

Impact of Arts Participation on Health Outcomes for Older Adults

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The objective of this study was to present findings from a literature review on the documented health benefits of arts programs for older adults. A systematic literature review was conducted to examine research publications on participatory arts programs for older adults and their reported impact on health outcomes. A total of 2,205 articles were found. Of these, 11 were eligible for inclusion. The review describes the effects of participation in art programs on a variety of health outcomes. The small number of empirical studies documenting the health impact and limitations in their design prohibit broad generalizations, however, findings suggest there are physical and mental health benefits for older adults from arts participation.

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The aging of the population, coupled with significant increases in health care costs resulting from the proliferation of chronic health diseases and disabilities, have fostered a growing interest in health promotion and wellness interventions for older adults. Aging advocacy agencies over the past decade have been promoting community programs that are based on evidenced-based practices for health promotion and disease prevention (National Council on Aging, 2007; Administration on Aging [AoA], 2010).

Programs and interventions that have been evaluated with demonstrated efficacy are included in AoA's "toolkit" of best practices and their replication is encouraged throughout the Aging Network. Some of the more widely replicated programs are designed to prevent falls, reduce depression, improve nutrition, foster physical activity and exercise, and promote self-management of chronic conditions (see www.aoa.gov/AoARoot/AoA_Programs/HPW/Evidence_Based/index.aspx). Although these programs have proved to be effective, there is still a significant need for a new generation of innovative programs to enhance health and well-being in a growing aging population.

To date, relatively little attention has been given to the design and evaluation of creative and performing arts programs and their health benefits for community-dwelling older adults. In fact, while the arts have been used for healing purposes for centuries, the general body of research evidence that explicates their benefits is relatively scant (Putland, 2008; Staricoff, 2004; Stuckey & Nobel, 2010). At the risk of creating a false dichotomy, a distinction will be made here between art therapies and therapeutic use of the arts. Art therapies are typically provided in clinical settings such as hospitals or hospices by trained health care professionals to heal or ameliorate the effects of disease and disability. A review of the current literature on the health outcomes of music therapy, visual arts therapy, dance therapy and movement-based creative expression, and expressive writing concludes, admittedly on the basis of limited evidence, that these therapies reduce adverse health outcomes (Stuckey & Nobel, 2010). However, their impact on enhanced health and well-being is generally unknown.

In contrast, therapeutic use of the arts refers to professional artists that conduct creative or performing arts programs in community settings for the purpose of promoting health and wellness. Furthermore, programs in community settings have the potential to reach a broader population and a greater potential to focus on prevention of disease or disability rather than healing or ameliorating the effects of disease and disability. This research review is focused on the therapeutic use of the arts and has the following

purposes: to delineate the current evidence base for the health benefits of professionally led, participatory arts programs for older adults, to set forth a research agenda that will expand and strengthen the evidence base, and to foster a closer alliance between the arts community and professionals in the field of aging.

Furthermore, it is likely that such programming can be widely implemented in diverse community settings at reasonable costs. This assertion is made on the basis that arts programming uses professional teaching artists working in community settings rather than more costly health care therapists working in clinical settings. However, without systematic and rigorous evaluation studies that yield evidence of arts programs' specific health benefits and related costs, it is unlikely that participatory arts programs for older adults will be publicly funded or supported by health care plans and insurers. To date, there has not been a systematic literature review of the participatory arts programs designed for older adults and their health benefits, a void that this research seeks to fill.

METHODS

The following guidelines were used for targeting articles: (a) the article had to include creative activities that either exclusively targeted or included older adults, (b) the activities did not include therapies of any kind or art and craft activities, (c) the activity had to be participatory rather than observant, and (d) at least one health-related benefit had to be documented. The first guideline was used to be as inclusive of older adults as possible and not to identify those with specific chronic diseases or functional impairments. However, in one of the articles that was deemed in scope the adult participants had dementia or memory loss and participated in the activity while attending an adult day program (Kinney & Rentz, 2005) and in another article half of the participants had functional disabilities and resided in a continuing care community (Noice & Noice, 2006).

The second guideline, as explained earlier, was used to exclude art therapies because of their more limited availability and higher costs, in contrast to creative and performing activities led, ideally, by professional artists. In a similar vein, arts and crafts activities were not included because they do not require professional artists nor do arts and crafts activities build upon a set of developing skills and creativity from one session to the next. The third criterion was used to ensure that the activity engaged the participant and elicited his or her personal creative expression with its salubrious effects as explicated in the theory of flow (Csikszentmihalyi, 1990). The fourth criterion was used because the focus of the review was to identify the health benefits of participatory arts activities and the benefit was widely defined to include physical, cognitive, mental, or emotional health benefits.

A systematic review was conducted using the following three databases: Wolter Kluwer Health (Ageline), Sociological Abstracts and Academic Search Complete. The keywords to generate results that pertain to this content area were: creative*, health promotion, art*, program*, aging, perform*, participatory, well-being, and health. The search for articles began in June 2009 and ended in November 2009. A search of the literature showed that there were no existing meta-analyses or review articles on the health benefits of participatory arts activities for older adults.

The screening process to determine if the article met the inclusion criteria involved two steps. In the first step, the article titles and abstracts were examined. If the inclusion criteria could not be determined in the first step, the second level of screening involved examining the full text of the article. All study designs were included and non-English language articles were not included nor were duplicates. A sample (13) of articles was selected to be reviewed by two independent reviewers in order to determine inter-rater reliability of articles to include or exclude from the study.

The Kappa coefficient of concordance, which is a conservative estimate that correlates for chance agreement, was chosen to evaluate inter-rater reliability. The initial results yielded a Kappa coefficient of .52, a respectable level of agreement. Further training regarding the inclusion criteria clarified the ambiguity of how health outcomes are defined in this review, which was the area of disagreement among the reviewers. After further defining health outcomes to include physical, cognitive, mental, or emotional health benefits, a Kappa coefficient of 1.0, or perfect agreement, was reached (see Table 1).

TABLE 1 Databases, Search Terms, and Number of Articles Reviewed and Retained

Database	Search Terms ¹	Results	Number of Articles Reviewed	Number of Articles Retained
Academic Search Complete	Creativ* and art* and aging	151	4	2
	Perform* and art* and aging	1,474	[narrow search ²]	–
	Performing and art* and aging	111	1	1
	Arts and aging and health	181	1	1
Sociological Abstracts	Creativity arts and aging	0	0	0
	Arts and aging	63	0	0
Wolter Kluwer Health	Creativ* and program* and participatory	4	1	0
	Creativ* and health promotion	23	0	0
	Creativ* and arts and program*	85	25	1
	Arts and well-being	113	10	4
Results of Review of References	Noice			2
Totals		2,205	42	11

¹*denotes the derivatives and variations of the search term(s).

²The search terms 'perform*' and 'art*' and 'aging' produced too many articles (i.e. 1,474) and therefore further qualifiers were used to narrow the search by using the terms 'performing' and 'art*' and 'aging.'

RESULTS

In the initial literature search, a total of 2,205 articles was generated by the search terms with publication dates from 1978 through 2009. Of these, 42 were retained for review. Articles reviewed were excluded most often because they were determined to be therapies, did not include older adults, did not report health outcomes (physical, cognitive, mental, or emotional), or were not participatory art activities. The review determined that 11 met the inclusion criteria and details on the designs and findings from the 11 studies are presented in chronological order of their publication unless two or more studies were conducted by the same author(s).

The 11 studies identified as meeting the inclusion criteria were published between 1985 and 2006 and most (9), published since 2004. The study designs include: five single-group studies, four of which included a pre–post test design; six studies included an intervention group and at least one control group, five of which used a pre–post test design and three of which included random assignment to the intervention or control group(s). The number of participants ranged from 12 to 166 with the vast majority (more than 75%) being female (data not shown). In almost half (5 out of 11) of the articles, the form of art was drama/theatrical followed by chorale (2) and one study in drawing/painting, dance, music (piano) and creative expression. Table 2 summarizes the results for the 11 research studies that were reviewed and determined to meet the inclusion criteria.

In an exploratory study, Davis (1985) used repeated measures to examine the benefits of a 6-week series of 17 one-hour training sessions on creative drama for older adults ($n = 15$) led by two theater arts graduate students. The group included 13 women and 2 men ages 64 to 87 and all were white. Each session typically began with stretching and relaxation exercises followed by improvisational skills training. The psychological well-being outcomes included multi-item measures of hostility, anxiety, hope, and the capacity for human relationships. The study employed qualitative analysis of self-reports provided weekly by participants one-week prior to the sessions and each week following a workshop session. Findings showed no change over time in hope or human relation measures, but there was a decrease in anxiety and in one measure of hostility.

Bohlmeijer, Valenkamp, Westerhof, Smit, and Cuijpers (2005) used a pre–post test design to evaluate a new intervention that consisted of 12 group sessions of 2.5 hours each which engaged participants in reminiscence and creative expression with the aim of reducing levels of depression. The pretest and posttest (i.e. one week after the intervention) measures included well-established scales of depressive symptoms, mastery and meaning of life. There were a total of 79 participants in the intervention and their average age was 66 years, 70 % were female, and 55.7% lived independently. Results from the pre- and posttest analyses showed the participants had significant improvement on the depression scale (i.e., a reduction of 3.4 points) and on the mastery scale.

TABLE 2 Summary Results from the Research Studies Reviewed

Author	Year	Study Design	Number of Participants	Type of Program	Outcomes	Key Findings
Davis	1985	Repeated measures	15	Creative drama training workshop	Emotional well-being measures	Decrease in anxiety and in one measure of hostility
Bohlmeijer et al.	2005	Pre- and post-tests	79	Reminiscence and creative expression	Emotional well-being	Decrease in depression and increase in mastery
Kinney & Rentz	2005	Intervention and control groups using repeated measures	12	Drawing and painting arts program (i.e. Memories in the Making®)	Seven domains of well-being	Participation in the arts program increased well-being in five domains (i.e. interest, sustained attention, pleasure, self-esteem and normalcy)
Bugos et al.	2007	Random assignment to intervention and control groups with repeated measures including post-test	31	Individualized piano instruction	Cognitive executive functioning and working memory	Treatment group showed improvement in perceptual speed, viso-scanning and memory
Alpert et al.	2009	Repeated measures including post-test	13	Jazz dance instruction	Balance, cognition and mood	Improved balance
Cohen et al.	2006	Intervention and control groups with pre- and post-tests	166	Chorale group	Physical and mental health	Intervention group showed improved self-rated physical health, a smaller increase in the number of over-the-counter medications used and doctors visits, decreased occurrence of falls; better morale, and less loneliness

(Continued)

TABLE 2 (*Continued*)

Author	Year	Study Design	Number of Participants	Type of Program	Outcomes	Key Findings
Cohen et al.	2007	Intervention and control groups repeated post-test	128	Chorale group	Physical and mental health	Intervention group showed improved self-rated physical health, smaller increase in the number of prescription medications used, fewer reported health problems, fewer number of doctors visits, better depression, morale and activity level scores.
Noice et al.	1999	Pre- and post-tests	13	Theatrical training	Cognitive skills	Improved immediate and delayed word recall and recognition
Noice et al.	2004	Random assignment to one intervention and two control groups using pretest and three posttests	124	Theatrical training	Cognitive skills and quality of life	Intervention group showed improved recall, problem solving and well-being
Noice & Noice	2006	Pre- and post-tests with double pretest	18	Theatrical training	Cognitive skills and psychological well-being	Improved word recall and problem solving ability
Noice & Noice	2009	Random assignment to one intervention and two control groups with pre- and post-tests	122	Theatrical training	Cognitive skills and personal growth	Intervention group showed improved word recall, problem solving, verbal fluency, delayed recall and personal growth

Kinney and Rentz (2005) compared the relative effectiveness of a drawing and painting art program (i.e., *Memories in the Making*®) led by an artist facilitator with participation in a structured activity (e.g., current events, word games, crafts, or sharing) on the well-being of 12 older adults with dementia at two adult day centers using repeated measures. The following seven domains of well-being were measured using an outcomes-based observation tool: interest, sustained attention, pleasure, negative affect, sadness, self-esteem, and normalcy. Data were collected weekly for up to five weeks at ten-minute intervals during the activities and each activity lasted approximately 40 minutes.

The participants included five men and seven women with diagnosed dementia, ages 65 to 85. Five were African American and 7 were white and there were equal numbers with professional and blue-collar backgrounds. Results indicated when participants were in the art program, they demonstrated statistically significant higher levels of five positive well-being indicators (i.e., interest, sustained attention, pleasure, self-esteem and normalcy). There was relatively little negative effect observed during either type of activity and there was a trend for participants to demonstrate less sadness during the art activity. The authors conclude that participation in the art program can be used to increase certain domains of well-being in older adults with dementia.

Bugos, Perlstein, McCrae, Brophy, and Bedenbaugh (2007) used a random control trial, repeated measures and a pre–post test design to test the effects of a six-month Individualized Piano Instruction (IPI) program on older adults aged 60 to 85. The average age was 71.4 for the control group ($n = 15$) with an average of 16.3 years of education, and an average age of 69.6 for the intervention group ($n = 16$) with an average of 16.5 years of education. There were four males in each group. The participants in the study were considered musically naïve at the outset of the program.

Persons with neurological impairments, a history of seizures, stroke or taking psychoactive medications, and those who experienced medication changes during the study were disqualified. Subjects were administered a battery of neuro-psychological assessments at one month prior to the intervention and with two weeks following the intervention. There were no significant differences between the groups at baseline. Findings showed that, compared to the control group, the intervention group had significant improvements on digit symbol performance and trail making tests. This suggests that IPI had beneficial effects on perceptual speed, visoscanning and memory abilities, leading the authors to conclude that IPI may serve as an effective intervention for age-related cognitive decline.

Alpert, Miller, Wallmann, Havey, Cross, Chevalia, et al. (2009) evaluated the effectiveness of age-appropriate jazz dance instruction on balance,

cognition and mood using a study design that consisted of random assignment to intervention and control groups with repeated measures and pre- and posttests. The convenience sample consisted of 13 healthy, community-dwelling, English-speaking women ages 52 to 88 (mean age of 68), and all but one was white. Those diagnosed with a neurological or muscular-skeletal condition or an overt psychiatric diagnosis, and those taking medications that interfered with balance, cognition, mood, or coordination were disqualified.

Self-report questionnaires were used in a repeated measures design to assess cognitive status, depression and balance at three points; once between weeks 1 and 2 of the jazz class, between weeks 8 and 9, and after week 15. Analyses revealed no significant differences in mood (depression) or cognition scores, although both remained stable. However, balance scores showed significant improvement over the course of the instruction period, particularly for younger participants. The authors conclude that this type of intervention does not affect mood but is useful for improving balance in older women.

Cohen, Perlstein, Chapline, Kelly, Firth, and Simmens (2006) measured the impact of a professionally-conducted chorale group on the general health and mental health of 166 community-dwelling older adults using intervention and comparison groups and a pre-post test design. The mean age of the intervention group ($n = 77$) was 79.0 and it was 79.6 for the control group ($n = 64$). The intervention group was 78% female and 92% white while the control group was 89% female and 93% white. The chorale group met for weekly rehearsals for 30 weeks and performed several times during this time period.

Participants in the control group continued their activities as usual. The posttests were conducted on both the intervention and the control groups after 12 months following the baseline test. Results from the study indicate an improvement in self-rated overall health for the intervention group, while the control group reported a decline in overall health ($p = .01$). Furthermore, while both the intervention and control groups' use of over-the-counter medications increased, the increase for the intervention group was less than one additional medication, whereas the increase for the control group nearly doubled to 4.25 medications ($p < .01$).

There was also a significant difference in occurrence of falls between groups; the intervention group decreased in amount of falls while the control group increased. There also was a significant difference in the number of physician visits; while both groups increased in number of visits, the control group reported significantly more visits ($p = .04$). Regarding mental health changes, morale scores declined for both groups but the control group's scores were significantly lower than the intervention group's scores. No significant differences were found for depression at the 12-month follow-up,

while the decreases in loneliness scores were significant for the intervention group.

Cohen, Perlstein, Chapline, Kelly, Firth, and Simmens (2007) reported the results of the 24-month follow-up assessment of participants in the chorale intervention and those in the control group. The sample size dropped slightly to 128 participants (intervention group = 68, control = 60). In the previous study, there was a statistically significant difference in the use of over-the-counter medications between groups, while the findings for prescription medication use between groups did not reach significance. However, at the 24-month follow-up, differences in both over-the-counter and prescription medication use reached significance. Both the intervention and control groups increased in overall medication use; however, the control group's level of increase was significantly higher than that of the intervention group. Overall, the intervention group reported fewer health problems over the course of the 2-year period than did the control group. In both studies, the authors note that the average age in each group is nearly 80, higher than the average life expectancy, and the positive effects across multiple domains of the intervention are noteworthy.

Noice, Noice, Perrig-Chiello, and Perrig (1999) examined a four-week cognitive intervention on the effects of acting classes led by a professional actor on four cognitive skills: immediate list recall, immediate recognition, delayed recall, and delayed recognition. The study used a pre- and posttest design on a single group (no control group). There were 13 participants recruited from an ongoing longitudinal study of aging (ages 65 to 82). Results found that the participants demonstrated statistically significant improvements, scoring higher on both immediate and delayed word recall and recognition scores after the intervention. The authors concluded that acting lessons can significantly improve cognition in healthy, well-educated older adults.

Noice, Noice, and Staines (2004) conducted a subsequent study of cognition investigating the effects of theatrical training on cognitive function and quality of life issues with a sample of 44 older adults recruited from a senior center. In this randomized controlled study the sample size was larger and two control groups were used, one being a no-treatment group ($n = 31$) and the other engaged in a visual arts intervention ($n = 36$) for a total sample size of 124. The age range was 60 to 86, with a mean of 73.7, and 96% white.

There was one significant difference between the groups with the visual arts group being slightly younger on average, thus age was used as a covariate in all analyses. The subjects were unaware of their group assignment until the start of the classes. Cognitive functioning was assessed using tests of word recall, listening span tasks, and problem solving. Mental health was assessed by measuring self-esteem and psychological well-being. Results showed that the theatre group scored

significantly higher than both control groups on recall scores and problem solving.

Similarly, the theatre group scored significantly higher than both control groups on the mental health measure of psychological well-being. There was not a significant difference between groups in regard to self-esteem. Four months after the intervention, the authors employed these measures again to determine if the effects were sustained in the theatre intervention group. Results indicated statistically significant increases in word recall scores and no significant decline in mental health measures four months after the intervention.

Noice and Noice (2006) tested the theatre-based intervention led by a professional actor for four weeks with twice weekly sessions of one-hour each on a less healthy population of older adults ($n = 18$) using a pre- and posttest design. There were 13 females and 5 males, aged 72 to 95. Whereas previous study samples included generally healthy and community-dwelling older adults, this study sampled an older (mean age = 82.3), more disabled population living in a continuing care facility. Subjects in the sample reported ambulatory problems necessitating assistance, as well as reports of memory concerns. The design used two pretests, one four weeks before the intervention and one a day prior to the intervention, and one posttest immediately following the intervention. Unlike previous studies, this study did not use a control group. Results indicated a significant improvement in word recall and problem-solving skills in participants following the theatre program.

Noice and Noice (2009) used pre- and posttests to examine the effects of the theatrical-based intervention, compared to two control groups, a singing group and a no-treatment control group, on 122 older adults (ages 68 to 93, mean age = 81.7) with subjects randomly assigned to the three groups. The mean level of education for the sample was 12.8 years and the sample was predominately female. A number of cognitive outcomes were investigated including word recall, prose comprehension, word generation, digit-span ability, and problem solving.

The participants in the study engaged in the theatrical activity led by professional actors and singers in eight sessions held twice a week. The pretest was administered a week prior to the intervention and posttest was the week following the intervention. The singing group was used as a control group to determine if stimulation offered by another type of performing art would produce similar effects as those evidenced in previous studies of theatrical-based interventions. Findings showed the theater group had significant improvements, compared to the two control groups, in four out of the five cognitive measures including immediate word recall, problem solving, verbal fluency, and delayed recall. In both the theatrical and singing groups, subjects reported higher personal growth scores compared to the no-treatment control group subjects.

SUMMARY AND DISCUSSION

Based on our review, it can be argued that participatory art programs involving older adults in a community setting with an evaluative component measuring health outcomes is a relatively new and emerging area of research. Of the 2,205 articles that were generated using relevant search terms, only 11 articles met the criteria for this review. Evidence from the 11 studies reviewed suggests there are a variety of benefits for health and functioning from participatory creative and performing arts programs for older adults. The work of Cohen and his colleagues (2006, 2007) found evidence that creative engagement had positive effects on general health, medication use, and the occurrence of falls.

Other research documented the positive effects of participation in creative programming on age-related cognitive functioning, improvement in balance, decrease in anxiety and hostility, decrease in depression, increase in mastery, and increase in well-being. The work of Noice, Noice and colleagues (1999, 2004, 2006, 2009) has evidenced improved cognitive skills in several populations of older adults through participation in theater training.

Despite the findings from this body of research, the small number of studies and limitations in their design and methods preclude definitive conclusions about which types of arts interventions may have the greatest impact on specific health outcomes for a particular subject population. We also acknowledge that our search may not have been exhaustive considering additional studies may have been published since our review or published in outlets not covered by the reviewed databases (i.e., Academic Search Complete, Wolter Kluwer Health & Sociological Abstracts). Other complicating features are that different types of arts programs were used as interventions and the health benefits investigated were very diverse, including such outcomes as self-rated health, neuro-psychological assessments of domains of cognitive functioning, and emotional health. As a result, it is very difficult to make comparisons across the studies that were reviewed.

There were a number of specific limitations to the eleven studies in this area of research. A critical limitation of five studies (Alpert et al., 2009; Bohlmeijer et al., 2005; Davis, 1985; Noice & Noice, 2006; Noice et al., 1999) covered in this article is the lack of a control or comparison group. Although six of the studies reviewed used a control or comparison group, subjects typically were not randomly assigned to the intervention and control groups with three exceptions (Bugos et al., 2007; Noice & Noice, 2009; Noice et al., 2004).

A third limitation in the reviewed research is the use of convenience sampling. This sampling approach is further complicated by the fact that most study samples were small and not diverse in their composition. The majority were made up of relatively healthy, community-dwelling white women assessed as relatively well-educated. Hence, these designs could

result in a number of potential confounding factors as well as have limited generalizability. Two of the reviewed studies (Kinney & Rentz, 2005; Noice & Noice, 2006) attempted to broaden the scope of sample characteristics and, in doing so, garnered evidence that health benefits accrue to other populations (i.e., more disabled, old-old, and former blue-collar workers). However, more studies are needed with larger and more diverse samples in order to generalize to populations about the specific health benefits of different types of participatory, creative arts programs for older adults.

Although the use of random assignment to intervention and control groups is strongly encouraged in future studies, the use of random selection in research designs is questionable. In comparison with the other health promotion and disease prevention programs promoted in the Aging Network such as falls prevention programs and diabetes management, creative and performing arts programs have some inherent differences with implications for their evaluation. By virtue of their content and design, participants are selectively attracted to them based on their life experiences and perceived talents and interests.

According to the theory of flow (Csikszentmihalyi, 1990; Moneta & Csikszentmihalyi, 2006), there has to be a good fit between the challenges of the artistic activity and the participant's skill level in order for the participant to become fully immersed in the creative process. Hence, program attrition can be expected if a good fit is lacking because the results of sustained participation under these conditions will engender boredom, frustration, or both in the participant.

Second, participants have more personal latitude and control over their involvement in creation of the product or production in arts programs, compared to other types of health promotion programs, because they are expected to bring their individual and idiosyncratic experience to bear on the creative process. Both of these differences work against the use of random selection and efforts to prevent drop out.

Although a range of health benefits has been evidenced in the research studies reviewed here, the duration of their effects is unclear because most interventions and posttests occurred in a relatively short time period with the exception of the 24-month study by Cohen and colleagues (2007). It would be beneficial to the field to experiment with the duration of the intervention as well its intensity or "dosage" to determine the relative effects and how long the effects are sustained following the intervention. By clarifying how long the intervention should be (e.g., one month versus six), how long the sessions should last (e.g., 30 minutes versus 90 minutes) and how frequently the sessions are offered, the findings will help researchers and program administrators understand the time commitment and costs involved in program planning.

Costs to execute the reviewed programs and to conduct the evaluations were not outlined in any of the articles reviewed. As Russell Glasgow (2006) posits, "Until more is known about the costs and cost-effectiveness of new

interventions, it is unreasonable to expect decision or policy makers to adopt or reimburse such programs.” Thus, it is critical to plan for and collect this information in future studies so that there is clarity about the program’s relative costs and benefits.

The limitations described in this review of the evaluation of participatory arts programs for older adults are not unique to this field. Evaluations of medically-based health promotion programs have found similar limitations, such as shortcomings in randomization, sample size, and a lack of documentation of relevant costs (Markle-Reid, Browne, Weir, Gafni, Roberts, & Henderson, 2006). Furthermore, Markle-Reid and colleagues argue for the importance of a theoretical foundation to guide evaluation research as the appropriateness and outcomes of interventions are tested.

It should be noted that this review had as its objective to describe existing evidence about the health benefits of arts participation and not to outline why there is a connection between arts participation and health benefits. However, we would argue that the evaluation of arts and aging programs requires future work to develop and refine such a foundation. While Cohen and colleagues (2006) proposed that theories of mastery and social engagement lend themselves to understanding how the health benefits of arts participation accrue to older adults and Csikszentmihalyi (1990) offers a theoretical model of creativity and the process by which its components produce healthful effects, further work on a theoretical foundation or framework is needed to direct the formulation of hypotheses about the effects of these programs and how they occur.

Last, the evidence from this review supports the development of closer ties between professional arts groups and aging advocates and service providers in local communities in order to broaden the availability of arts programming for older adults. With the current emphasis on self-management of health and engagement in health promotion and disease prevention activities, arts programs can serve as an attractive and effective means to these ends for older adults from a diversity of backgrounds.

NOTE

1. *Denotes the derivatives and variations of these words.

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