. As such, the need states surrounding eating occasions operate at intra- and interpersonal levels as well as at organizational levels reflecting the social-ecological model of determinants of eating behavior (14). Each of the eight need states are summarized in the order of their lowest to highest emotional gratification level.

Need State Profiles

Mindless Pastime—The Mindless Pastime need state was made up of occasions where eating was more of a motor activity, with little or no emotional connection. Consumption of mainly snack foods provided the individual with oral gratification when bored or when involved in other more dominant activities such as watching a movie, socializing with others, drinking or food preparation. The other activity was the focal point and eating contributed an entertainment value. Food availability and nutritional content were strongly influenced by the location or the family member in control of shopping, though taste was still an important factor.

Individuals had a tendency to overeat because there was limited consciousness of how much was eaten "...you take the whole bag out, all of a sudden before you know it, the thing is gone". Some women believed that "mindless munching" was triggered by hunger, although the activity did not seem to be governed by appetite satisfaction. Mindless munching was unconscious and may have taken the individual by surprise when she realized how much she had consumed, "...go(ing) to the neighbor's house...pulling out snacks, (and) you're eating... you're talking, socializing ...you don't even know you're really eating". Distracting activities have previously been shown to cause an individual to ignore orosensory signals of satiation (26) and that enlarged portion sizes may lead to underestimation of intake (27).

Habitual—This need state was best characterized as "the usual". Foods were consumed as part of a routine which established a sense of normalcy and comfort. The foods mentioned tended to be simple foods like cereal, eggs, English muffins, bagels, juices and milk. Women were looking for the right amount and type of food that could be eaten quickly. The breakfast occasion was most often mentioned because morning routines tended to be fairly regimented. The occasion was not a time for indulgence, but was based on practicality with considerations to both value and health. "*It's always a bowl of cereal, soymilk and fruit*". Khare and Inman (17) showed that the breakfast meal usually contained fewer foods with negative nutrients such as saturated fat compared to lunch and dinner. Eating breakfast was also associated with higher intake of micronutrients compared to skipping breakfast among US adults (28).

Low Effort—In this need state women were looking for food that could satisfy hunger quickly and easily. The individual wanted to spend as little time and effort as possible, because other activities had a higher priority than food preparation. "*It's (about) buying time. ...It's a stop-gap*". Faced with external time demands, individuals felt torn between taking the necessary

time to plan and prepare healthy foods and serving convenient less healthy options. The need for convenience has been recognized as an important influence on food consumption behaviors of adults (29).

In our study, examples of foods involved in this occasion were likely to be frozen or packaged meals or fast food and occurred most often during the evening meal... “I’ve got some frozen thing in the microwave and (I’ll) be eating in less than ten minutes”. During this occasion, individuals were willing to trade price and healthfulness of the food for something fast and easy to prepare and eat. Women described analogies to the television show *South Park* because it represents relaxed values and *Survivor* because they are in a survival mode. There was some consideration with respect to health, taste and family acceptability, but time pressures called for compromise. In another qualitative study, Devine et al. (30) also found that coping strategies for time constraints included making tradeoffs, simplifying or speeding up meals, and multi-tasking.

Pursuing Health—Although healthful eating was the ultimate goal in the Pursuing Health need state, two somewhat different approaches to balancing food intake were observed within and across eating occasions - one involved the balancing of the nutritional qualities of the food consumed, and the other involved the balancing of the amount of food consumed.

With respect to the first approach, individuals balanced intake of food types to maintain or improve health. Foods consumed were described according to food group, “protein, carbs, fruits, vegetables and dairy”. Balance within a meal was likely to include tradeoffs such as having a salad instead of fries for lunch. Food intake was also balanced across meals throughout the day. “I do have balance within meals, but sometimes it’s broader”. Women derived a sense of well being and accomplishment in return for proactively taking care of themselves and a sense of guilt if they did not. “We can’t control much of our environment. We can’t control our genetics or our history, but food is like the one thing you can actually control. So it feels like the smart thing to do”. Balance was viewed as important for long term health benefits as well as more short term physical effects such as a sense of well being, mood or outlook. Balance was also seen as requiring effort and conscious planning in a general sense and was not based on a precise formula.

As for the second approach, balance was physically oriented around satiation and the need to control food intake to avoid overeating or being hungry. Compensation in the amount of food consumed was described as remedial to fix a problem. The amount of food eaten over time was balanced to compensate for overindulging “On Sunday, we’ll have a big noon meal, and then, at suppertime, maybe just have popcorn and some fruit or something.” or “I always try to spread the calories out for the day”. An analogy for this eating occasion was the television show called *Monk* because the main character is overly fixated on balance and control. Another was a *general category of a chick flick movie* because of the sense of emotional well-being resulting from experiencing the occasion.

Soothing—In Soothing eating occasions, food was the means of changing one’s emotional state. The individual may have been experiencing such feelings as boredom, fatigue, stress, anxiety or even anger, and eating was intended to provide a short term release enabling the individual to cope with the situation or to serve as a reward or release after the fact; i.e. “...an emotional payback”. Similarly, women in other studies also reported they were more likely to consume sweet or high fat foods after a sad event or when stressed (31-32).

In our study, the role that the food took on in this need state was a demanding one. It had to provide a sense of anticipation and absorb the individual’s attention through delivering high gratification “...the food experience can absorb me for at least fifteen to twenty minutes”.

Therefore the foods selected in these occasions tended to be rather indulgent and caloric. Will power and otherwise healthful eating behavior could be entirely overridden by the more urgent emotionally-based needs "...I try not to eat sweets, but when I am stressed I will go for that sweet treat". In projective analogies, one respondent compared this need state to a trip to *Aruba*, because "*it is far away* (from an emotional standpoint)," while another compared it to a trip to *Duluth* (Minnesota) because "it is close, and not too much of a big deal to get there, but still pleasant and diverting".

Nurturing—In Nurturing eating occasions, the woman was responsible for providing food to others, typically her immediate family. Although she also consumed the food, the more dominant needs reflected caring for others and managing the occasion. Nurturing tended to occur at family meals especially at dinner. Women viewed the meal as a catalyst for family time and bonding "...*it's a way to connect with each other*", when all members of the family are present and communicate with one another. Further, the Nurturing meal was considered a means to establish and maintain family traditions "...the tradition that they will continue on in their lifetime ... that will carry on (as a) foundation". Therefore women indicated having strong aspirations with respect to this type of occasion. However sometimes they felt a sense of frustration when not able to fulfill the expected role because of limited time and budget and fussy kids. The more realistic Nurturing occasions frequently reflected compromise.

Women in our study stated several strategies such as, serving foods that appealed to the broadest number of family members expecting all to make the best of it "...our spaghetti - the kids won't put much sauce on it so you know it is a compromise, everybody gets the spaghetti, bread and salad", or provided alternatives to those who dislike a particular dish "...there are times (when) my husband and I could really go for this, so we'll make (it) and make something separate for the kids", or simply catered to the tastes of the children - the lowest common denominator "... the night that my husband isn't home, I will prepare macaroni and cheese and hot dogs - the typical kid meal, and I will eat that, but that's not the first choice I would have made". In other studies, the influence of mothers as the provider of food for children was also likely to have reciprocal effects on intake and availability in the home (33-35). For example, positive associations were found between mothers' and adolescents' intake and home availability of high energy drinks (33), between fast-food purchases for family meals and intake of fast foods and salty snack foods for both parents and adolescents (34), and between less frequent serving and consumption of milk by mothers and lower frequency of girls meeting calcium requirements (35).

Respondents in our study who voiced a higher degree of interest and involvement in food preparation tended to derive a sense of creativity and accomplishment in serving foods requiring more skill to prepare. Many had developed their own special recipes, and special touches that have become their signature dishes for the family. Occasionally the meal preparer receives recognition and appreciation from others for their effort, and when this happens the individual derived considerable emotional gratification "...so when you actually finally get to the point where you make something everybody likes, you try to soak it in as much as possible because you never know when it'll come around again!". Respondents used such descriptive names as "*Sit Down Family Meal*", "*Attempt to Coordinate*", and "*Kids in Control*" when asked to identify Nurturing occasions with a name.

Social—In the Social need state, others present at the occasion strongly influenced eating behavior, and typically caused the individual to consume different foods - typically more indulgent and/or filling foods - than they would have had the others not been present. Three types of Social occasions were observed that differed with respect to the individual's role regarding others participating in the occasion. In the first type, the occasion was a passive social occasion where the individual followed the lead of others. Women derived permission to

indulge by the example of others, and sometimes even as a courtesy to others ...“I never turn away something that they've prepared, just out of being polite, but it's certainly probably not what I'm going to eat if I were to eat lunch”. Herman et al. (36) has also suggested that the presence of others is a normative influence on amount of food consumed. In our study, women indicated that the enjoyment of food was the catalyst for the social interaction and creation of social bonds. The food was meant to be part of the entertainment and to contribute to the overall experience. Women wanted this occasion to be memorable and the food to help them remember the occasion as special.

The second type of Social occasion was hosting/entertaining where the individual was also the gatekeeper of the foods available. She tried to create a favorable impression by serving dishes that were tasty and sometimes healthy depending on her attitudes toward health and those of her guests. This occasion involved considerable organization and planning, and therefore reflected the host's social and food preparation skills whereby she could derive a sense of social standing as a result of her perceived ingenuity and effort.

The third type of Social occasion was a group effort, usually a potluck, where many people contributed food items towards the meal and there may have been some recipe swapping. In these occasions, the individual wished her contribution to stand out from others therefore was likely to develop signature dishes (e.g. three bean casserole) that became recognized as her creations. When a woman played a role in hosting/entertaining or contributing to a group effort, she was motivated by a need for recognition or social standing. In these occasions more elaborate and filling foods were prepared and consumed, thus contributing to a greater tendency for indulgence. This may represent a problem with weight maintenance for some women depending on the frequency that these types of occasions are experienced.

Celebratory—In the Celebratory need state people gather together for a special occasion and food is a part of the festivities. The Celebratory occasions were regularly occurring events such as holidays, or more elaborate family meals that served as a means to make and celebrate connections between family members, social groups, friends and even one's past. There was an association between the Celebratory occasion and the sensory characteristics of the food. “It's almost like the fourth of July for me is watermelon”. Foods eaten during these special occasions became rituals and were repeated over the generations due to connections with memories, traditions and culture. These influences were more dominant than cost, convenience or healthfulness.

These Celebratory occasions could also be triggered by season of the year, where the availability of certain seasonal foods (berries, watermelon, tomatoes) created an anticipation for indulgence based on memories for the season and the availability of the foods associated with that season.

LIMITATIONS

A limitation of the study was the use of a convenience sample of women from one specific geographic area thus limiting generalizability. Due to the nature of our recruitment strategy, our sample did not adequately reflect the demographic characteristics of a general population of midlife women in terms of race/ethnicity, socioeconomic status, and other variables dependent on geographic area. These descriptive data were collected as part of a larger study and need to be confirmed in a quantitative manner to enhance interpretation and usefulness.

IMPLICATIONS FOR RESEARCH AND PRACTICE

Findings from the current study support the complexity of eating behavior and underlying motivation for food choice within different eating occasions. To address behavior change in

the development of weight intervention strategies for midlife women, nutrition professionals need to focus on specific eating occasions and the woman's hierarchy of needs. Professionals can help women either reorder priorities for needs within the occasion or find relevant ways to address needs with more healthful food choices. Eating occasions are driven by need states that vary in the level of emotional gratification that is provided. Therefore interventionists should consider the continuum of need states from lower level physical needs to higher level emotional and social needs when addressing weight management in midlife women. For example in the Soothing need state, food was integral to changing the emotional state and required a degree of indulgence. In this case, nutrition professionals need to help the individual suggest types of food or portion sizes that perform well in that role yet may be more healthful, for example, limiting portions of ice cream and adding fresh seasonal fruits.

Research is needed to describe how motivations that drive behavior in specific eating situations influence the healthfulness of eating behaviors in terms of energy, nutrient and food group intake. Research is also needed to understand how participation in various need states is related to weight-related constructs such as energy balance, BMI and weight change or maintenance in midlife women.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Needs within eating occasions

What different types of eating occasions have you had over the past 24 hours?

Probes: Time of day? Day of week? Meal or non-meal? What was eaten? Why did you eat what you did?

Select three common occasions at home and away from home, for each common occasion ask:

1. Who has experienced this type of occasion?
2. What is going on?
3. What needs surround the occasion – (Complete the sentence: “I want to....?”)
4. What types of foods fit the occasion – (Complete the sentence: “I wanted something that...?”)
5. What types of foods do you eat?
6. How do you feel about the foods you eat, why?

Probes: How did the food please you? How did the food disappoint you?

Projective Exercise:

1. If this occasion were a movie/television show/book, what would it be, why? If this occasion were a destination, where would it be, why?

Figure 1.
Focus Group Interview Guide

Describing Eating Occasions Among Mid-Life Women

Range of Emotional Gratification	High	Need State	Dominant Needs
		Celebratory	Celebrating a particular occasion. Observing holidays, and family occasions. Creating a sense of identity/ unity. Preparing signature/ ritual dishes.
		Social	Socialize with others. Treat/indulge others. Show off cooking skills/style. Derive a sense of pride.
		Nurturing	Attending to the needs of others. Expressing one's love for others through food. Receiving appreciation from others. Reinforcing family bonds.
		Soothing	Using sensory characteristics of food to derive emotional gratification. To cope with stress, reward one's self and/or draw connection with inner self.
		Pursuing Health	Having a sense of long term health benefits. Choosing a more nutritionally beneficial option, or balancing nutrients within/across eating occasions.
		Low Effort	Influenced by external demands related to time and effort. Seeking something easy/fast. Many times compromising nutrition and price.
		Habitual	Maintaining a routine. Triggered by time of day. Providing comfort in sense of normalcy.
	Low	Mindless Pastime	Eating for entertainment value. Frequently in combination with other activities.

Figure 2.
Hypothetical Need State Framework