Haste Makes Distaste: Consistent Unpleasant Biases Toward Obesogenic Foods on the Implicit Association Test

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Abstract: Implicit Association Tests (IATs) regarding food attitudes reveal a consistent unpleasant bias against obesogenic foods, in contrast to individuals' innate, biologically-driven preference toward high calorie food items. However, recent IAT research in this domain has stumbled in selecting stimuli with ecological validity, often choosing items that participants may not perceive as representative of their nutritional value, and using lexical stimuli that fail to capture the full appetitive salience of the target constructs or align with contemporaneous IAT research. In Study 1, we deployed a lexical IAT using stimuli chosen for their perceived caloric value, rather than their objective nutritional content, finding a strong, unpleasant implicit bias toward obesogenic food regardless of participant BMI. In Study 2, we translated the lexical items of our IAT into photographs to produce a visual IAT that better approximates the appetitive salience of the target constructs. Participants continued to demonstrate a robust distaste toward obesogenic foods on the visual IAT, regardless of appetitive factors including weight status, hunger, and predilection toward food addiction. This reliable implicit bias, orthogonal to behavior, is consistent with IAT studies regarding substances of abuse, including tobacco and alcohol.

Keywords: Implicit Association Test, Implicit Bias, Food Associations, Food Choice

Introduction

In 2014, the World Health Organization (WHO) estimated that 11% of men and 15% of women were obese, a two-fold increase since 1980, leaving these individuals at increased risk of hypertension, diabetes, heart disease, cancer, and all-cause mortality (National Heart, Lung, and Blood Institute [NHLBI] 2013). The international community has responded vigorously with large-scale campaigns to fight obesity, such as the WHO's Commission on Ending Childhood Obesity or its Global Action Plan for the Prevention and Control of Noncommunicable Diseases (2016, 2017). However, these initiatives focus largely on changing the consumer environment, encouraging incentives for healthy lifestyle choices and promoting taxes on obesogenic foods. While direct behavioral interventions promoting exercise and reducing calorie intake are among the most efficacious strategies to reduce body mass index (BMI) in controlled environments, these interventions are constrained outside the laboratory by several factors, including low rates of program adherence and high attrition, particularly among individuals with the highest BMIs; an innate preference among individuals for obesogenic foods; and the addictive qualities of the foods themselves (Burgess, Hassmén, & Pumpa 2017; Drewnowski 1997; Volkow, Wang, Fowler, & Telang 2008). Indeed, the scientific community has long recognized the limitations of weight loss interventions based on learning theory and other cognitive-behavioral models (Garner & Wooley 1991).

The failure of purely cognitive-behavioral interventions to enduringly change diet compels researchers to explore non-conscious methods of measuring and modifying food preferences. The Implicit Association Test (IAT), introduced by Greenwald, McGhee, and Schwarz (1998), has attracted the attention of researchers attempting to find alternative measures

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of appetitive attitudes. Predicated on a dual-process model of behavior, the IAT intends to measure the implicit compatibility between two target concepts and two valence attributes while controlling for participants' desire to provide responses they feel are socially desirable. Participants use two response keys, representing different combinations of target (e.g., *flowers* and *bugs*) and attribute (*pleasant* and *unpleasant*), to categorize exemplars that appear on the screen as quickly as possible. Faster response times when a target and attribute share a response key suggests a greater associativity of those constructs, and the difference in mean response times is taken to represent the participant's implicit bias, such that greater differences signify stronger biases for or against that construct. For example, individuals who respond faster when *bugs* and *unpleasant* share a response key may be said to have an unpleasant implicit bias toward bugs. The IAT allows researchers to measure and discriminate non-conscious attitudes from consciously-held evaluations of the target constructs, while the task demands theoretically prevent participants from responding with a motivation to portray their attitudes in a way they believe is appropriate or desirable, that is, with social desirability bias (Greenwald, McGhee, & Shwarz 1998). This may even reveal possible contradictions between an individual's stated evaluations and psychophysically-demonstrated associations.

The IAT's highly adaptable design was soon employed to measure implicit attitudes toward foods. The earliest available study, performed by Maison, Greenwald, and Bruin (2001), found that participants on average held stronger pleasant attitudes toward low calorie food items, and this association proved more robust among individuals who attributed more healthy properties to low calorie foods or endorsed more statements expressing guilt regarding their dietary choices. This finding has been corroborated by Roefs and Jansen (2002), who found that obese participants held even stronger unpleasant associations toward high calorie foods; as well as Ackermann and Palmer (2014), who found a similar unpleasant bias generalizing to traditionally obesogenic fast food. While it may be tempting to conclude that appetizing, obesogenic food items are more affectively salient and thus distract participants, impairing response times, Mai and Hoffmann (2015) demonstrated that participants are faster to associate high calorie food items with synonyms of *tasty*, lending credence to the IAT's ability to differentially reflect associations of the target construct. Curiously, implicit attitudes toward obesogenic foods appear to directly contraindicate the normal human predilection for foods rich in fat and calories, even among obese individuals (Drewnowski 1997; Roefs & Jansen 2002). While the IAT deserves criticism for failing to meet the same degree of predictive efficacy as some explicit measures (see Oswald et al. 2015), scrutinizing meta-analyses confirm that the procedure consistently approximates natural behavior (Oswald et al. 2013; Greenwald et al. 2009).

The persistent and robust distaste for obesogenic foods evidenced by the IAT warrants further scrutiny. Notably, all prior IAT experiments studying calorie content (or similar constructs) have used lexical stimuli. While this is consistent with the original IAT, most contemporary IAT research uses visual stimuli, likely due to their enhanced ecological validity and salience (e.g., Gonzalez, Steele, & Baron 2017). Further, comparable studies of implicit attitudes regarding food have produced differential results by altering stimulus modality. Freijy, Mullan, and Sharpe (2014) found that individuals preferentially attend to low calorie food words in a visual dot-probe task, but also to high calorie food photographs. We hypothesized that participants may, similarly, demonstrate unpleasant biases toward obesogenic food words, yet show pleasant biases to photographs of obesogenic foods as a function of the enhanced appetitive salience of visual stimuli. Additionally, lexical stimuli used in previous IAT research often include items as a function of their objective nutritional content, rather than perceived nutritive value (e.g., Maison, Greenwald, and Bruin 2001, included *nuts* among their list of high calorie foods, despite the popular inclusion of nuts in protein bars, granola, trail mix, and other foods commonly associated with a healthy lifestyle). By selecting stimuli for their perceived caloric value, rather than objective nutrient density, we aimed to create an IAT that more accurately reflects participants' attitudes.

Study 1

Study 1 aimed to replicate the consensus of the existing IAT literature by deploying a lexical IAT demonstrating the consistent intrinsic unpleasant bias toward high calorie food items.

Method

Participants

Participants consisted of 88 undergraduate students at Texas A&M University-Corpus Christi recruited from introductory psychology courses, ranging in age from 18 to 37 (M = 20.4, SD = 3.9), 52 females and 25 males. Participant BMI varied from 17.4 to 53.5 (M = 25.6, SD = 7.1). One participant neglected to provide sociodemographic information or BMI.

Materials

In Study 1, participants completed a computerized Implicit Association Test in which they discriminated between lexical stimuli representing the target categories *high calorie foods* or *low calorie foods*, as well as either *pleasant* or *unpleasant* words. In order to ensure the perceived caloric value of the stimuli, we generated a list of high and low calorie candidate exemplars, chosen for their popularly perceived caloric value and distinctiveness from other candidate exemplars. In a brief pilot, psychology students (n = 10) indicated via an online survey how many calories they believed a 100g portion of each food item contained. The 12 foods that received the highest and lowest average calorie scores among participants served as the target exemplars, with high calorie exemplars perceived as having significantly more calories per 100g serving (M = 220, SD = 58) than low calorie exemplars, (M = 42, SD = 15), $t(22) = 10.23$, $p < .001$. A subsequent group of 11 psychology students piloted the affective stimuli by endorsing variations of the statement, "My day would be pleasant if it were described as" a candidate affective exemplar. Participants dragged a slider on the screen from *0 - Strongly Disagree*, to *100 - Strongly Agree*, with a prompt corresponding to each potential affective exemplar (e.g., "My day would be pleasant if it were described as ENCHANTING"). The final affective exemplars consisted of the eight highest and eight lowest scoring words, with participants endorsing exemplars from the pleasant group significantly more (M = 86, SD = 4) than those from the unpleasant group (M = 9, SD = 4), $t(14) = 34.67$, $p < .001$. Items in all lists did not differ significantly in either syllable count, word length, or word frequency as measured by the Max Planck Institute for Psycholinguistic's (2001) WebCelex tool.

In addition to collecting sociodemographic information, the experimenter also recorded each participant's height with a wall-mounted height rod, as well as their weight and body mass index using a Tanita TBF Body Composition Scale.

Procedure

The present procedure was approved by the Internal Review Board of Texas A&M University – Corpus Christi. Up to five participants completed the study in a single session, and the experimenter randomly assigned each participant to a counterbalancing condition of the IAT upon arrival. After providing informed consent and sociodemographic information, the experimenter measured each participant's height, weight, and BMI. Subsequently, the experimenter escorted participants into the computer lab to complete the IAT.

The Implicit Association Test proceeded according to Greenwald, McGhee, and Schwarz (1998). Participants categorized exemplar words that appeared on the screen using the *Z* key on the left and the / key (forward slash) on the right. They were instructed to do this as quickly as possible while still retaining accuracy. During the experiment, words appeared instantly on the screen, and persisted until the participant responded by pressing a key on the keyboard. Pressing the wrong response key or a key not mapped to a response returned the word "ERROR" in the middle of the screen for 500ms. If the participant pressed the correct key, the next word appeared immediately. Prior to each block, participants were instructed on which categories to expect and their corresponding response keys. During the blocks, the categories associated with each response key remained constantly visible to serve as a reminder to participants. The response keys associated with high and low calorie food items were counterbalanced across participants, with approximately half of participants initially combining low calorie foods and pleasant words and the other half starting with high calorie foods and pleasant words.

Participants completed five blocks of stimuli, with each exemplar presented only once within a block and in random order. At the end of each block, participants saw their mean response time and accuracy, in order to maintain motivation. In the first block, the target discrimination block, participants categorized the exemplars from the high and low calorie food lists, pressing one response key if the exemplar represented a high calorie food item, or the other key for low calorie foods. In the next block, attribute discrimination, participants responded to affective exemplars from the pleasant and unpleasant word lists. Instead of representing calorie content, the response keys now represented affective valence. Following this, participants completed the initial combined task, with one response key representing both calorie content and an affective attribute (e.g., the / key for high calorie foods and pleasant words). All food and pleasant/unpleasant exemplars were presented, with the first 13 trials constituting a practice group and the subsequent 27 composing a test group, as per Greenwald, Nosek, and Banaji (2003). Next, participants entered the reverse target discrimination block, responding only to food items with the original associated response keys switched, before finally completing the reverse combined block, integrating all stimuli with high and low calorie foods now sharing a response key with the opposite affective valence from the initial combined block (e.g., now low calorie foods and pleasant words).

Results

We refined the data as per the improved algorithm put forth by Greenwald et al. (2003), eliminating trials with response times longer than 10,000ms and two participants who responded faster than 300ms on more than 90% of trials. An order effect emerged, in which participants who first responded to the low calorie/pleasant combination completed this task much faster (M = 918, SD = 243) than participants who completed this after the high calorie/pleasant combination (M = 1187, SD = 500), $t(84) = 3.17$, $p < .01$. While curious, this effect is consistent with other IATs (e.g., Roefs & Jansen 2002).

Participants displayed a strong unpleasant bias toward obesogenic foods in the test trials, demonstrating notable facilitation when responding to low calorie foods and pleasant words with the same response key (M = 1052, SD = 413) compared to the high calorie/pleasant combination (M = 1214, SD = 373), $t(85) = 3.85$, $p < .001$. (See Table 1.) Greenwald et al. (2003) provide an algorithm for computing a single integrated bias score for each participant which in Study 1 averaged -.31 (SD = .59), with negative numbers reflecting an unpleasant bias toward obesogenic foods. Considering Roefs and Jansen (2002) found that obese participants demonstrated substantially more unpleasant attitudes, we anticipated that IAT bias would correlate negatively with BMI. However, no such correlation emerged, either among integrated bias scores or individual block response time means.

Table 1: Mean Response Times and Standard Deviations in Study 1's IAT

	High calorie/pleasant (ms)		**Low calorie/pleasant (ms)**		
	Mean	Standard Deviation	Mean	Standard Deviation	***t* test**
Practice trials	1551	616	1329	637	3.28**
Test trials	1214	373	1052	373	3.85**

** $p < .01$

Consistent with previous IAT studies concerning high and low calorie food attitudes (Maison, Greenwald, & Bruin 2001; Roefs & Jansen 2002; Ackermann & Palmer 2014), participants demonstrated marked facilitation when responding to low calorie food words and pleasant words with the same response key. This suggests either a pleasant bias toward leptogenic foods, or unpleasant attitudes toward obesogenic foods, although the methodology of the IAT only allows for relative inferences. Notably, Study 1 corroborates the results of prior IAT studies even while using stimuli selected for their perceived caloric value, rather than objective nutritional content, potentially increasing the ecological validity of the results. However, we failed to find any influence of BMI on bias. Rather than recruiting participants on the basis of their weight status as per Roefs and Jansen (2002), in Study 1 we recruited participants without regard to BMI, resulting in fewer obese participants and less statistical power from which to make inferences.

Study 2

Despite the robust and intrinsic preference for obesogenic foods (Drewnowski 1997; Volkow et al. 2008), participants in Study 1 and comparable experiments continue to display a consistent unpleasant bias toward these food items. We believe this may be attributable to the modality of the IAT: lexical stimuli, by virtue of being bland text on a computer screen, may not evoke the full range of visceral, appetitive associations that the IAT intends to measure. Indeed, other comparable experiments concerning implicit attitudes have demonstrated differential results by varying stimulus modality (Freijy, Mullen, & Sharpe 2014). We sought to enhance the appeal of the exemplars employed in the IAT by translating the lexical stimuli into photographic stimuli, and administering both versions to participants in counterbalanced order. If this visual IAT accurately reflects the appetitive associations on the part of participants, we anticipated that individuals would demonstrate an unpleasant bias toward high calorie food *words*, concurrent with a pleasant bias toward high calorie food *photographs*.

Additionally, we hypothesized that appetitive attitudes may change much as one's appetite does, and measured these factors using two additional scales. First, a hunger scale allowed each participant to endorse his or her current appetite. We anticipated that, as preference for high fat foods increases as individuals become hungry (Kern et al. 1993), pleasant bias toward obesogenic foods on the IAT may be elevated among hungry participants. Second, we included a measure of disordered eating behaviors, the Yale Food Addiction Scale (YFAS; Gearhardt, Corbin, & Brownell 2009), which distinguishes participants who exhibit symptoms of food addiction. Individuals who abuse drugs often demonstrate unpleasant implicit attitudes toward those drugs, in contrast with their continued drug use (e.g., heavy drinkers and alcohol, Houben & Wiers 2006). Participants scoring high on the YFAS, suggesting an addiction to obesogenic foods, may demonstrate an implicit aversion to those food items.

Method

Participants

Participants consisted of 82 undergraduate students recruited from undergraduate-level psychology courses at Texas A&M University-Corpus Christi, ranging in age from 18 to 34 (M = 19.7, SD = 2.6), 61 females and 21 males, with BMIs spanning 16.3 to 41.3 (M = 25.1, SD = 4.9).

Materials

Target stimuli for the visual IAT consisted of photographs of the constituent food items on the lexical IAT, collected from freely available sources online and cropped to consistent size. Where participants in the lexical IAT responded to the word *apple*, now they responded to a photograph of an apple. In an online pilot, undergraduate students (n = 26) evaluated each photograph in random order, deciding whether the food item pictured constituted a *High calorie food* or *Low calorie food*, and clicked a corresponding button on the screen. Photographs persisted until the participant made a selection, at which point the computer recorded accuracy and response time. The visual IAT retained the photographs with the greatest accuracy scores, ranging from 92 to 100%. Of the final photographs, no significant differences in response time or accuracy emerged between high and low calorie items.

We substituted the eight pleasant and unpleasant words with eight normed pleasant and unpleasant photographs from the International Affective Picture System (IAPS; Lang, Bradley, & Cuthbert 2008). The affective stimuli did not differ on subjective feelings of control or arousal, but differed significantly and appropriately on affective valence, $t(15) = 34$, $p < .001$. We excluded images of gore and excrement to prevent eliciting disgust. See the appendix for descriptions and catalog numbers of the IAPS stimuli.

Participants completed both the hunger scale and the YFAS on a computer prior to the IAT. The hunger scale consisted of a single item, asking participants to drag a slider across the computer screen to indicate their current level of hunger, ranging from *0 - Not hungry at all*, to *100 - Extremely hungry*. The YFAS reflects the degree to which an individual's eating patterns conform to the diagnostic criteria for substance dependence delineated in the fourth edition of the Diagnostic and Statistical Manual, Text Revised, serving roughly as a symptom count, with scores incrementing for each criteria the participant meets (Gearhardt, Corbin, & Brownell 2009). After the hunger scale, participants completed all 25 questions of the YFAS in the order originally presented by the authors.

Procedure

The modified procedure presented here was approved by the Internal Review Board of Texas A&M University-Corpus Christi. The procedure for Study 2 largely reiterated the procedure for Study 1, with the exception of the second IAT and the additional measures. Once seated in the computer lab, participants completed first the hunger scale, then the YFAS. After all participants completed the YFAS, the experimenter opened and initiated either the lexical or visual IAT, in counterbalanced order for each participant according to random assignment. Each participant completed the IAT in silence at his or her own pace, and the experimenter initiated the second IAT only after all participants completed the first.

Results

Data refinement for both versions of the IAT proceeded as per Study 1. Participants in Study 2 demonstrated a similar order effect as Study 1, responding faster in the high calorie/pleasant combination of the lexical IAT after completing the low calorie/pleasant combination (M = 862, SD = 260), compared to *vice versa* (M = 984, SD = 284), $t(80) = 2.01$, $p < .05$. A similar order effect emerged in the visual IAT, with participants exhibiting facilitation in the high calorie/pleasant combination after completing the low calorie pleasant combination (M = 745, SD

Table 2: Mean Response Times and Standard Deviations in Study 2's Lexical and Visual IAT

	High calorie/pleasant (ms)		**Low calorie/pleasant (ms)**		
	Mean	Standard Deviation	Mean	Standard Deviation	***t* test**
Lexical IAT					
Practice trials	1445	622	1131	383	5.35**
Test trials	1099	359	926	278	4.67**
Visual IAT					
Practice trials	1329	592	1080	389	4.25**
Test trials	1031	260	841	234	6.93**

** $p < .01$

= 187), compared to participants who completed the blocks in the opposite order ($M = 920$, $SD = 241$, $t(80) = 3.6$, $p < .01$. Participants continued to display a strong unpleasant bias toward obesogenic foods in the lexical IAT, demonstrating enhanced response times in the low calorie/pleasant combination ($M = 926$, $SD = 278$) compared to the high calorie/pleasant ($M = 1131$, $SD = 383$), $t(81) = 7.19$, $p < .001$.

Contrary to our hypothesis, participants demonstrated the same robust unpleasant bias on the visual IAT as on the lexical IAT. Participants responded with marked efficiency when low calorie foods shared a response key with pleasant photographs ($M = 841$, $SD = 234$), rather than high calorie foods and pleasant photographs ($M = 1080$, $SD = 389$), $t(81) = 8.43$, $p < .001$. (See Table 2.)

The visual IAT proved generally more reliable than the lexical, both in terms of accuracy and speed. A 2 (target/affect combination) X 2 (IAT version) repeated measures ANOVA on participant accuracy revealed a significant main effect for both combination, $F(1, 81) = 21.57$, $p < .001$, and stimulus modality, $F(1, 81) = 9.28$, $p < .01$, such that participants responded more accurately in the low calorie/pleasant combination of both IATs, and in the visual IAT overall. The lack of an interaction effect suggests that the accuracy advantage on the visual IAT remained fairly constant across both combinations. A comparable ANOVA using refined response time revealed a main effect again for both combination, $F(1, 81) = 47.88$, $p < .001$, and stimulus modality, $F(1, 81) = 11.19$, $p = .001$, also with no interaction effect.

Comparable to Study 1, lexical bias scores in Study 2 ranged from .79 to -1.47 ($M = -.39$, $SD = .53$), while visual bias scores ranged from 1.09 to -.1.51 ($M = -.39$, $SD = .55$). Increasingly negative scores indicate stronger unpleasant attitudes toward high calorie foods, as reflected by the IAT. Curiously, BMI correlated with lexical bias, $r(82) = -.24$, $p < .05$, such that participants with higher BMIs demonstrated stronger unpleasant associations toward obesogenic foods. However, no such correlation emerged between BMI and visual bias, and this effect was not in evidence in Study 1, suggesting it may be artifactual. We scored the YFAS as per instructions by Gearhardt, Corbin, and Brownell (2009) ($M = 2.3$, $SD = 1.5$). Unfortunately, neither YFAS nor the hunger scale ($M = 34.1$, $SD = 26.3$) predicted either bias score.

We anticipated the visual IAT, by using salient photographs, would more accurately record the appetitive associations on the part of participants that correspond to the innate preference for obesogenic foods. Instead, the visual IAT merely enhanced participants' overall response times without changing the orientation of their response bias. Considering the pervasiveness of visual stimuli in comparable IAT literature, and the fact that faster response times further mitigate accusations of desirability bias on the part of participants, we strongly recommend that future IAT research on food attitudes use photographic stimuli. However, although BMI, hunger, and the YFAS are efficacious predictors of long and short-term food choices, none of these measures could be reliably associated with participants' biases.

Discussion

The studies presented here corroborate the results of prior research on the implicit associations surrounding highly caloric food items, further elucidating a robust and consistent implicit distaste toward obesogenic foods that endure despite weight status, hunger, and propensity toward food addiction. Importantly, this non-conscious bias persists despite utilizing more scrutinizing stimuli selected for their readily-perceived caloric value, rather than their objective nutritional content, which we believe enhances their ecological validity.

Further, participants continued to evidence this bias against obesogenic foods on the visual IAT, in which they performed significantly faster. The IAT is predicated on the assumption that, in forcing participants to make split-second decisions, individuals will not be able to occlude their results with social desirability bias. The enhanced response times in the photographic IAT leave even less room for participants to second-guess the automaticity of their responses, further reinforcing the assertion that the IAT is a measure of non-conscious attitudes, rather than explicit beliefs.

However, these studies join a growing list of experiments in which the IAT failed to provide any leverage on variables regarding appetite or food consumption. Ackermann and Palmer (2014) could not predict final food choice with their IAT alone, while Maison, Greenwald, and Bruin (2001) found that explicit measures like a guilt scale better predicted eating behaviors. Roefs and Jansen (2002) could distinguish obese participants by their stronger distaste for obesogenic foods, in contrast to, rather than in concert with, their consumptive behavior. The intrinsic leptogenic bias evidenced across these experiments does not appear to reflect the visceral salience attributable to palatable foods, but rather sanctions against consuming obesogenic foods in excess. In fact, the unpleasant attitudes on display are evocative of implicit attitudes demonstrated by substance users toward their drug of abuse. Smokers have strong implicit biases, as measured by the IAT, towards cigarettes (Spruyt et al. 2015; Macy et al. 2015), while heavy drinkers demonstrate distaste toward alcohol (Wiers et al. 2002; Houben & Wiers 2006). If obesogenic foods may be conceptualized as substances of abuse (a position for which there is evidence, e.g., Volkow et al. 2008), then this insistent implicit bias against obesogenic foods may fall in line with other addictive items.

Regardless, the IAT does not appear to describe appetitive associations that predict behavior, and does not represent a promising avenue for future research in measuring or changing food attitudes. However, the contraindicative relationship between behavior and implicit attitude toward substances of abuse suggests a unique avenue to pursue the non-conscious correlates of addictive and appetitive behavior. Considering the enhanced response times on the visual IAT, as opposed to the lexical IAT more frequently utilized in past studies, we endorse the use of photographic stimuli in future IAT studies concerning food attitudes. The IAT is designed to mitigate desirability bias on the part of participants by compelling participants to respond as quickly as possible, limiting their ability to evaluate the stimuli. In utilizing a format of the IAT that encourages faster response times across categories and attributes, researchers can be more confident that participant are responding instinctually, rather than deliberately.

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Appendix

IAPS Stimuli

Descriptor	Category	Catalog Number	Set	Valence mean	Arousal mean
Fawn	Pleasant	1630	20	7.26	4.45

Baby	Pleasant	2045	17	7.87	5.47
Family	Pleasant	2156	17	7.12	4.34
AttractiveFem	Pleasant	2300	17	7.04	5.55
Boy	Pleasant	2306	15	7.08	4.46
Sunset	Pleasant	5830	2	8	4.92
Children	Pleasant	2347	20	7.83	5.56
Bride	Pleasant	2209	11	7.64	5.59
Funeral	Unpleasant	2799	15	2.42	5.02
CryingBoy	Unpleasant	2900.1	11	2.56	4.61
BatteredFem	Unpleasant	3181	11	2.3	5.06
Police	Unpleasant	6838	11	2.45	5.8
Needles	Unpleasant	9007	8	2.49	5.03
Assault	Unpleasant	9425	15	2.67	5.92
Accident	Unpleasant	9435	13	2.27	5
CarAccident	Unpleasant	9903	16	2.36	5.71