Art Making With Clay: The Importance of Art Medium in Stress Reduction

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Introduction

- Stress is a common human experience, but chronic stress has negative physical and psychological effects on individuals. [8]
- Extensive research shows that art-making and being exposed to nature reduces stress in individuals. Humans have a higher preference for natural environments than they do urban environments, and exposure to nature positively affects human well-being by reducing stress, improving mood, and acting as a restorative agent for mental fatigue. [2, 3, 6]
- Humans are believed to be predisposed to pay attention and respond to natural elements. Evolutionary theory reports that humans have evolved in natural environments and are physiologically and psychologically connected to nature. [4]
- Research on art-making shows that the process of making art reduction stress in individuals and improve mood. Working with clay specifically has been noted as a effective stress reducing activity. [2]
- In the study *Reduction of Cortisol Levels and Participants' Responses Following Art Making* (2016), 39 healthy adults made art for 45 minutes. The healthy adults participated in a pre and post-test salivary cortisol test. The results showed that after making art for 45 minutes, the participants' mean cortisol levels were significantly lower. There was no correlation between art medium used and cortisol levels. The art mediums in this study did not contain natural materials. [5]

Hypothesis

- Ceramic clay contains clay from the geological weathering of the earth's surface, a common and abundant material in nature containing many of the earth's minerals. Polymer clay is a manufactured synthetic material.
- I hypothesize that individuals participating in an art-making activity who use ceramic clay containing natural earth elements will have lower cortisol levels than those who use polymer clay, a manufactured synthetic material, whether or not the participant is aware of the differences in clay they use.

Methods

Participants

- The sample size of 40 participants was chosen by the need to have four different clay workshops with a manageable number of participants in the studio space available.

★ **The qualifying criteria included:**
  - 18 years or older
  - Enrolled as a UAF student

Materials

Data collection tools included:

- Perceived Stress Scale, PSS (Cohen, 1983)
- Salimetrics saliva cortisol tests
- A pulse oximeter
- A health questionnaire created by the student researcher

Art materials included:

- Pinch pot instructions
- White Polyform Sculpey Original Polymer Clay
- Ceramic clay
- Bucket filled with water
- 8 Pieces of Wooden Pottery Sculpting Clay Cleaning Tool Set

Procedure

- All 40 participants were recruited from the University of Alaska Fairbanks (UAF) campus through flyers, email, and social media advertisements. The ads included information on what participation entailed.
- The clay workshop was held at the UAF ceramics studio. Each participant attended one 2-hour clay workshop to learn how to make a pinch pot.
- The clay workshop consisted of two experimental groups and two control groups. Each workshop group was assigned specific clay materials to work with. The two experimental groups consisted of 10 participants that worked with ceramic clay, and the two control groups consisted of 10 participants that worked with polymer clay.
- All participants were randomly assigned to experimental or control groups.
- The data measuring stress levels was collected pre-workshop and post-workshop.
- The Perceived Stress Scale was used as a self-report measure of stress. A pulse oximeter was used to measure heart rate, and a saliva sample was used to measure cortisol levels for a physiological measure of stress.

Design

Experimental group	→	Pre-test	→ Art making with ceramic clay →	Post-test
Control group	→	Pre-test	→ Art making with polymer clay →	Post-test

Figure 1: Mean PSS scores

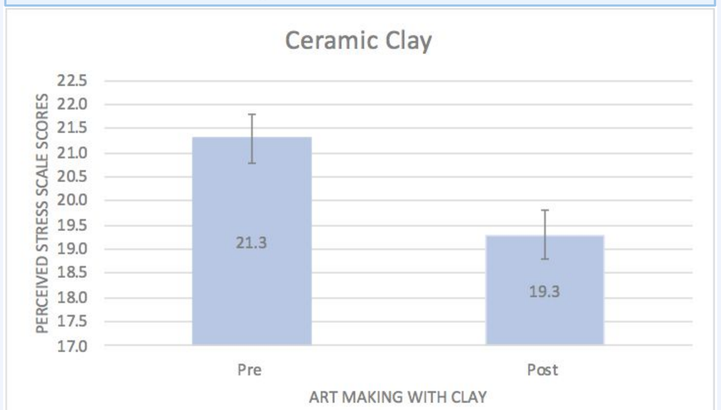


Figure 2: Mean PSS scores

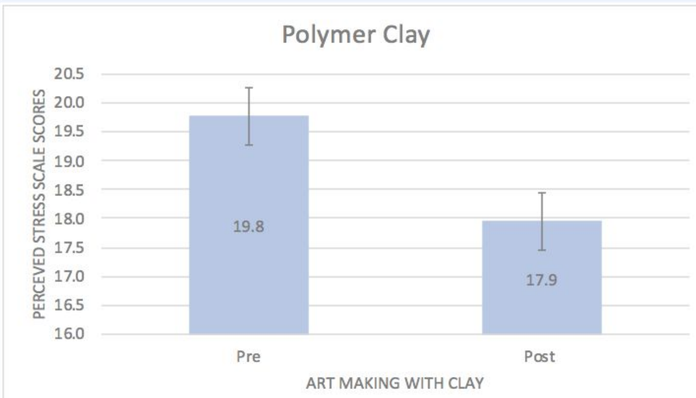
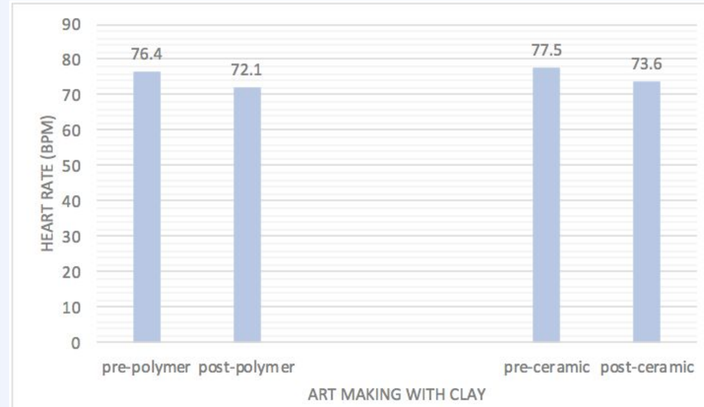


Figure 3: Mean heart rate scores



Preliminary Results

- **Figure 1:** There was a significant difference between the pre and post PSS scores in the experimental groups that used ceramic clay ($t = 2.68$, $p < .01$).
- **Figure 2:** There was a significant difference between the pre and post PSS scores in the control groups that used polymer clay ($t = 2.63$, $p < .01$).
- There was no pre existing difference between the experimental and control groups for PSS scores.
- There was no difference between the experimental and control groups post scores.
- **Figure 3:** There was a significant difference between the pre and post heart rate scores in the control groups who worked with polymer clay ($t = 1.78$, $p < .05$). There was no significant difference between the pre and post heart rate scores in the experimental groups who worked with ceramic clay ($t = 1.31$, $p > .10$).

★ The cortisol levels will be analyzed as well.

Conclusion

- The preliminary results support the findings of Kaimal et al that the process of art making significantly lowers stress levels in participants and that there is no correlation between the art medium used and lowering of stress.

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Reference

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Artwork