



Examining emotions and comparing the EsSense Profile[®] and the Coffee Drinking Experience in coffee drinkers in the natural environment



Alisa Kanjanakorn, Jeehyun Lee*

Dept. of Culinary Arts and Food Science, Drexel University, 3141 Chestnut St, Philadelphia, PA 19104, USA

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ABSTRACT

Emotions were measured using two methods: the EsSense Profile[®] and the Coffee Drinking Experience (CDE) using coffee drinkers in a large metropolitan city. The CDE is a product specific emotion scale developed for coffee consumption. The objectives of the study were to measure and compare emotion changes elicited by coffee beverages consumption using the EsSense Profile[®] and CDE. Time of the day and gender effects were also considered as possible influences. A total of 332 coffee shop customers from six coffee shops in the Philadelphia, Pennsylvania area participated in the natural environment study. Questionnaires were placed at the coffee shop instructing voluntary participants to rate their emotions on a 5-point intensity scale before and after consuming their coffee beverage purchased from the coffee shop. The response rate from the six coffee shops was 57%. Both scales showed participants showed positive emotions before coffee consumption and rated the negative or unclassified terms (aggressive, bored, disgusted, guilty, and worried) the lowest in emotional intensity. Emotional change from coffee beverage consumption was captured by energetic, satisfied, and pleased by both scales at similar rating. However, additional significant emotional changes were found when using CDE in boosted, jolted, and jump start. Both male and female participants felt both positive and negative emotions with neither gender showing more pronounced emotions. For time of day effects, the evening group showed less emotion changes than the morning and afternoon group.

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1. Introduction

Mood and emotions are one of the key variables that can affect a person's food choice. The most common way in which food can affect behavior is changing a person's state of arousal and mood during consumption. Motivation to eat, the quantity, the frequency, and the choice of foods are affected by a person's moods and not necessarily related to physiological needs or the nutritional composition of food (Desmet & Schifferstein, 2008). These variables can greatly affect a sensory evaluation of a product. How one feels affects his/her food choices and those food choices in turn further affect one's mood and emotions. Therefore, retaining competitiveness in the market today relies on sensory evaluations in order to provide desirable emotional experiences of consumer products.

1.1. Emotion research

At the broadest level, emotions can be considered on two dimensions: positive versus negative and pleasure versus displeasure (King & Meiselman, 2010). The earliest emotion scale developed, the Profile of Mood States (POMS) (McNair, Lorr, & Droppleman, 1971), uses sixty-five mood terms, which are rated on 5-point scales. The scale covers moods on six dimensions: tension-anxiety, depression-dejection, anger-hostility, vigor-activity, fatigue-inertia, and confusion-bewilderment (McNair et al., 1971) and mostly dominated by negative descriptors with the exception of one positive mood dimension (vigor-activity). POMS was developed for use in clinical research and because of its use within a clinical psychiatric setting, the negative descriptors oftentimes offended the consumer by including such words as tormented and destroyed (King & Meiselman, 2010; McNair et al., 1971). These negative terms made testers question the real objective of the test (King & Meiselman, 2010). The Food Choice Questionnaire developed by Steptoe, Pollard, and Wardle (1995) identified nine factors that were determinants of food choice. They found that mood was a key variable, as well as sensory appeal. Moods are distinguished from emotions in that emotions are brief

* Corresponding author at: Dept. of Food Science and Nutrition, College of Human Ecology, Pusan National University, 63Beon-gil 2, Busandaehag-ro, Geumjeong-gu, Busan 46241, South Korea.

E-mail addresses: Alisa.kanjanakorn@gmail.com (A. Kanjanakorn), jeehyunlee@pusan.ac.kr (J. Lee).

and in response to a particular stimuli, whereas moods are more enduring, occurring often in the absence of a stimuli. They can build up gradually and not be recognizable to observers (Gibson, 2006; King & Meiselman, 2010). While the definitions are straightforward, there are instances where the distinction maybe unclear, however it is with no doubt that emotions, mood, and food choice are interrelated.

The EsSense Profile® (King & Meiselman, 2010) was developed to target product category users and product users who typically like the product. They identified the terms consumers most clearly comprehended that related to food testing and that were distinguishable as either positive or negative. The negative terms disgusted, worried, and bored were included since these were more frequently used by the consumers. The unclassified terms, aggressive, mild, quiet, tame, daring, guilty, and wild were selected based on consumer use for specific product categories/profiles and were applicable to current food trends at the time (bold flavors, ethnic cuisines, unusual flavor combinations). The list of terms was validated on the product categories of pizza, chocolate, vanilla ice cream, fried chicken and mashed potatoes and gravy and showed that the scale could be used in differentiating a variety of food products (King & Meiselman, 2010). In addition to the list of emotion terms, they also added a 9-point hedonic scale. By including this additional data point, EsSense Profile® is able to relate acceptance and emotions to a food product.

During their research, King and Meiselman (2010) observed “hedonic asymmetry” which was first noted by Desmet and Schifferstein (2008). It refers to a positive bias in which consumers report more positive terms than negative terms when describing reactions to foods. They attribute this to the point that humans generally view eating and tasting food as a positive experience and gain pleasure from it, with the exception of unhealthy or stressed individuals who may have a negative disposition (Gibson, 2006). Based on this, researchers were not sure that one comprehensive list of emotions would cover all food categories, but recommend that EsSense Profile® is a good starting point to study the impact of foods on emotions (King & Meiselman, 2010).

1.2. Influences on emotion research

There are several factors that might have an effect on food-related emotions but little data is available. The gender differences have been reported in positive and negative emotions, with the experience of emotions generally more pronounced in women than men (Diener, Sandvik, & Larsen, 1985). This was also seen in a more recent study by Jaeger and Hedderley (2013) when they examined whether individual differences in emotional awareness and experiences had an effect on emotional responses using the EsSense Profile®. They found that males reported lower emotion intensities than females. Brody and Hall (2008) also found that women report more intensely or more frequently the positive emotions of joy, love, affection, warmth, and feeling of well being while men sometimes express more contempt, loneliness, pride, confidence, guilt, and excitement. In a study examining the influence of gender on emotional responses to taste, “happiness” was more frequently evoked in women than men (Robin, Rousmans, Dittmar, & Vernet-Maury, 2003).

The effect of time of day on emotion testing is another consideration. King, Meiselman, and Carr (2013) studied the impact of the time of day using the EsSense Profile® questionnaire and how that affected test execution. They found that the time of day, concerning the testing of emotions, did not seem to influence the results in snack products, but more work would be needed for other food categories. Their results were in agreement with Kramer, Rock, and Engell (1992) who also did not find time of day differences in their food acceptance testing. However, it is stressed that context is

important in testing and that snack foods are typically eaten all day and are not meal specific. Time of day differences have been seen in questionnaire research where people rated foods higher at their appropriate meal times (Birch, Billman, & Richard, 1984).

Another influence on emotion and mood studies is the location of the study. Gibson (2006) suggested the influence of context and expectation on emotions and Petit and Sieffermann (2007) found that liking and consumption were affected by the testing situation. The laboratory setting tests gave different results from those obtained outside the laboratory. As stressed by King et al. (2013), context is always a factor and situational tests should be a technique to approach the context in which a product is actually consumed.

1.3. Coffee

Coffee is a very popular drink and an important part of most people’s routine. It is one of the world’s principal commodities (ICO, 2010) with sales reaching USD 9.03 billion, as of 2011 (Euromonitor International, 2012). Coffee drinkers span a wide age range and they consume coffee for different reasons depending on the individual, and certain lifestyle factors. Some common reasons on why we drink coffee include: coffee can provide an emotional pickup, both mentally and physically; it can act as a relaxer or mental clarifier, or stimulator when we need an energy boost to start our day; it increases blood circulation and has a warming effect; it is psychologically comfortable and has pleasant associations, along with its pleasing aroma and taste (Mintel, 2012; Sivetz, 1977).

Coffee is a main source of caffeine, with caffeine giving the drink mild psychomotor stimulant properties. Caffeine consumption has been associated with self-reported increases in wakefulness, alertness, and ability to concentrate (Peeling & Dawson, 2007). Brice and Smith (2002) found that coffee consumption varied throughout the course of the day. Early morning and post lunch were times when consumption was the highest since alertness was low. Caffeine is also found to alleviate depressed moods. Using a double blinded design, pre and post coffee consumption method, Dawkins, Shahzad, Ahmed, and Edmonds (2011) investigated the effects of caffeine and expectation of having consumed caffeine on attention and mood. Consistent with other studies, they found expectancy effects for two of the four POMS sub scales: depression-dejection and vigor-activity. Self-reported depression was seen to have increased when participants were told their beverage was decaffeinated and if they received decaffeinated coffee versus caffeinated. Expectation also enhanced self-reported vigor. Besides its cognitive effects, caffeine consumption has also shown to improve mood by increased happiness (Amendola, Gabrieli, & Lieberman, 1998) and decreased anxiety (Quinlan, Lane, & Aspinall, 1997).

1.4. Coffee drinking experience

Among many published emotion and mood questionnaires, the EsSense Profile® was developed for studying the impact of foods on emotions, however it is still unclear whether one comprehensive list will cover all food categories. Also, King and Meiselman (2010) suggested that emotion terms can be added or deleted for specific products (Nestrud, Meiselman, King, Leshner, & Cardello, 2016). Several product specific emotion terms were developed about fragrance of shampoos (Chrea et al., 2009; Porcherot et al., 2010), beer (Chaya, Pacoud, Ng, Fenton, & Hort, 2015), wine (Ferrarini et al., 2010), dark chocolate (Thomson, Crocker, & Marketo, 2010), blackcurrant squashes (Ng, Chaya, & Hort, 2013), coffee (Bhumiratana, Adhikari, & Chambers, 2014), chocolate and hazelnut spreads (Spinelli, Masi, Dinnella, Zoboli,

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