Aroma of Chocolate: Effects on Affect and Creativity

Chiara Ostrin
Advisor: Dr. Maryalice Citera

Funding for this project was provided by a SUNY New Paltz Student Association research grant.
Past Literature

Smell and affect

- Pleasant scent increased helping behavior and positive affect. Baron (1997)

Smell and aggression

- Results varied by sex; but concluded that smell does affect aggressive behavior. Baron (1980)

Chocolate and Positive Affect

- Chocolate consumption increases positive affect immediately after eating. Macht & Dettmer (2006)
Research Purpose

• Aromas affect behavior and mood
  – Beneficial for high stress environments such as work and school
• Gap in literature
  – Research done on aromatherapy
  – No research on chocolate aroma
    • Effects on affect and creativity
Hypotheses

Chocolate scent will:
1. Increase PA
2. Decrease NA
3. Increase creativity
Method

• Participants
  – N= 50
    • 33 Females, 15 Males, and 3 Other
  – Some received credit towards Psychology subject pool credits and others an $8 amazon gift card

• Measures
  – Positive Affect Negative Affect Schedule (PANAS)
    • PA: Excited, strong, proud, alert, determined
      NA: distressed, guilty, scared, jittery, afraid
Examples of responses that are too vague to be accepted:

To have fun with
To break
To make something
As a weapon (except chair, safety pin)
To burn (except chair, milk carton)
To get

As a game
To use the parts
To throw it
To hit with (except chair)
To throw away

Examples, item by item:

1. CHAIR (used for sitting)

   Acceptable
   Use as a desk (table; but not both)
   As a hurdle
   To fence in baby
   To tame lion (or other animal)
   Something to paint

   Unacceptable
   As a doorstop
   In juggling act
   Weapon in the movies
   To stand on to reach something
   To stand on (too vague)

2. WATCH (used for telling time)

   Acceptable
   Band for a bracelet
   As a compass
   As a decoration
   Paperweight
   To start fires

   Unacceptable
   To use the parts
   To throw it
   To hit with (except chair)
   To throw away
Methods (cont’d)

• Procedures
  – Two rooms of the exact same dimensions and set-up
    • Each room received a spray of aroma (chocolate or control)
    • Amount was kept equivalent per square foot
  – Scent was sprayed immediately before subjects arrived
  – Participants were exposed to scents from 15 minutes to 30 minutes
Methods (cont’d):

- Design
  - Independent Variable
    - Aroma
      - Chocolate vs. Neutral
    - Dependent Variables
      - Positive Affect
      - Negative Affect
      - Creativity Score
Results: Hypothesis 1

Hypothesis 1—Not supported

\( t(48) = .086, p = .466 \)

Mean Positive Affect did not differ by aroma.

Chocolate = 29.24
Control Group = 29.44
Results: Hypothesis 2

Hypothesis 2 -- **Supported**

\( t(48)=2.15, p= .018 \)

Mean Negative Affect significantly differed by aroma.

Chocolate = 13.24,
Control Group = 16.24
Results: Hypothesis 3

Hypothesis 3—Not Supported

$t(48) = .92, p = .36$

Mean creativity did not differ by aroma.

Chocolate = 17.00

Control Group = 15.56
Additional Analysis

However...

A significant correlation was found between creativity and NA

$r(50) = -.36, p = .005$

As NA decreased, creativity increased
Discussion

Summary of Findings

- Predicted PA would increase (Baron, 1980, 1997; Macht & Dettmer, 2006)
  - Not supported

- Predicted NA would decrease (Not examined in past research)
  - Supported

- Predicted creativity would increase (Isen, Daubman, Nowicki, 1987; George & Zhou, 2002)
  - Not supported, however
  - NA and creativity negatively correlated suggesting that chocolate aroma would have an indirect effect on creativity by reducing NA

- Relation to creativity is supported by other researchers

Limitation

Smell adapts quickly and there was no way to keep spraying the scent
Takeaway and Implications

Chocolate scent relieves negative feelings and influences creativity
Questions??

Contact: ostrincl1@hawkmail.newpaltz.edu