



Art Therapist-Facilitated Open Studio Versus Coloring: Differences in Outcomes of Affect, Stress, Creative Agency, and Self-Efficacy (Studio ouvert animé par un art-thérapeute versus coloriage : différences de résultats sur l'affect, le stress, l'agentivité créatrice et l'efficacité personnelle)

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To cite this article: Girija Kaimal , Janell L. Mensinger , Jessica M. Drass & Rebekka M. Dieterich-Hartwell (2017) Art Therapist-Facilitated Open Studio Versus Coloring: Differences in Outcomes of Affect, Stress, Creative Agency, and Self-Efficacy (Studio ouvert animé par un art-thérapeute versus coloriage : différences de résultats sur l'affect, le stress, l'agentivité créatrice et l'efficacité personnelle), Canadian Art Therapy Association Journal, 30:2, 56-68, DOI: [10.1080/08322473.2017.1375827](https://doi.org/10.1080/08322473.2017.1375827)

To link to this article: <https://doi.org/10.1080/08322473.2017.1375827>



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Published online: 11 Dec 2017.



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Art Therapist-Facilitated Open Studio Versus Coloring: Differences in Outcomes of Affect, Stress, Creative Agency, and Self-Efficacy (Studio ouvert animé par un art-thérapeute versus coloriage : différences de résultats sur l'affect, le stress, l'agentivité créatrice et l'efficacité personnelle)

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ABSTRACT

Background: Coloring books for adults have become a ubiquitous presence in retail outlets worldwide and in the visual cultural landscape. The goal of this study was to determine differences in outcomes between art therapist-facilitated open studio and individual coloring.

Methods: The study used a within-subjects experimental design. Healthy adult participants (aged 19–67 years) were invited to engage in one session each of individual coloring, and open studio facilitated by an art therapist. A total of 36 participants enrolled in the study; 29 completed pre- and post-surveys for both conditions. Outcomes measured included positive and negative affect, perceived stress, self-efficacy, and creative agency.

Results: The art therapist-facilitated open studio condition resulted in superior improvements in positive affect, creative agency, and self-efficacy compared to the coloring condition. Both conditions resulted in lowered stress and reduced negative affect.

Discussion and implications: The results indicated that coloring might have therapeutic benefits on distress; however, only the art therapist-facilitated open studio session showed significant improvements in self-efficacy, self-perceptions of creativity, and positive mood. Art therapists might consider using the phenomenon of coloring as a doorway to art therapy and more spontaneous creative and self-expression for transformative change. Future studies should seek to identify the unique mechanism of change through which art therapist-facilitated art making explains the shifts in positive affect, creative agency, and self-efficacy.

RÉSUMÉ

Contexte : Les livres à colorier pour adultes sont désormais omniprésents dans les magasins partout dans le monde et dans le paysage culturel visuel. Le but de cette étude était d'établir les différences entre les résultats obtenus dans le cadre d'un studio ouvert facilité par un art-thérapeute et le coloriage individuel.

Méthodes : L'étude a eu recours à un devis expérimental intra-sujets. Des participants adultes en bonne santé (âgés de 19 à 67 ans) ont été invités à participer à une session de coloriage individuel et à un studio ouvert animé par un art-thérapeute. Au total, 36 personnes se sont inscrites à l'étude ; 29 d'entre elles ont répondu à un questionnaire avant et après l'intervention. Les résultats mesurés portaient sur les affects positifs et négatifs, le stress perçu, le sentiment d'efficacité personnelle et l'agentivité créatrice.

Résultats : La situation de studio ouvert animé par un art-thérapeute a donné lieu à de plus grandes améliorations en ce qui concerne les affects positifs, l'agentivité créatrice et le sentiment d'efficacité personnelle, comparativement à la situation de coloriage. Les deux situations ont entraîné une diminution du stress et de l'affect négatif.

Discussion et implications : Les résultats indiquent que le coloriage peut avoir des effets thérapeutiques sur la détresse ; toutefois, seule la session en studio ouvert animée par un art-thérapeute a entraîné des améliorations significatives en ce qui concerne l'efficacité personnelle, la perception de sa propre créativité et la bonne humeur. Les art-thérapeutes pourraient envisager d'utiliser le phénomène du coloriage comme porte d'entrée à l'art-thérapie ainsi qu'à des formes

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d'expression plus spontanées et créatives permettant un changement transformateur. D'autres études devraient chercher à cerner le mécanisme de changement unique qui est à l'œuvre dans la création artistique facilitée par un art-thérapeute pour expliquer les changements positifs dans l'affect, l'agentivité créatrice et l'efficacité personnelle.

Introduction

Coloring books for adults have become a ubiquitous presence in retail outlets worldwide and a new addition to the visual cultural landscape. The popularity of adult coloring books indicates that they fulfill a need for visual expression among today's adults. There is ongoing interest in researching drawing and coloring from fields outside of art therapy (Forkosh & Drake, 2017; Northcott & Frein, 2017), which may be increasing due to the prevalence of adult coloring books in our visual culture. They have, however, led to many mistaken assumptions about art therapy, including raising questions about whether and how coloring differs from art therapy in terms of psychological outcomes. While there is a difference between the personal use of coloring books and engaging in art therapy with a trained professional, the use of adult coloring activities can act as a starting point for someone who may be hesitant to use art materials. Kaiser (2017a) speaks to the importance of "practice-informed research" to help define "the role of the creative process in therapeutic change" (p. 56) unique to the field of art therapy. In this within-subjects experimental study, our aim was to determine differences between coloring and art making in a free art-making open studio session that was facilitated by an art therapist. The open studio session was based on Allen's (1995; 2008) work of merging art studio practices with art therapy concepts. A variety of art materials were laid out, and while no specific directive was given, the art therapist offered guidance and support during the art-making process. The art therapist also engaged in his or her own art making alongside the participant. Through the study, we sought to identify how these two conditions impacted established outcomes such as affect, perceived stress, self-efficacy, and a new dimension we refer to as creative agency.

Studies have shown that expressive techniques such as writing, music, and art making are creative interventions that can have lasting health effects on participants' mood and self-efficacy (Chan & Horneffer, 2006; Mercer, Warson, & Zhao, 2010; Pennebaker, 1997; Pizarro, 2004). A number of studies have shown

that premade coloring pages or simple drawing tasks and other art-making activities have been effective in reducing anxiety (Carsley, Heath, & Fajnerova, 2015; Eaton & Tieber, 2017; Sandmire, Gorham, Rankin, & Grimm, 2012; van der Venet & Serice, 2012), regulating mood (Babouchkina & Robbins, 2015; Collier & von Karolyi, 2014; Diliberto-Macaluso & Stubblefield, 2015; Laurer & van der Venet, 2015), reducing stress (Abbot, Shanahan & Neufeld, 2013; Curl, 2008; Huet, 2017), and increasing overall health and well-being (Greer, Fleuriet, & Cantu, 2012; Kim, 2013), which have led to claims about the efficacy of art therapy in general. This research questions how the arts can be used to heal and "increase understanding of oneself and others, develop a capacity for self-reflection, reduce symptoms, and alter behaviors and thinking patterns" (Stuckey & Nobel, 2010, p. 254). What many of these studies are lacking is the presence of a trained art therapist during the art-making portions of the experiments and the verbal processing of the art product created—both are crucial components of art therapy practice.

Literature review

Research on coloring

Coloring books for adults are more sophisticated and detailed than traditional children's coloring books, and many have topped Amazon's bestseller lists in recent years (Lewis, 2016). Colleges and libraries have set out coloring pages and even offered group coloring events, especially during high-stress times such as finals (Millam, 2017; Pells, 2016). Some claim that coloring offers opportunities for quick and easy decisions, a convenient escape from the demands of everyday life (Lewis, 2016), while also providing a sense of "mindfulness without the paralysis that a blank page can cause," (Beck, 2015). Many have wondered if there is evidence to back up these sweeping claims. Some coloring books available in bookstores and retail outlets have been marketed with the words "art therapy" on the cover, which have motivated efforts by art therapists to clarify how coloring books

are not art therapy (Carolan & Betts, 2015; Otto, Rattigan, & Gerber, 2015). Some suggest that intricate details and structured designs, such as the ones present in many adult coloring books, can induce a meditative state that may promote relaxation. Curry and Kasser (2005) set out to test this theory in an experimental condition that compared coloring a pre-drawn mandala (design within a circle) with coloring a plaid design or on a blank page. In a group of undergraduates ($N = 84$), after a brief anxiety induction exercise, participants were given six colored pencils and asked to color for 20 minutes. Both the mandala and plaid designs were found to lower participants' anxiety levels, but the mandala design was slightly more effective. The authors posited that the blank page caused confusion and had no definite starting point, whereas the pre-drawn designs provided structure, which could have helped create a meditative-like condition for participants that helped to decrease anxiety. This study was replicated by van der Venet and Serice (2012). In this group of undergraduates ($N = 50$), there was a significant difference in anxiety reduction for the mandala group versus the plaid and free-form groups, but the results differed from those of Curry and Kasser's (2005) study in that there was no significant difference between the plaid and the free-form groups, which supports the initial hypothesis that the design within a circle would result in a greater reduction in anxiety.

Another study by Kersten and van der Venet (2010) looked at the use of color (warm versus cool) in reference to anxiety levels. They found no correlation and reported that some participants felt frustrated with the limited colors and materials. Carsley et al. (2015) studied the impact of a mindful coloring activity on elementary students' test anxiety. They found significant reduction in anxiety for both the structured mandala group and the free-drawing group, although the mandala group had a slightly higher decrease. The significant difference between the two groups was present for female participants only. This study suggests that males may benefit more from a less structured art task than a pre-drawn coloring page. Eaton and Tieber (2017) studied undergraduates ($N = 85$) by providing an abstract line design and compared a free-choice condition (color the design any way you wish) with a forced-choice condition (copy the colors from a sample). This study found that coloring for 30 minutes reduced anxiety and negative mood, but

more so for the free-choice group. The authors suggest that there may be a connection to an increase in perseverance after a free-choice coloring activity.

Art making and mood regulation, anxiety reduction, and stress reduction

A number of researchers have examined the impact of art making on mood and anxiety reduction. Babouchkina and Robbins (2015) looked at the impact of mandala drawings on negative mood. After a negative mood induction, participants ($N = 67$) were asked to draw for 30 minutes and either focus on feelings or on colors within a circle or a square. Negative mood decreased more in the circle conditions. Laurer and van der Venet (2015) looked at the difference between viewing and producing art on negative mood and anxiety in a substance abuse treatment center and found a decrease in negative mood and anxiety for the art production group. This study offered a variety of art materials rather than just drawing. Sandmire et al. (2012) also looked at the effect of various types of art making on anxiety reduction. They wanted to simulate a drop-in art center on a college campus during the week before finals. They compared an open studio condition (participants could choose from 5 different art projects) with a control group (relaxing in comfortable chairs), and found a significant decrease in anxiety for the experimental group ($N = 57$). Glinzak (2016) also found that a drop-in open studio condition provided the greatest decrease in distress for adult patients who had cancer ($N = 73$). Some studies have focused on the use of art making for short-term mood repair in relation to sadness (e.g., Dalebroux, Goldstein, & Winner, 2008; Drake & Hodge, 2015; Drake & Winner 2012). These studies embrace the view that art therapy focuses on negative emotions and on the use of art for venting (focusing on distressing emotions) versus distraction (focusing on positive emotions). Diliberto-Macaluso and Stubblefield (2015) explored the impact of painting on anger from this perspective. They found a significant difference in mood improvement for both the positive distraction (paint something happy) and neutral (copy a still life) conditions.

Lacking in these studies is the presence of meaning making and reflexivity on the art productions, and one may question the correlation of "venting" with self-expression through art making. In a program

evaluation of a community painting class for older adults, Greer et al. (2012) found that participants reported an increase in mental health, self-awareness, relaxation, and connection. Participants also felt that they were able to express themselves differently after the painting class than they did before the painting class and found a greater ability to explore their evolving identities and work through intense emotions. Huet (2017) presented a single case study of an art therapy group aimed at reducing work-related stress in hospice workers. In a six-month follow-up meeting, participants noted that, although they realized art making revealed some intense emotions, they felt they were able to have better control over what they wanted to disclose to the group. For some, participation in the art groups appeared to help them make decisions about reducing workload or setting boundaries that led to further stress reduction (Huet & Holttum 2016). This finding points to the possibility of using art making as a tool for enhancing self-efficacy. Although the adult coloring books may provide a safe, structured starting point for those who may not typically be drawn to art or creative endeavors, open studio free art making in the presence of an art therapist may provide an opportunity to develop skills that could lead to an increase in creative self-efficacy, which is an individual's perception of his or her own ability to generate creative solutions (Bang & Reio, 2017; Puente-Diaz, 2016). Kaiser (2017b) speaks to the need of conducting research that more closely mirrors the actual practice of art therapy. In a pilot study, Kaimal and Ray (2016) found that a brief, open studio free art making experience facilitated by a trained art therapist had a significant impact on lowering negative affect while increasing positive affect and self-efficacy in a sample of nonclinical participants aged 18 to 60 years. They found a strong correlation between improved positive affect and improved self-efficacy. One limitation of this study was the absence of a control group or a comparison group.

In summary, there are data indicating positive outcomes of coloring and art therapy but there has been no systematic examination of how they might differ in terms of altering outcomes for individual participants. Given these gaps, our primary hypotheses were that the art therapist-facilitated open studio condition would result in greater (1) improvements in self-efficacy, (2) improvements in creative agency, (3) improvements in positive affect, (4) reductions in

negative affect, and (5) reductions in perceived stress compared to the coloring condition.

Methods

Setting

The study was conducted in a dedicated art therapy studio at a large urban university in the northeastern United States. After receiving institutional review board approval, the investigators recruited participants from the community of staff, faculty, and students of the university. The inclusion criteria were that participants needed to be healthy adults (not ill or undergoing any medical treatment at the time of the study) and be between the ages of 18 and 70 years. Participants were not screened for mental illness. No prior artistic experience was required. Participants were recruited using listservs (group emails), announcements, and publicly displayed flyers. The study was described as examining health outcomes of visual self-expression. The participants were scheduled for two individual one-hour sessions with a trained art therapist on a weekday at a time convenient for them. Once the participants arrived for their scheduled appointment, they completed procedures for informed consent. The sequence of the two sessions (coloring or open studio) was randomly assigned such that some attended coloring sessions first and the others attended open studio sessions first, but the sessions were not conducted on the same day.

Sample

A total of 36 adult participants enrolled in the study. Of the total, 29 (80.6%) were women. The mean age was 37.9 years (standard deviation = 11.8). The majority of the participants self-identified as White ($n = 64$, 66.7%); 13.9% identified as Asian ($n = 5$); 11.1% identified as "other" ($n = 4$); 5.6% identified as Hispanic ($n = 2$); and 2.8% identified as African American ($n = 1$).

Instruments

Demographic information including age, gender, and racial/ethnic identification was collected verbally. Next, they completed the Positive and Negative Affect Schedule (PANAS), a validated standardized measure (Watson, Clark, & Tellegen, 1988), the General Self-Efficacy Scale (GSE) (Schwarzer & Jerusalem, 1995),

the perceived stress scale (PSS) (Cohen, Kamarck, & Mermelstein, 1983), and a set of questions we refer to as creative agency developed from the scales of creative self-efficacy and identity (Beghetto, 2006; Tierney & Farmer, 2002).

PANAS is a 20-item self-report measure of positive and negative affect developed by Watson et al. (1988). PANAS was shown to “possess adequate psychometric properties in a large sample drawn from the general adult population” (1,003 participants). Both the positive and negative affect scales have shown good internal consistency reliability (Cronbach’s α of .89 for positive affect and .85 for negative affect) (Crawford & Henry, 2004). The PANAS has shown criterion and predictive validity with significant correlations to depression and anxiety.

The GSE is a 10-item psychometric scale to measure one’s perception of being able to cope with difficult situations. It generally captures an optimistic disposition and has high internal consistency reliability. Cronbach’s α have been reported to be between .86 and .94 (Luszczynska, Scholz, & Schwarzer, 2005).

The PSS is a 10-item instrument helpful for identifying and measuring both the perception of stress in one’s life and the response to distress (Roberti, Harrington, & Storch, 2006). Internal consistency reliability (Cronbach’s α) was .89 for the 10 items, and construct validity showed convergent evidence in a high correlation between the PSS and the State-Trait Anxiety Inventory (STAI).

The creative agency construct was developed with questions on creative self-efficacy, a scale with high internal consistency reliability (Cronbach’s α = .86) (Beghetto, 2006). We adopted five items from the scale that were relevant to the adult population, including self-perceptions of having good ideas, coming up with good ideas; being imaginative; being able to solve problems creatively; and being able to generate novel ideas. The Cronbach’s α for the creative agency construct utilized in the present study was .90.

Procedures

Each session was facilitated individually with a trained art therapist. Participants attended each of the sessions on separate days and individually scheduled times. After signing informed consent forms, the participants completed standardized surveys before and after each session. The open studio session was based on Allen’s

(1995; 2008) work of merging art studio practices with art therapy concepts. In the open studio condition, participants were invited to work with the various art materials, which included A4 (8^{1/4}”x11”) paper, A11 (11” x 17”) paper, collage materials, modeling clay, pencils, color pencils, oil pastels, chalk pastels, crayons, and markers.

While no specific directive was given, the art therapist offered guidance and support during the art-making process. The art therapist also engaged in his or her own art making alongside the participant. Participants had the option of creating any kind of imagery using these media choices individually or in combination. The art therapist facilitating the session was available to the participant to help with the media and process the image once it was completed. Some participants chose to work quietly whereas others talked about their artwork, the art-making process, and other aspects of their life as they participated in the session. Following the principles of art therapy practice, the participants were told that there were no expectations about creating artwork to fulfill any external aesthetic criteria, that their work was not going to be judged for artistic qualities, and that they were free to work with the materials however they chose. The art therapist facilitating the session was available to provide any assistance needed and followed the lead of the participants at the level of verbal interaction they sought while making the art. The art making on average lasted approximately 40 minutes. Participants were offered time to reflect on any concerns after the session and the referral of a qualified therapist was provided to participants who sought follow up support.

In the coloring condition, participants completed the surveys before and after the session, which also lasted about 40 minutes. Participants were offered six potential coloring sheet options. The images were collected from publicly available coloring sheets online and included mandalas, geometric figures, and lettering based sheets. Participants chose one sheet and used either colored pencils or markers to do the coloring. In this condition, participants were instructed to imagine coloring by themselves. An art therapist was in the room but there was no interaction and no processing of the images. Some participants spontaneously shared their perspectives at the end of the coloring session, and these were noted.

All participants consented to having photo documentation of their artwork at the end of the session

coloring condition and the open studio condition. Most participants took their artwork or coloring sheets with them. See Figures 6a,b,c and 7a,b,c for examples of coloring and open studio art making. In this paper we do not present analysis of the artwork or narrative responses, only the outcomes data on pre and post-survey responses to each session.

Data analysis

Data were analyzed using SPSS (version 24.0, Armonk, NY: IBM Corp.). We summarized the demographic information with basic descriptive statistics (frequencies, means, standard deviations). We examined the quantile-quantile plots, histograms, skewness, kurtosis, and used the Shapiro-Wilk test for normality to check distributional assumptions for the outcome variables. To correct the significant positive skew found in the negative affect distribution, we log transformed the values of the variable for both conditions pre- and post-session. In addition, we removed one participant with an outlier score on negative affect (score > 2.5 standard deviations above the mean). All other outcome variables met distributional assumptions, and no further outliers were found. A repeated-measures factorial ANOVA was used to compare the within-subjects main effect of time (pre- to post-session), the within-subjects main effect of the condition (open studio versus coloring), and the within-subjects interaction effect of time by condition. The interaction

is the effect of most importance for determining if changes in the variables differed by condition type and hence for answering our stated hypothesis. We also performed bivariate correlations for age and independent samples *t* tests (with percentile corrected bootstrapping due to the small sample size of men) for gender in order to determine if they covaried with the change scores for the outcome variables. In cases where significant relationships or differences were evident, we added a covariate for age, and a between-subjects factor (in the case of gender) to the within-subjects repeated measures analysis to control for potential confounding. Thirty-six participants took part in the study; however, certain individuals did not complete the full battery of surveys at pre- and post-session time points for both conditions. Therefore, the sample size for the repeated-measures factorial ANOVA varied between 29 and 32 individuals, depending on the specific outcome variable (sample sizes for each analysis are shown in Table 1).

Results

Preliminary correlational analyses showed that change in positive affect and creative agency in the open art studio condition positively correlated with the age of the participant: $r(31) = -.42, p = .19$, $r(28) = -.43, p = .02$, respectively. Older participants tended to report less change in positive affect and creative agency after the session than younger participants. Women in the

Table 1 . Estimated marginal means for open studio art versus coloring pre- and post-session.

	Open studio art		Coloring		Time main effect <i>F</i> (df)	Condition main effect <i>F</i> (df)	Time by condition effect <i>F</i> (df)
	N	Mean (SE)	N	Mean (SE)			
Self-efficacy ^a							
Pre-session	32	32.75 (0.76)	32	33.33 (0.61)	7.92 (1, 30)	0.15 (1, 30)	6.22 (1, 30)
Post-session	32	34.91 (0.78)	32	33.81 (0.76)	$p = .009$	$p = .699$	$p = .018$
			Effect size $\eta_p^2 =$	0.209	0.005	0.172	
Creative agency ^b							
Pre-session	29	18.69 (0.80)	29	19.35 (0.68)	4.81 (1, 27)	1.76(1, 27)	14.50 (1, 27)
Post-session	29	19.51 (0.80)	29	19.90 (0.69)	$p = .037$	$p = .196$	$p = .001$
			Effect size $\eta_p^2 =$	0.151	0.061	0.349	
Positive affect ^c							
Pre-session	31	28.25 (1.52)	31	30.65 (1.47)	6.57 (1, 28)	0.86 (1, 28)	4.99 (1, 28)
Post-session	31	35.34 (1.89)	31	32.54 (2.23)	$p = .016$	$p = .362$	$p = .034$
			Effect size $\eta_p^2 =$	0.19	0.03	0.151	
Negative affect ^d							
Pre-session	30	2.68 (0.05)	30	2.68 (0.06)	38.33 (1, 29)	0.17 (1, 29)	0.59 (1, 29)
Post-session	30	2.52 (0.04)	30	2.49 (0.05)	$p < .001$	$p = .681$	$p = .448$
			Effect size $\eta_p^2 =$	0.569	0.006	0.02	
Perceived stress							
Pre-session	29	17.90 (1.11)	29	17.72 (0.87)	13.37 (1, 28)	0.03 (1, 28)	0.52 (1, 28)
Post-session	29	15.45 (1.06)	29	15.86 (0.92)	$p = .001$	$p = .867$	$p = .479$
			Effect size $\eta_p^2 =$	0.323	0.001	0.018	

^aModel controlling for gender. ^bModel controlling for age. ^cModel controlling for gender and age. ^dScores reflect log transformation performed to correct distributional skew.

open art studio condition changed significantly less than the men in positive affect: $t(24) = -2.33$, $p = .028$, and self-efficacy, $t(24) = -2.09$, $p = .048$. To control for the potential confounding effects of these variables, age was included as a covariate in the repeated measures factorial ANOVAs for positive affect and creative agency; gender was included as a factor in the positive affect and self-efficacy models.

Table 1 shows the estimated marginal mean values for both conditions pre- and post-session for each outcome variable, as well as the F -tests, p values, and effect sizes for the time main effect, the condition main effect, and the time-by-condition-interaction effect (the key effect of interest to us). Repeated measures factorial analysis of variance for within-subjects effects showed a significant time by condition interaction effect for self-efficacy: $F(1, 31) = 6.22$, $p = .018$, partial $\eta_p^2 = .172$. About 17% of the variance in the change in self-efficacy scores between pre- and post-session was explained by the effect of the condition. Open studio art produced significantly greater change in self-efficacy scores than the coloring condition (see Figure 1). A significant time by condition interaction effect was found for creative agency: $F(1, 28) = 4.99$, $p = .034$, partial $\eta_p^2 = .151$. About 15% of the variance in the change in positive affect scores between pre- and post-session was explained by the effect of the condition. Open studio art produced significantly greater change in creative agency scores than the coloring condition (see Figure 2). A significant time by condition interaction effect was found for positive affect scores: $F(1, 27) = 14.50$, $p = .001$, partial $\eta_p^2 = .349$. About 35% of the variance in change in positive

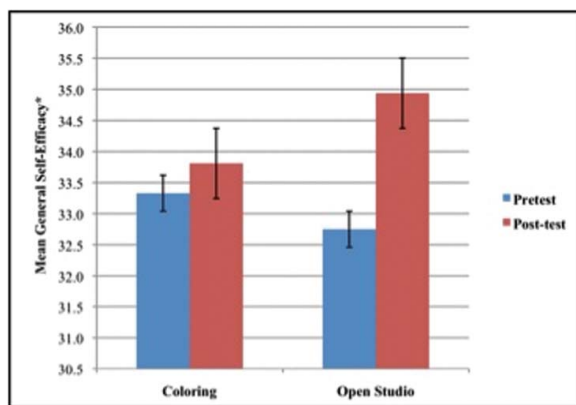


Figure 1. Differences in general self-efficacy between coloring and open studio art therapy. *Note.* Bars show 1 standard error above and below mean. *Mean scores are estimated marginal means from model controlling for gender.

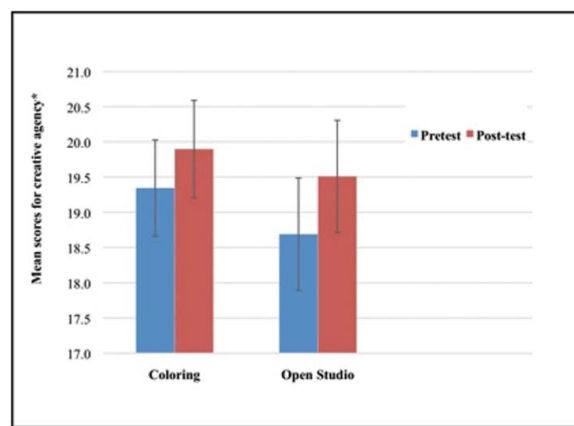


Figure 2. Differences in perceived creative agency between coloring and open studio art therapy. *Note.* Bars show 1 standard error above and below mean. *Mean scores are estimated marginal means from model controlling for age.

affect scores between pre- and post-session was explained by the effect of the condition (see Figure 3). Open studio art produced significantly greater change in positive affect scores than the coloring condition. Although scores significantly improved from pre- to post-session for negative affect and perceived stress levels (see significant main effects for time in Table 1 and in Figures 4 and 5, respectively), degree of change did not differ according to condition for these variables.

Discussion

The goal of this study was to examine differences between coloring and open studio art in order to understand the therapeutic qualities of the two visual

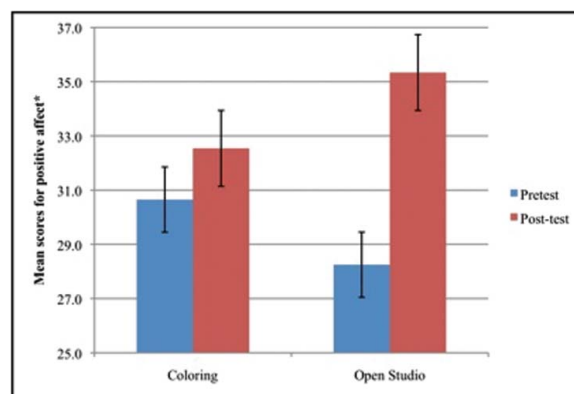


Figure 3. Differences in general positive affect between coloring and open studio art therapy. *Note.* Bars show 1 standard error above and below mean. *Mean scores are estimated marginal means from model controlling for age gender.

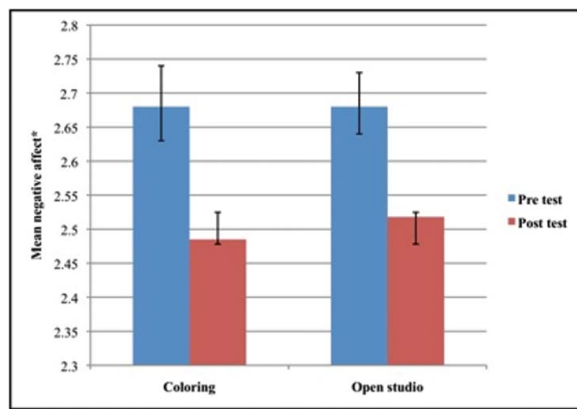


Figure 4. Differences in general negative affect between coloring and open studio art therapy. *Note.* Bars show 1 standard error above and below mean. *Scores reflect log transformation performed to correct distributional skew.

expressive conditions. The hypothesis that open studio art making facilitated by an art therapist would demonstrate greater improvement on all of the outcomes compared to coloring was partially met. We found the open studio condition to be superior to coloring in improving positive affect, self-efficacy, and creative agency. The coloring condition had positive effects that were similar to those of the open studio art condition in the measures of perceived stress and negative affect. Moreover, correlational analyses indicated that younger participants were particularly benefited in creative agency and positive affect, and men made especially significant gains in positive affect and self-efficacy. Overall, our findings suggest that there are distinct benefits of an art therapist-facilitated open studio session above and beyond an individual coloring session. Although coloring reduced stress and negative affect as effectively as open studio art, it did not

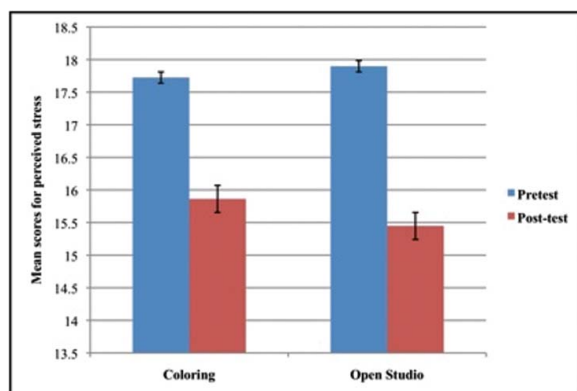


Figure 5. Differences in perceived stress between coloring and open studio art therapy. *Note.* Bars show 1 standard error above and below mean.

demonstrate changes related to improved self-efficacy, creative agency, and positive affect that were as transformative as those demonstrated by open studio art.

The improvements in positive affect and self-efficacy seen in the open studio art condition corroborates results from previous research (Kaimal & Ray, 2016; Walsh & Hardin, 1994). It is possible that the art therapist-facilitated open studio setting with a range of media and a facilitating therapist helped participants negotiate the challenges of using media and making decisions to create a visual image. Many participants expressed initial anxiety when beginning the open studio condition and stated afterward that the guidance provided by the art therapist in choosing materials or subject matter helped alleviate that anxiety and allowed for greater access to free expression. In addition, the process of receiving support and the opportunity to discuss the image and associated experiences with an art therapist could be a mechanism that facilitated these changes in the individual participant. The role of the trained art therapist in the open studio sessions is crucial to therapeutic change. Art therapists are trained not only in understanding how to use a variety of art media and materials, they are also trained to support the fear and anxiety that many people experience when faced with new and uncomfortable situations. For many adults, entering an art studio, having a blank page in front of them, and being asked to create art can be quite an anxiety-provoking experience, so much so that most of them avoid this experience altogether. Yet it is precisely through having this initial discomfort and leaning into it, rather than stepping away from it, that leads to a change in one's view of self. This moment is what is at the heart of the practice of art therapy, and the analysis of and attention paid to this moment is what has been missing in previous research on art making.

In the coloring condition, the participants only engaged in coloring in a pre-drawn image. They did not process the image with the art therapist or discuss their experiences or reflections about the image. Some participants in the coloring condition did spontaneously share their reflections after the post-session surveys were completed. This experience highlighted the potential therapeutic uses of coloring in art therapy. Art therapists might consider coloring as a way to encourage visual self-expression among participants who are intimidated by artistic tasks. Given the references in popular visual culture to coloring as a stress



Figure 6. Examples of coloring sheets completed by participants.

buster, our findings offer some data to suggest that it is a valid assumption.

Coloring was also found to reduce negative mood but had no significant impact on positive mood. This finding could indicate that coloring might be a way to counter distressing mental states (stress and negative affect) but that coloring does not necessarily contribute to an enhanced sense of self-efficacy or positive affect: these might need more deliberate creative expression such as that offered in a session facilitated by an art therapist. However, the participants were in a setting with a researcher even in the coloring condition, which might have inadvertently affected the outcomes. This presence of the researcher might have generated effects similar to those of the Hawthorne effect (Landsberger, 1958) such that the participant was not truly engaging in coloring by him- or herself. Additionally, the act of coloring is one of the few readily available visual expressive opportunities for adults. In our previous studies (Kaimal & Ray, 2016; Kaimal,

Ray, & Muniz, 2016), we found that adult participants often reported that they had not had opportunities for visual self-expression since they were in elementary school. Thus, coloring might be considered a potential self-care practice as well as a doorway to art therapy and creative visual self-expression.

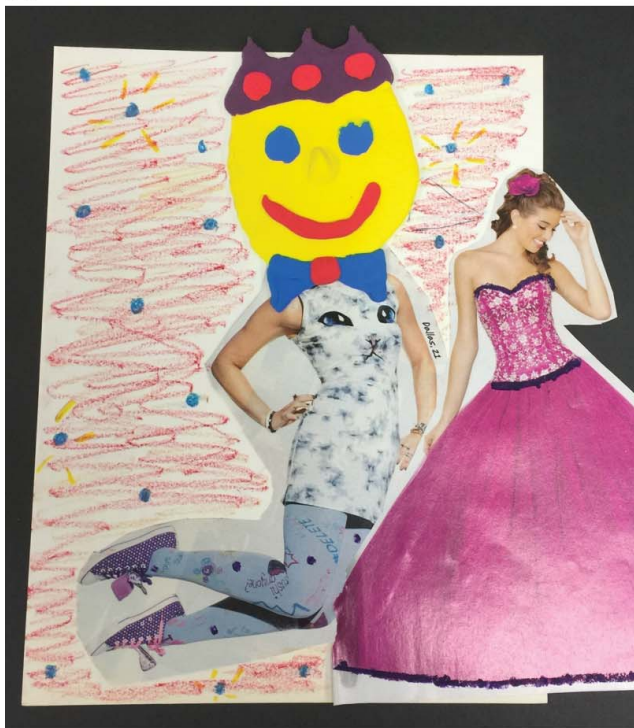
However, the constraints of the coloring condition evoked intense negative reactions from a few participants who identified as artists. One participant drew over the pre-drawn coloring form to create a new visual image. Most participants reported enjoying the condition and even made associations to the completed visual. Most participants took their artwork from both conditions with them. One participant reported that the coloring sheets looked too feminine, which is a potential consideration for future studies.

The open studio free art-making session was a one-time interaction, and the changes seen might have been different if multiple sessions of art therapy were offered. Given that it was a one-time interaction,

(a)



(b)



(c)



Figure 7. Examples of artwork created during the art therapist-facilitated open studio sessions.

we used structured art media, which also potentially limited the range of expressive options available to participants. The findings also highlight the potential

to introduce the benefits of art therapist-facilitated open studio as a community-based practice. Community-based art therapy studios could serve as a form of outreach providing particular assistance to men and youth in need of support and older adults in the long term. Coloring books have inadvertently drawn attention to the field of art therapy and provide the field an opportunity to educate the public and invite engagement. Art therapist-facilitated open studio art therapy could be a way of making the field visible in everyday life—within healthcare, schools, community contexts, and the workplace—building upon the spotlight on art therapy through coloring books.

Given these findings, we propose that a potential mechanism of change that is unique to art therapy is the positive impact on affect, creative agency, and self-efficacy. Luszczynska et al. (2005) found that general self-efficacy (GSE) is correlated to social cognitive constructs such as behavior-specific self-efficacy beliefs, implementation intentions, goal intentions, self-regulation, and especially effective coping. Negative correlations between GSE and negative emotions were confirmed, indicating useful indicators of situation-specific efficacy. Visual expression through coloring might lower negative mood and stress, but art therapy sessions alone can potentially improve mood and sense of self-confidence around the ability to be creative, solve problems, and initiate change.

The study had a number of limitations. The sample was not large, and some participants did not complete both conditions. In addition, the participants were mostly women, so any potential effects related to gender could not be firmly established in this sample. The coloring condition directive required the participants to imagine working alone; however, they were not really alone because the researcher was in the room. Thus, the condition did not truly mimic coloring by oneself and could have inflated some of the positive findings seen in the coloring condition. A few participants who had extensive prior art-making experience were frustrated by the limitations of the coloring condition, and their responses might also have skewed the results. The open studio art therapy was a single-session interaction, which limited the capacity for significant changes. Although the session demonstrated improved outcomes on all the measures, we do not know if the results were sustained over time, or if some participants would have liked more sessions. In addition, the open studio art condition had several

media options and expressive choices that might also have affected the outcomes. Lastly, we used several measures correlated with anxiety like the PANAS for positive and negative affect, and the PSS for perceived stress, but we did not use a specific measure of anxiety.

In conclusion, both conditions resulted in similar reductions in stress and negative affect, but the art therapy open studio condition led to significantly superior improvements in self-efficacy, creative agency, and positive affect. The findings indicate some potential benefits to coloring and that it might be a simple way to introduce individuals to visual self-expression and art therapy. These results indicate that the insights and transformative experiences of the art therapy open studio session can translate into real-life situations. Age was found to be related to changes in outcomes for positive affect and creative agency such that younger participants were more likely to show greater improvements than older participants. The arts-based approaches might be considered a potentially empowering intervention for youth in future studies. It is also possible that older adults might need more sessions to show significant shifts in these constructs. Future research might examine differences in longer term interventions including multiple sessions of open studio art therapy and sustained impact of interventions on outcomes of anxiety and mood among a range of diverse populations. In addition, future studies should seek to systematically study the unique mechanism of change through art therapy that explains the shifts in positive affect, creative agency, and self-efficacy.

Funding

Funding was provided by the College of Nursing and Health Professions, Drexel University Neuroinflammation and Gender Research Group (US).

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