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## Clay: Qualities, Benefits, and Therapeutic Applications A Literature Review

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Clay: Qualities, Benefits, and Therapeutic Applications

A Literature Review

Capstone Thesis

Lesley University

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Art Therapy

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### **Abstract**

Clay is ubiquitous. It is uniquely durable and plastic. It is a substance sourced from the earth that has been manipulated in numerous ways and used for a variety of purposes for thousands of years. Despite this, art therapy research is heavily focused on art making using two-dimensional materials. Research is lacking regarding the use of clay as a medium in art therapy. This literature review revealed many therapeutic benefits and qualities about clay. These qualities include increasing mood in psychiatric patients, increasing progress in self-development for patients with schizophrenia, increasing self-expression with older adults, and healing from trauma. This literature review intends to present relevant research on the unique characteristics of clay as a material used throughout history, the sensory processing of clay and the various ways clay can be used throughout art therapy as an effective treatment tool.

*Keywords:* clay, material, art therapy, qualities, sensory

## Clay: Qualities, Benefits, and Therapeutic Applications

### Introduction

The first use of clay has dated back to 27,000 B.C.E with the discovery of the Venus of Dolni Vestonice by archaeologist, Karel Absolon. Believed to be the first evidence that ceramics were made and clay was used, this piece of art is believed to be a ritualistic object that was used in a fertility rite or a ceremony worshipping a goddess. Clay has been used for a variety of purposes including in the making of vessels such as storage jars, cooking pots, and tableware, as a building material for structures, ovens, and chimneys. Clay was used to create objects to use throughout daily life, for ritual or celebration, and to eat (Staubach, 2005).

Whether it is to make functional vessels or sculptural artwork, clay has been a means of self-expression for thousands of years. Leach (2011) states, "Pots, like all other forms of art, are human expressions: pleasure, pain or indifference before them depends upon their natures, and their natures are inevitably projections of the minds of their creators" (p. 13). Furthermore, Sholt and Gavron (2006) explain that working with clay offers specific therapeutic qualities including expressing emotion and the unconscious, and facilitating catharsis and communication. Throughout various applications of clay work within the realm of art therapy, clay has been seen to reduce negative mood and anxiety, awaken creativity, foster socialization, and heal from trauma.

This paper intends to offer a comprehensive literature review of current research on the material of clay and how it is used throughout art therapy. Offering various perspectives in relationship to history and psychological theories, this paper intends to highlight the benefits and healing qualities of clay work. Furthermore, this literature

review draws awareness to the areas in which research is lacking in clay work and art therapy.

## Clay

### Historical Perspective

The use of clay as a means of functional purposes and practicality was not evident until the 10th millennium B.C.E when the first ceramic vessels were made by the Jomon people of Japan. Aside from the Jomon people, making pottery appeared to develop throughout a variety of cultures throughout the Neolithic time period at a point where agriculture developed throughout the culture. Cooking pots and storage jars made from clay, invented during the late Stone Age, led to developments in the areas of culinary arts, international business, wine, and security during troubled times. These ceramic vessels created by Neolithic homemakers allowed for grain to be made into pottage, meat to be simmered, and mush to be made for babies. Furthermore new foods such as cheese and butter entered diets as cooking pots allowed for improved taste, a sense of security, socialization opportunities, and skill development. Ceramic cookware evolved to include pans for pie and tarts, pots for stew, and pudding pans and molds (Staubach, 2005).

Storage jars were used for the making of alcoholic beverages, containers for shipping, closets and pantries. In Egypt, storage jars kept grains safe from floods, while in Crete storage jars six feet tall were used to hold honey and wine. Aside from food, storage jars were also used to protect scrolls, jewelry, coins, and sacred relics and texts. International commerce occurred through the sale and trade of oil, transported in ceramic storage jars through sea trade (Staubach, 2005).

Cooking pots and storage jars were made using a variety of techniques. Roman

potters used a lot of press molds, Sumerian potters made coil pots, potters from the Mimbres Valley in New Mexico used a paddle technique, and other cultures used a combination of techniques. Furthermore, clay was collected, prepared, and then fired in order for a functional pot to be created. Sand was added to dug up clay which helped the durability of the pots. Cookware was then fired for a short period of time leaving the pot porous further increasing its durability to withstand multiple sessions of heating and cooling (Staubach, 2005)

Furthermore, Staubach (2005) explains, “tableware – more than cooking pots and storage jars – has a long association with sociability and ritual, status and display” (p. 64). Because of the secret manufacturing of porcelain developed by the Chinese used to create popular tableware, other European and English potters felt threatened. American colonies depended on such imported tableware.

Clay was also used to build ovens, chimneys, and fireplaces. Ovens made out of clay date back to 1000 B.C.E and have been found in Iraq, Iran, and Jordan. Large circular ovens were found in the Indus Valley, while single chamber beehive ovens were found in the Mediterranean. The tannur, a beehive shaped clay oven is mentioned throughout the Hebrew bible as a means of cooking flatbread. The use of this type of oven spread throughout Persia and India and was referred to as a tandoor oven. Beehive shaped ovens were also found in Turkey and throughout Europe. In Hungary, beehive shaped ovens which used straw for fumes called *bubos kemence* were used. Other types of clay ovens also developed. Clay stoves referred to as *chula*, or *sigri*, were also used in India and made by Indian women. These ovens consisted of a square or round shape with thick walls. In Egypt, clay pots were turned upside over embers and heated to create an

oven. By 2000 B.C.E a tall cone shaped clay oven was used in Egypt. In Germany, ovens called *steinofen* were used, made of fired clay (Staubach, 2005).

Archaeologists have also found that clay was used in creating heat systems throughout the home in addition to providing heat for cooking. In Afghanistan, the *tawakhaneh* or hot room was developed as a means of both cooking and heating. This system included a cooking range with channels that ran below the floors of homes using a clay coating. The *ondol*, used in Korea resembles the *tawakhaneh* as a cooking chamber was channeled under the floor to keep the above home warm. In Korea and China clay platforms attached to ovens called *k'ang* were used as a seating to provide comfort and warmth. This was popular from 206 B.C.E to 220 C.E. (Staubach, 2005).

Aside from the practical use of clay, clay was also used as a material to create various forms of sculpture. Staubach (2005) suggests that clay figures or beads were the first works of clay ever made. Furthermore, Sholt and Gavron (2006) suggest that the first clay figures may reflect the relationship and connection between the material world and the human mental world. Female figures made of clay have been found throughout Eurasia as early as sixth millennium B.C.E. believed to be made by female potters. Female potters made such figures of the female form as representations of goddesses of fertility, birth, and regeneration, these forms were primarily without faces and obese. Opposite of this, throughout various Abrahamic religions, clay figures are believed to be created by the male God who is the potter (Staubach, 2005).

Furthermore, clay was seen as an important material throughout various religions. Throughout northern India, the potters wheel is used throughout wedding ceremonies and is seen as a symbol ensuring a woman's fertility and success in the marriage. Throughout

the Hindu and Muslim religions in India, elephants made out of clay are commissioned upon the birth of the first son. Other clay figures are left outside as part of shrines that reflect the passing time of life. In Bengal during the festival of Sarawati in February, clay statues of Sarawati are created celebrating literature, art, and music (Staubach, 2005).

### **Contemporary Perspective**

Aside from the first ceramic vessels and storage jars, other types of ceramic forms and cookware were developed as civilizations developed. New forms emerged such as bottles, jugs, and more intricate dishes. New cookware included various types of pans, pots, and molds used for pies and tarts. Despite the introduction of other materials such as copper, iron, stainless steel, and plastic, ceramic cookware remained in use throughout homes all over the world. By the 1800's iron became the most popular material used for cookware in the United States. However, during the 1890's during the Arts and Crafts movement, ceramic cookware popularity rose so much so that term 'renaissance' began to be used to describe this time period (Staubach, 2005).

Furthermore, the new types of clay developed changing tableware all over the world. Eventually, the recipe for porcelain, first discovered by the Chinese, was discovered elsewhere. A man by the name of Johann Friedrich Böttger was the first person in Europe to discover the recipe, under the imprisonment of August the Strong, the king of Poland and the elector of Saxony. Eventually he refined his recipe and worked his kilns to reach high enough temperatures to open the first European porcelain factory, Meissen. This factory produced porcelain made tableware for many years before Saxony was invaded by Frederick the Great of Prussia. Workers from the factory fled and kept the recipe a secret, while experiments continued throughout Europe. Eventually, factory

made ceramic tableware came to dominate the industry (Staubach, 2005).

Aside from vessels and tableware, the use of clay to make ovens further developed as well. By 1775, Baron Carl Johan Cronstedt and Baron Fabian Wrede, hired by the king of Sweden, designed ovens made from ceramic tile. This allowed for clean and reliable heat in comparison to inefficiencies and poor quality from previous ovens. As the designs progressed, so did the ceramic tiles. The tiles were painted with various designs consisting of flowers and vines with embellishments using blue, green, and white glazes. The use of these ovens spread to Germany however not all cultures embraced this design. The British preferred open stoves to see the flames and hear the wood as it burned (Staubach, 2005).

Sculptural works as a means of artistic expression created using clay continued to symbolize ritual and spirituality throughout the nineteenth century as well as to create play objects. Porcelain dolls became popular as toys for young children. Germany and France were the leading countries producing such dolls. Miniature animals and vessels created by early American potters also served as play items for young children. Europeans became well known for the mass production of clay marbles. Eventually, sculpture becomes established as a form of 'fine art' as clay becomes more of a material used for artistic expression (Staubach, 2005).

### **Modern Perspective**

Currently, clay is used for a variety of purposes. We still see the functional uses of clay in every day life in addition to the artistic expressive uses of clay. Items such as toilets and mugs are made of clay. Clay is used in the computer, space, and publishing industries as well as for elements of biotechnology and to help with water clarification.

Modern factories produce ceramic tableware in large quantities using computer-controlled machinery. New technology discovered by The Hall China Company in Ohio now allows for a single firing process as opposed to the need for double firing. Ceramic tableware influenced by past eras and cultures are still used today (Staubach, 2005).

Furthermore, original beehive ovens can still be found throughout the world in the Middle East, Canada, Europe, and the United States. In New England, many antique houses are advertised as still having the original beehive oven. These ovens are associated with charm and romance, which adds monetary value to homes for sale with a beehive oven. Furthermore, brick ovens made from clay are seen today in many pizza restaurants. They are usually fired with gas continuously over a period of time. Brick ovens are also found on many television cooking shows and advertised as being used on many bread packaging (Staubach, 2005).

Clay is also still used today throughout the fine art world. Ceramic vessels and tableware are now seen as an art form. Sculpture artists continue to create use clay to create figures and abstract forms as a means of self-expression. Functional and sculptural works created using clay are in abundance as many artists are drawn to such a versatile material. Even sculptures created out of gold, bronze, or silver begin with clay (Staubach, 2005).

## **Psychological Perspectives**

### **Art Cognition**

Lusebrink (2004) outlined information processing in the brain and how such functions relate to the process of art expression. Sensory and perceptual information are processed through the occipital, temporal, parietal, and somatosensory cortices in the

posterior cortex. Sensory stimuli is transferred between the right and left hemispheres of the brain in different channels through the corpus callosum. Lusebrink (2010) further outlined, there are three hierarchical levels of perceptual knowledge which process sensory information in the brain. The first processes basic sensory information through the main sensory cortices. The second processes certain aspects of a specific modality through the unimodal association cortex while the third processes other sensory and non-sensory modalities in the multimodal association cortex.

With the use of neuroimaging, specifically EEG, Kruk, Aravich, Deaver, and deBeus (2014) examined the differences of quantitative electroencephalogram (qEEG) measurements of the medial frontal cortex and the medial parietal cortex in participants when they were drawing and when they were sculpting with clay. The participants consisted of fourteen female adults between the ages of 22-25 whom attended Eastern Medical School. Before and after the qEEG testing began the participants were asked to complete Form Y1 of the State-Trait Anxiety Inventory in order to test the hypothesis that participants anxiety levels will reduce during the experiment. Upon placement of a Physiometrix E-net with 19 electrode sites, the researchers recorded a 5-minute resting period, a movement control period where hand movements simulated art making, followed by the clay sculpting period, and the drawing period. Prior to the recordings of the art making, the researchers asked participants to “Make something out of the clay. It doesn’t have to be ‘some thing.’ It can be abstract.” and to, “make a picture of your favorite weather” (p. 54).

Kruk, Aravich, Deaver, and deBeus (2014) found, that there were statistically significant differences between the delta, theta, alpha, and gamma wave frequencies in

the medial frontal lobes. When drawing, the researchers observed a general increase in activity in the medial frontal lobes as compared to much more specific increases and decreases in frequencies when the participants were sculpting with clay. These include an increase in gamma frequencies and a decrease in alpha frequencies in the right parietal lobe, and increases in the frontal lobe of both delta and theta waves. Although there were such differences, the researchers did find that in general, the right hemisphere of the brain elicited higher gamma waves, specifically in the right parietal lobe, throughout both art-making processes.

### **Visual Information Processing**

Visual information is processed in the occipital lobe which processes direction, movement, texture, and color of visual stimuli. This information is further split into the lower or ventral stream moving to the inferior temporal lobe or the upper or dorsal stream moving to the parietal lobe (Lusebrink, 2004).

Somatosensory information is processed throughout the body beginning in the dorsal column of the spine. This information then travels to a nucleus in the thalamus and to various neurons that represent various parts of the body. Each of these neurons responds differently to the somatosensory information. The information is then integrated with spatial information from the visual cortex in the parietal lobe (Lusebrink, 2004).

### **Haptic Perception**

Haptic perception refers to the sense of touch. Cutaneous senses through the skin respond to pressure, vibration, and temperature through touch. Elbrecht and Antcliff (2014) explain “Touch is the basis for secure attachment, linked to earliest body memories, to the ability to handle the world, to sexuality, and also to boundary violations

and injuries” (p. 22). Through kinesthetic sensations from joints and muscles during object manipulation, haptic sense helps to perceive shape, weight, and hardness of such object. The brain’s amygdala receives the somatosensory information which activates emotions through this experience (Lusebrink, 2004).

Neurological studies show that the brains mechanisms which process space representation are the same for both haptic information and visual information. James, Humphrey, Gati, Servos, Menon & Goodale (2002) examined haptic representations of object shape in the brain and the possibility that there is a common neural relationship between haptic and visual representations. Six graduate students from the University of Western Ontario who were right handed, were examined throughout this study. The researchers asked participants to examine all white, three-dimensional clay objects whom had an axis of elongation, both visually and through touch only. The objects were examined for 3 seconds at a time at both 45-degree and 225-degree angles visually and then explored using only the hands while remaining on the table, prior to MRI scanning. The researchers then recorded MRI scans of the participant’s brains while projecting images of the objects previously studied and objects not previously studied.

The researchers found that both the objects that were previously studied yielded equivalent amounts of heightened activation in the middle and lateral occipital areas of the brain than the objects that were not studied. The objects that were only studied through touch activated the somatosensory cortex, middle occipital, and lingual gyrus, while the objects that were studied visually, activated the visual cortex and areas within the lateral occipital complex. Specifically, researchers found that haptic to visual priming

of the objects activated the middle and lateral occipital areas of the brain, which are typically thought to be associated with visually processing.

Furthermore, Juricevic (2009) argues that visual art experiences have the potential to be translated into equally aesthetic experiences using tactile forms and haptic perception for visually impaired people. While translating color to a tactile form is not possible, the researches argue that spatial representation can be translated from visual representations to tactile representations. This is the case because vision and touch share similar mechanisms in the brain for processing such information. The researcher suggests that such an implication would allow for an increased opportunity for aesthetic art experiences for the visually impaired.

### **Motor Information Processing**

Motor processing occurs through the primary motor cortex, premotor cortex, and prefrontal cortex. When engaged in art making, the information processed by the movement of the body moves between the motor cortex and the somatosensory cortex. The basal ganglia, located in the forebrain plays an important part in the processing of motor information. This structure along with the thalamus, act as a pathway between the motor association cortex and the somatosensory association cortex. (Lusebrink, 2004)

### **Expressive Therapies Continuum**

The Expressive Therapies Continuum (ETC) functions as a means of organizing the interaction with art media through a developmental sequence moving from simple to complex based off of left and right brain functions. The left hemisphere brain functions move from the components of cognition, perception, and kinesthetic while the right hemisphere brain functions move from symbol, affect, and sensory. Furthermore, each of

these components are complimentary to one another creating a level. Level 1 is the cognitive/symbolic level, level 2 is perceptual/affective level and level 3 is the kinesthetic/sensory level. The kinesthetic/sensory level is associated with the developmental stages of infants and toddlers. It is at this stage in life where information is processed through sensations and movement.

The kinesthetic/sensory level of the ETC is often preverbal as kinesthetic activity is the first mode of expression. Working in this level of the ETC can help access preverbal material stored in the right hemisphere of the brain (Hinz, 2009). Furthermore, motor actions demoted to the basal ganglia can be accessed through the kinesthetic component of the ETC. Such memories can be reconstituted and become available to conscious and visual processing through kinesthetic action (Lusebrink, 2004). Kinesthetic forms of expression often lead to a sense of developmental regression. Information gathered from kinesthetic expression allows for nonverbal communication, feedback on body movement, a sense of bodily rhythms, and body tension. Kinesthetic expression is best facilitated through the use of materials with resistance. Because of the resistive nature of clay and its inherent structure, it is a material that lends itself to facilitating energy release through kinesthetic expression (Hinz, 2009).

The sensory component of the ETC includes information gathered from internal and external sensations including visual, auditory, olfactory, and tactile experiences. It is through sensory focused experiences where emotions and thoughts are relaxed and internal sensation awareness can increase. Working within the sensory component of the ETC, with just the hands without the use of tools is suggested to further support sensory qualities of art materials. Working with clay, supports haptic qualities that give rise to

haptic information processing in the brain in terms of various qualities of the surface of objects (Hinz, 2009). This provides feedback regarding form and spatial relationships (Lusebrink, 2004).

The main brain structures associated with the kinesthetic component of the ETC are the basal ganglia and primary motor cortex while the primary somatosensory cortex is associated with the sensory component. Furthermore, the movement from the kinesthetic component to the sensory component of the ETC reflect the pathway in the brain from the motor association area to the somatosensory association cortex as well as the pathway to the basal ganglia through the thalamus. Because of the plasticity nature of the brain, it is suggested that these pathways used in processing information can change as one moves through the levels of the ETC. Art media choices may contribute to these changes (Lusebrink, 2010)

### **Psychodynamic Perspective**

#### **Psychoanalysis**

Stemming from the work of Sigmund Freud whom coined the idea that our communications are actually descriptions of visual images we see in our brains, Margret Naumburg further supported this notion with her work in psychoanalytic art therapy. “Naumburg shared with many analytic therapists an enthusiasm for the healing potential of symbolic art expression, and for the rich projective possibilities of art in assessment” (Rubin, 2001, p. 17). In this manner, the therapist interprets the distress of the client through the artwork. Naumburg, added that emphasis should be placed on the fact that the meaning of the artwork can only come from the client alone. Furthermore, psychoanalytic

art therapy believes in the value that art has reveal unconscious material. This relates to uncovering imagery and discovering fantasies or impulses (Rubin, 2001).

Rubin (2001) explains that "...symbolism is a crucial type of mental representations: images, fantasies, thoughts, concepts, dreams, hallucinations, symptoms, and language" (P. 41). A symbol is defined as an object that appears in the absence of an external stimulus. A symbol itself is produced by the conscious while that which is symbolized may be either unconscious or conscious. Many times, art becomes the external object that acts as a symbol bringing awareness to the unconscious (Rubin, 2001).

### **Jungian Analytical**

Carl Jung furthered this idea with the belief that the client enters a relationship with an unconscious image. Focusing his work on facilitating expression of dream and fantasy material, Jung focused on understanding symbolism mutually and empathically. He encourages a relationship to form between the art image and the creator, "...actively stimulating imaginative inquiry and dialogue" (Rubin, 2001, p. 83). He allowed ownership of the image to be held by the person who made it facilitating conversation between the image and the creator (Rubin, 2001).

## **Developmental Perspective**

### **Human Development**

Golomb and McCormick (1995) tested the hypotheses of linear-graphic and global-modeling development of three-dimensional representations with clay. The participants included 109 children ages 4-13, and 18 college students whom were asked to model a cup, a table, a man, a woman, a person bending down to pick up a ball, a dog,

a cow, and a turtle over 1-2 individual sessions. The researchers measured the clay representations in terms of dimensionality, construction style, representational aspects, sequence of construction, and figure differentiation scale. The researchers found support for the global modeling hypothesis which predicts that the concepts of uprightness and awareness of multiple sides of an object particular to working in the three-dimension are developed early and primitive.

### **Attachment Theory and Human Development**

Bat Or (2015) examined sculptural representations of separateness and verbal narratives regarding such experiences of mothers of preschool aged children. The participants consisted of 24 married, middle-class mothers of children between the ages of 21 months and 4 years old. The participants were first time mothers with no other children. The researcher met with each of the mothers' individually and asked them to sculpt, "yourself with your child, or sculpt the relationship between you and your child" (p. 71) using 500 grams of clay placed as a round lump on a piece of cardboard. The participants were given 5 wooden sculpture tools and basic instructions regarding how to work with clay. Bat Or (2015), followed the sculpture experience with a semi-structured interview consisting of visually observing the sculpture with the participant from all angles, verbally exploring the subjective meaning of the sculpture and the sculpting process, and asking "Is there anything in the sculpture that might depict an aspect of your relationship as a child with your own mother? If there is, please tell me about it, and if there isn't, how does it differ?" (p. 71) Analysis that used a combination of phenomenological, hermeneutic, and narrative strategies in addition to "objective descriptions" (p.71) and "subjective accounts" (p. 72) of the visual data was used. These

approaches focused on how the experience of the art-making and the final product are related, discovering potential meaning through all units, systematically analyzing the interviews through a grounded theory method, and microanalysis of videotape. The findings indicated that maternal separateness representations existed through a continuum of non-separable, more differentiated, and more separated. The sculptures in the more differentiated category reflected a paradoxical theme of both mother and child as independent beings yet depending on the other, while the polar ends of the continuum were distinct representations of lower to higher separateness. It was also found that mothers whose sculptures were in the low separateness category, verbally reflected, "...a strong and inseparable connection with their children, as well as with their own mothers" (p. 73). Mothers whose sculptures were in the middle category of separateness verbally reflected on the mother providing protection for the child while mothers whose sculptures were in the high separateness category reflected ambivalence.

### **Sensorimotor Development**

Sholt and Gavron (2006) argue that touch is the first form of communication that a human learns. Jean Piaget classifies the time from 0-2 years old as the sensorimotor stage of cognitive development. It is during this time in which, cognitive development occurs through sensory and motor processing. In this stage of development, differentiation between the self and the child are established.

### **Clay in Art Therapy**

#### **Anxiety**

Kimport and Hartzell (2015) examined the effects that working with clay had on anxiety for patients in a psychiatric hospital. The participants consisted of 28 women and

21 men ages 19-59 whom volunteered. The participants completed the state anxiety (S-Anxiety) section of the State-Trait Anxiety Inventory (STAI) before and after the clay intervention. Each participant was given equal amounts of white Model Magic and white Air Dry Clay. After a brief demonstration on how to make a clay pinch pot, the participants were given a maximum of 10 minutes to work with the clay. The researchers found that the mean pre- and posttest S-Anxiety scores significantly decreased. The researchers also found that there was a significant gender interaction found. The amount that the S-Anxiety scores decreased was significantly greater for men than they were for women.

### **Mood**

Kimport and Robbins (2012) examined the effects of creative clay work, both free and structured, following an induced negative mood. The participants consisted of 102 college students between the ages of 18-22, 33 of which were previously or currently art majors or minors. The participants were placed in one of the following four groupings using a stratified, blocked random assignment: (a) clay with instruction to make a pinch pot, (b) clay without instruction, (c) stress ball with instruction to toss it back and forth between hands, or (d) stress ball without instruction. Each participant engaged in one, 45-minute session that included completing the Profile of Mood States (POMS) and the State-Trait Anxiety Inventory (STAI) prior to mood induction stimuli, following mood induction stimuli, and following 5 minutes of engaging with either clay or a stress ball. Mood induction stimuli consisted of a 12-minute video that contained 16 traumatic news stories over the past 10 years followed by asking participants to think of something negative and write it down.

The researchers found that there were statistically significant differences among the scores of negative mood reported by participants on the POMS and STAI-S scores pre- and post-treatment. The participants in the clay intervention groups experienced more than 50% greater improvement in mood as reported on both the POMS and STAI-S. These results support the claim that clay facilitates emotion expression and regulation as compared to an object.

### **Schizophrenia**

In her work facilitating art therapy in a psychiatric hospital, Foster (1997) noticed that patients with schizophrenia rarely utilized, and often avoided the available sculpting materials of clay and plasticine. Furthermore, the researcher found that patients whom did eventually utilize clay, more easily engaged in a therapeutic relationship and made progress in self-development. When the patients were working with clay, the researcher found reactions of extreme distress to the first feeling of stickiness, as well as to the hardening of clay. The researcher suggests that this reaction is related to the 'life-likeness' of clay as well as the 'dead' qualities that are important to examine when understanding this populations aversion to clay. Universally, the researcher also noticed that when the patients did engage in working with clay, they attempted to reduce the three-dimensionality of it by flattening it.

### **Older Adults**

Geller (2013) recounted her experiences working as an art therapist with 2 different older adults in different working environments. First the researcher outlined her work as an art therapy intern, using clay with a resident at the Hebrew Home for the Aged. The participants consisted of older adults, most of which were Jewish and

survivors of the Holocaust. The researcher held art therapy groups for eight to ten residents whom had little art experience, twice a week. Goals for the sessions included facilitating socialization, providing stimulus for learning, and creating a safe place for emotions to be explored. The researcher found that for one resident, who was reluctant to working with clay, this material helped her to re-connect with traumatic memories in which she suppressed for decades. The researcher gave the resident a piece of clay and despite resistance the resident followed the directive of forming the clay into a ball. Eventually, the resident created a figurine of a frog out of the clay. Later, the researcher found that the frog was a symbol that connected to her traumatic past of experiencing war. The researcher scribed the resident's story and gave it to her. The resident reacted with approval of the story as it created distance from the trauma. It was found that after this experience, the resident was more open in communicating and expressing her traumatic past. In addition, Geller (2013) outlined her experience working as a volunteer with an Aging in Place group. The researcher met with the woman whom had just turned one hundred years old, every week. She explored various aspects and stories of the woman's life through creative intervention. The process was documented with the title, "The Tiger Tales." The researcher stated that, "It is empowering for older adults to discover symbols of the self and enter into dialogue with them via active imagination" (p. 211). Through her experiences, the researcher concluded that using the expressive arts with the older adult population helps awaken creativity and foster a source of knowing from within.

Abramowitz (2013) examined the effects of unstructured art therapy sessions using clay with older adults. The participants consisted of four female residents whom

resided at a long-term care facility for older adults, between the ages of 86 and 93. Group sessions occurred twice a week for an hour and a half. The participants attended the sessions voluntarily and created any art they wished using clay, in the group environment. The researcher utilized a semi-structured, open-ended interview approach in individual sessions to obtain more information about the participant's experience. Prior to conducting the interview, the researcher stated to the participant, "I am conducting a research study. Your honest appraisal is valued. I am open to hearing anything that you have to say. I will not be hurt or offended" (p. 3).

After coding the interviews, Abramowitz (2013) found a variety of themes, which were drawn from the participant interviews. These included the benefits of unstructured clay including clay as a unique medium, self-direction, and self-expression. Other themes related to quality of life needs, included social relationships, independence and control, mastery, and satisfying self needs versus the needs of others. The researcher concluded that support was found for the overall questions of, "Does the unstructured use of clay in art therapy sessions benefit older adults?" (p. 9) As well as "Does this have the potential to improve quality of life?" (p. 9)

Yartzky and Levinson (1996) examined the use of clay as an art therapy tool throughout group processing with elderly whom were rehabilitating from either a cerebrovascular accident, stroke, or femur neck fracture at the Meir Hospital in Kfar Sava, Israel. The participants consisted of eight participants, included, three men and five women, aged between 70 and 80 years old. Because the group maintained open participation throughout the study, the participants varied with three members leaving the group, while one joined. The researchers held five, 90-minute group sessions led by an

art therapist whom was assisted by a social worker and occupational therapist. The group sessions were facilitated in a way that gradually moved from a random exploration of the clay to specific interactions with the clay, in addition to gradually moving from group focused to focusing on the individual participants. The authors designed the creative process to be guided around the theme of the home throughout the following stages: “...constructing the external framework of the house, creating its internal components, installing significant figures, expanding a significant figure, painting the work, and describing the work's relationship with the artist” (p. 75). Method of analysis relied on retrospective observation of videotapes, photographs, and participant questionnaires. In result, the researchers found that throughout the sessions there was an increased amount of use of the impaired limb, suggesting that bilateral sensorimotor therapy occurred through working with clay. They also found that there was an increase in socialization among group members as evidenced by an increase in spontaneous questions and interactions before and after the sessions. In addition, responses to the questionnaires suggested that the participants enjoyed working with clay, as 6 out of 7 responded so on the questionnaire. 5 out of 7 participants responded that working with clay was significantly important and played a role in their rehabilitation. Furthermore, the researchers found that working with clay may arouse sexual thoughts with this population, which may cause discomfort for some or amusement for others.

### **Trauma**

Elbrecht and Antcliff (2014) review the sensorimotor art therapy approach using clay to facilitate trauma healing at the Clay Field. The researchers explain how the therapeutic approach of the Clay Field draws on haptic perception through kinesthetic

and sensory experiences as a means of activating new neural pathways in the brain. Focusing on healing from trauma, work at the Clay Field uses a bottom-up approach characterized by the integration of body awareness through somatic experience with clay along with psychotherapy. When working with clay, the researchers explain that the external stimuli from the senses along with the internal felt senses of the muscle and tissue become stimulated as the hands give feedback to the brain.

Elbrecht and Antcliff (2014) further explain that the approach taken at the Clay Field, allows for clients to tell their trauma narrative through their hands using innate memory instead of through cognitive recollection. Sensations within the body are projected onto the clay when working with the Clay Field, which helps clients learn to be aware of such sensations and tolerate them. Creating safety for these responses to occur helps build self-regulation as clients work through their trauma experiences using clay.

### **Non-Artists**

Bar-On (2007) examined the reflections of non-artists whom explored working with clay and the meaning that they made through this experience through narratives, self-reflections, and action. The participants consisted of 20 undergraduate students, eleven women and nine men, whom responded to a notice titled, "A Meeting with Clay" (p. 226). Each participant was videotaped engaging with a piece of clay 3 inches wide, 3.5 inches long, and 2.5 inches tall in the first session. Participants were told to engage with the clay with their eyes closed and then freely. The researcher placed the participants final clay piece on a turntable and asking, "What do you see" (p. 227) as well as encouraging further reflections. The second session occurred one to two weeks later where the participant and researcher reviewed the videotape from the first session

furthering reflecting on the experience for the participant using a semi-structured interview. The data analyzed included non-verbal data from the videotape, participant reflection during the experience with the clay, the semi-structured interview after the clay experience as well as while watching the videotape in the second session, photographs of the final clay products, and the researchers notes and journal. The researcher found that when participants eyes were closed, they were more so focused on doing, whereas when their eyes were open, a mode of thinking was activated. The researcher identified eight participants whom engaged in a planned thinking mode and twelve whom engaged in an associative thinking mode. It was also found that five of the participants engaged in both planning and associating modes alternating throughout the process and four of the participants created more than one product where each one mode of thinking was utilized throughout any of the products. The researcher found that participants engaged in a variety of art-making modes of thinking and doing which facilitated problem solving or self-reflection.

### **Structured vs. unstructured**

Foster (1997) explains the importance of a highly structured art therapy approach when working with patients with schizophrenia. She explains, the need for this population to have containment and reliability when experiencing a state of psychosis. Opposite of this approach, Abramowitz (2013) found that an unstructured art therapy approach when using clay with older adults facilitated a sense of self-direction and self-expression. Kimport and Robbins (2012) found that both a structured and unstructured approach using clay with college students, improved mood as reported on the POMS and STAI-S by more than 50% percent.

### **Theoretical Approaches**

Drawing on attachment theory, object relations principles, and psychoanalytic theory, Sholt and Gavron (2006) explore expression, deconstruction and construction, and regression features of working with clay. The researchers suggest that working with clay could facilitate expression of the unconscious and expression through the creation of symbolic play objects in which the inner world and fantasy is evident. Furthermore, it is argued that clay work is seen as a representation of an individual's inner world in a metaphorical sense. It is a material that has the ability to transform through construction and destruction allowing the individual to destruct and construct pieces of the self, facilitate psychic change, or form identity. The researchers identified 6 therapeutic qualities that emerge from working with clay. They include facilitating emotion expression, catharsis, expression of the unconscious, deep expression, verbal communication, and the psychoanalytic concepts of concretization and symbolization.

Foster (1997) suggests that a combination of the psychoanalytic concepts of projective identification and symbolic equation explain why people whom are experiencing psychosis avoid clay or believe that clay is a persecutory material. Projective identification refers to the theory that one projects the destructive aspects of ones self onto external objects. The destructive aspects of ones self refer to both destructive impulses and areas of the primitive self that are associated with emotionally heightened areas of the body. Anxiety experienced when coming into contact with such an external object may be reduced through avoidance of such object. The researcher suggests that the three-dimensionality of clay, lends itself to act a projective object for patients with schizophrenia. In addition, the researcher suggests that the patients may

perceive the external object to have equal negative qualities with the negative aspect of the body. In this manner, clay may not be seen as clay but seen as faeces, contaminating one's inner experiences.

### **Discussion**

This critical review of the literature and research on clay, integrated the historical perspectives and psychological perspectives of the use of clay. In addition, this review highlighted the various ways that clay has been used throughout the field of art therapy. This includes a wide range of theoretically informed clinical interventions and applications including structured clay interventions verse unstructured exploration using clay. However, it is clear that further research is needed to explore more of the therapeutic applications of working with clay. This includes further exploring the different populations, theoretical approaches, and interventions of clay work throughout art therapy. Limitations that this writer encountered throughout this research were the lack of number of studies that examined clay work with differing populations, approaches, and interventions. Future studies should aim to explore other populations and symptoms such as psychosis, intellectual disabilities, children, substance use and forensic populations. Furthermore, further research should examine the structured and unstructured uses of clay interventions including using clay to make ceramic vessels verse free expression using clay. Most of the studies drew on psychodynamic principles and perspectives of art therapy. Further research would also benefit from exploring the use of clay in art therapy as informed by other psychological perspectives such as humanistic approaches.

This literature review presented research that supports the use of clay as an effective treatment material. Clay is used throughout the field of art therapy in many different ways in many different environments. Multiple pieces of literature (Kimport & Hartzell, 2015; Kimport & Robbins, 2012; Foster, 1997; Geller, 2013; Abramowitz, 2013; Yaretzky & Levinson, 1996; Elbrecht & Antcliff, 2014; Bar-On, 2007) support the use of clay as an effective treatment material in reducing anxiety, increasing mood, awakening creativity, furthering self-development, healing from trauma, and facilitating self-expression. Moving forward, research conducted in the field of art therapy should aim to further confirm the ways in which clay can be beneficial to promote healing.

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