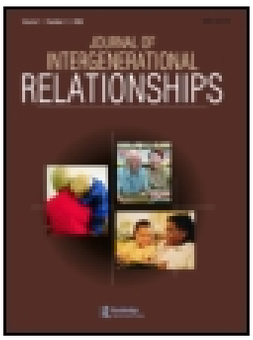

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Documented Outcomes for Older Adults in Intergenerational Programming: A Scoping Review

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ABSTRACT

Despite the reported benefits of intergenerational programming, relatively few empirical studies have reported outcomes specific to older adult participants. We conducted a scoping review to assess older adult-specific outcomes that have been quantitatively assessed in the intergenerational programming literature and the tools used to measure such outcomes. We identified 28 studies that utilized quantitative measures to assess older adult outcomes, such as depression, loneliness, and quality of life. Researchers are encouraged to adopt rigorous methodologies when assessing older adult outcomes in order to highlight the impact of intergenerational programming for older adult participants.

KEYWORDS

Outcome measures; quantitative assessment; literature review

Introduction

A great body of studies has documented the benefits of intergenerational programming. However, the majority focus on measuring its impact on younger participants or evaluating the program impact with non-standardized, qualitative assessment methods. The most common outcomes that have been documented in the literature demonstrate young children's ability to build relationships with older adults or their positive changes in attitudes toward older adults and caring behaviors (Fair & Delaplane, 2015; Hwang, Wang, & Lin, 2013).

Seldom examined in the intergenerational programming literature, however, are the older adult participants, despite their essential role in intergenerational engagement. Understanding of varied roles that older adults play in intergenerational contexts is needed for a variety of reasons. First, a growing number of grandparents are raising grandchildren. More than 2.6 million people are raising their grandchildren, including over one million grandparents age 60 and older holding the primary responsibility (Administration on Aging, 2016; Hedges, 2017).

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Older adults' intergenerational engagement extends to nonfamilial settings as well and includes opportunities to serve children and youth through various volunteer and co-learner roles. For example, in shared sites where older adults and children receive services in a single setting, older adults have an option to participate in scheduled intergenerational activities (Generations United, 2018). Older adults and children in this setting also encounter each other informally, such as while eating lunch or sharing outdoor recreation space. Given the numerous and varied ways that older adults can promote intergenerational exchange throughout their days, potential outcomes should be considered for means not only to increase participation rates but also to optimize benefits.

Intergenerational programming in community settings provides younger generations with an opportunity to learn from older adults' lived experience and extend their relationship with older adults beyond their own elderly family members. Foster Grandparents, a federally-funded civic engagement program for low-income older adults to mentor children, is an example (Teh & Terry, 2005). In addition, younger participants' professional knowledge and skills have been developed through opportunities such as intergenerational service learning courses for college students (Dorfman, Murty, Ingram, Evans, & Power, 2004; Stubblefield, 2000). Although intergenerational service learning courses are intended to develop students' social values, interest in civic engagement, and positive attitudes about aging (Blieszner & Artale, 2001), older adults also have an opportunity to maintain or develop social roles while working with the students. Therefore, potential outcomes should be measured to determine if their roles in this process are experienced as helpful and meaningful to the older adults themselves (Sakurai et al., 2016).

Despite the predominantly positive outcomes of intergenerational programming, the methods used to measure these outcomes appear quite homogenous, drawing data primarily from qualitative and quantitative assessments designed for youth participants and not their older adult counterparts (e.g., Chippendale, 2013; Fair & Delaplane, 2015; Gallagher & Carey, 2012; Lohman, Griffiths, Coppard, & Cota, 2003; Spiteri, 2016). In response, the current study assessed research articles that quantified outcomes of older adult participants of intergenerational programming in community settings, such as adult day service centers and elementary schools. We identified gaps in available resources for measuring the intergenerational program impact on older adults and suggested multiple strategies to enrich the understanding of the intergenerational programming outcomes for older participants.

Literature review

With the demographic shift toward an aging society, age segregation had been a concern for many researchers, educators, and policy makers until the mid 1960s (Newman, 1989). In 1965, however, Foster Grandparents was

established as the first federally funded intergenerational program in an effort to highlight the value of bringing people together across generations. Subsequent programs, such as various school-based intergenerational programs and shared-site intergenerational programs, were introduced because people started recognizing that youth and older adults possess talents and resources to support each other's development in times of opportunity and need (Jarrott & Bruno, 2007; Kaplan, 2001).

With national intergenerational programs approaching their 50th anniversary, some foundations, including The AARP Foundation and The Eisner Foundation, are examining their opportunities to support their respective missions and achieve a "double bottom line" involving both financial and social returns of investing in intergenerational strategies. Before investing in intergenerational initiatives, funders must be confident in their value (Jarrott, 2017). However, identifying rigorous methods for measuring the value of intergenerational programming has proven challenging. A national survey of shared site intergenerational care providers revealed that intergenerational program providers are keenly aware of the importance of documenting the impact of their respective programs; however, outcome documentation is a top challenge they face (Jarrott, 2019).

The impact of intergenerational programs on children

Previous research has indicated that children have the ability to build relationships with older adults and to understand the reciprocal nature of the relationship in intergenerational programs (Fair & Delaplane, 2015). Researchers found that intergenerational activities helped young children overcome misconceptions about older adults' characteristics, develop accurate understanding about contributions older adults can make during activities, and increase comfort with older adults during and/or after participating in intergenerational activities (Aday, Rice, & Evans, 1991; Chase, 2010; Cummings, Williams, & Ellis, 2002). Through the opportunity to build friendships with older adults and develop empathy for older persons, children are exposed to older adults' accumulated knowledge and experience and better understand life cycle changes (Gualano et al., 2018; Jarrott & Bruno, 2007; Park, 2015). In addition, young children who participated in intergenerational programming demonstrated significantly higher social- and emotional functioning, such as improved communication skills, reduced anxiety, and reduced social distance with older adults, both non-kin and family members, compared to children without this experience (DeVore, Winchell, & Rowe, 2016; Park, 2015). Contact theorists Pettigrew and Tropp (2008) pointed to mechanisms such as increased knowledge and empathy and decreased anxiety related to outgroup members (older adults to these studies' child respondents) as critical to achieving positive attitudinal change toward the outgroup.

The impact of intergenerational programs on older adults

Older adults serve multiple social roles in intergenerational programs. According to symbolic interactionist role theory, social roles are formed through informal interactions among individuals and resulting social relationships influence mental health and well-being (Biddle, 1986). Moreover, symbolic interactionist role theory describes both society and individuals as reciprocally influenced by each other (Stryker & Statham, 1985). Through intergenerational volunteer activities, for example, older adults have options to modify or reclaim roles they may have lost within the intergenerational dynamic (Kaplan & Larkin, 2004). Several social roles that older adults embody during intergenerational activities include volunteers who contribute to the community development or mentors for children's development of academic, social, and life skills (Santini, Tombolesi, Baschiera, & Lamura, 2018; Thompson & Weaver, 2015).

Researchers have endorsed civic engagement programs for elementary school children that promote older adults' engagement in physical, cognitive, and social activities (Fried et al., 2013). These intergenerational programs positively influenced older adults' physical, mental, and emotional health (Newman, Karip, & Faux, 1995; Sakurai et al., 2016). Older adults with opportunities for intergenerational social engagement exhibited higher levels of physical and social interactions and positive behaviors than adults lacking such social opportunities, regardless of older adults' physical and cognitive abilities (Newman & Ward, 1993; Sanchez et al., 2007; Short-DeGraff & Diamond, 2006).

Challenges and barriers for measuring the impact of intergenerational programs

In light of the predominantly positive findings for youth participants in intergenerational programming research, the needs and interests of older adults involved with these programs can get lost (Dellmann-Jenkins, 1997). Notwithstanding the efforts to develop, pilot, and evaluate intergenerational programs, the current state of intergenerational research tools requires significant improvement for several reasons. First, scales are often created for a single study without any reports of psychometric properties (e.g., Cordella et al., 2012; Council for Third Age, 2012; Cummings et al., 2002). Consequently, researchers duplicate efforts rather than use valid and reliable scales tested in the field. Second, the developmental and disease characteristics of a large portion of intergenerational programs participants, preschool-age children and frail older adults, limit the opportunity for valid self-report and standardized measures (Jarrott, 2011). Researchers rely on multiple methods to reflect participants' varied abilities, including interviews, direct observation, and participants' self-reflective writing and drawing, to represent participants' experiences with intergenerational

programs (e.g., Culhane & Frantz, 2007; Laney, Wimsatt, Moseley, & Laney, 1999). Lastly, a beauty of intergenerational programs is their potential diversity. Thus, the nature of intergenerational programs varies widely and resultant evaluation research is often descriptive and lack comparison groups, unlike studies of more standardized intervention programs that utilize experimental and control groups (Canedo-García, García-Sánchez, & Pacheco-Sanz, 2017). Therefore, it is important and timely to identify outcomes of intergenerational programs experienced by older adults. This scoping review is aimed to address a key challenge that intergenerational practitioners identified in the 2018 Generations United survey by presenting a review of outcome measures used to demonstrate the impact of intergenerational programming on older adult participants.

Methods

A scoping review was conducted to locate all articles identifying quantitative outcome measures of intergenerational programming specific to older adults. A scoping review methodology was most appropriate as it allowed the review team to explore a broad conceptual range of related literature and provide rich information to researchers, practitioners, and policymakers pertaining to older adult intergenerational programming outcomes (Peterson, Pearce, Ferguson, & Langford, 2016). Using the seminal scoping review framework by Arksey and O'Malley (2005), we followed five methodological steps: (a) identifying the research questions, (b) identifying the relevant studies, (c) selecting studies, (d) charting the data, and (e) summarizing the data. Starting with the first step, we identified our overarching research questions: (a) what older adult outcomes have been measured in the intergenerational program literature and (b) what quantitative measurement tools have been used to assess these outcomes?

Identification of studies

Relevant studies representing a variety of disciplines were obtained through the following electronic databases: Academic Search Complete, AgeLine, MEDLINE with full text, SociINDEX with full text, and PubMed. In addition, we cross-checked articles from the published articles' reference lists to confirm all of the relevant studies were included. The search was restricted to peer-reviewed academic journals published for this selected time frame, from January 1, 1997 to December 31, 2018. Scholarly articles conducted from all geographic areas were selected, and English language articles and articles with full text were considered for initial review.

In order to collect relevant articles for review, the search terms were a combination of the main subject term "intergenerational" and the following terms: "programming," "programs," "activities," "project," "services," "intervention," "unit," "practice," "engagement," "connections," "relationships,"

"experience," and "exploration." These search terms were drawn from the research publication repository on intergenerational programs listed by Generations United (https://www.gu.org/resources/). Since intergenerational activities take many different shapes, we used a relatively simple search strategy, rather than incorporate more keywords or probes to capture the broad possible sample of relevant articles.

Study selection criteria

Using Covidence (Veritas Health Innovation, 2018), a web-based systematic/scoping review management program, study selection was performed by two of the authors. Titles and abstracts were independently screened to reduce duplicates and determine eligibility for full-text inclusion. During the initial review of titles and abstracts, we included studies that examined non-familial intergenerational activities in a community setting (i.e., adult daycare centers, elementary schools, etc.) and that measured outcomes in older adults with quantitative measures. We excluded non-research articles, including conceptual articles, research protocols, policy reviews, program descriptions, and other comprehensive and/or systematic literature review articles. As we intended to document quantitative outcome measures and scales used to understand the experiences of older adults in intergenerational programming, we excluded qualitative research articles. Instead, we focused on intervention studies with quantitative and mixed methods approaches. After completing title and abstract screening, studies that met inclusion criteria were advanced to full-text review in order to determine inclusion in our final review. Reviewers individually performed their assessment of each full-text study, discussed discrepancies, and reached consensus on the studies included in the final review.

Charting the data

Studies meeting all of our inclusion criteria were advanced to the data abstraction phase. We organized our findings in a table, adapted from Arksey and O'Malley (2005) that summarized information extracted from each study. Extracted data reflected key study components, including: author(s) and year of publication, brief intervention sample descriptions, outcomes assessed, measurement scales, and major findings (Figure 1).

Summarizing the data

Consistent with scoping review recommendations (Arksey & O'Malley, 2005), our analysis focused on reporting key study components from the full-text articles and identifying gaps in the literature with regards to the types of outcomes measured among older adults who participated in intergenerational

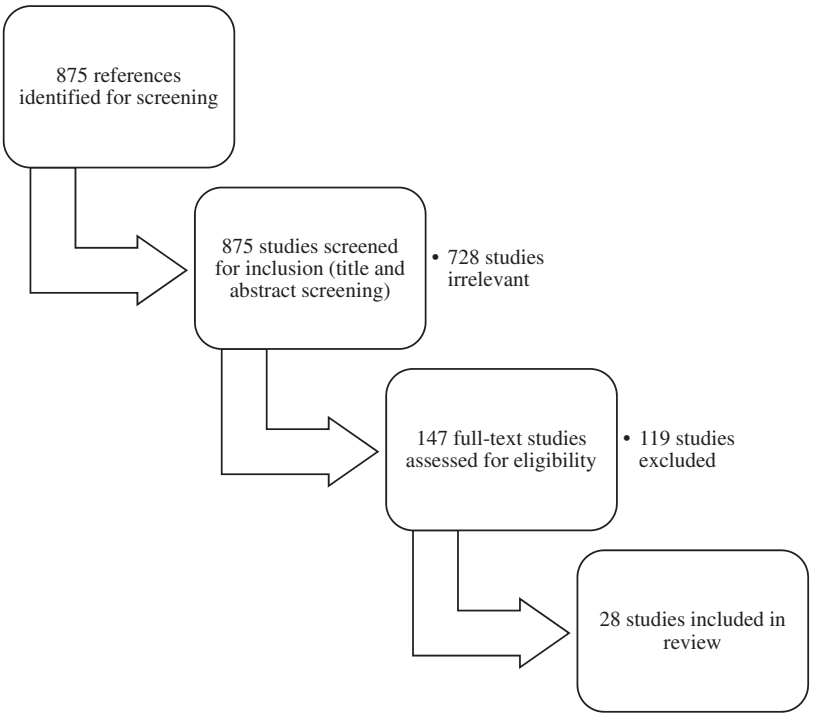

Figure 1. Study selection process.

programming and the quantitative measurement tools used to evaluate such outcomes (Table 1).

Results

Out of 875 references identified in our search strategy, 728 studies were deemed irrelevant during the initial title and abstract review; 147 full-text studies were assessed for eligibility. The full-text review process led to the exclusion of other studies: 65 studies did not include older adults for their study sample or did not measure outcomes for older adult participants; 35 studies were qualitative studies; 15 studies did not indicate community-based intergenerational activities; and another four were either a literature review, written in a language other than English, or were not available in full-text. As a result, 28 studies that met the inclusion criteria and were included in the final review. All sampled studies used either a quantitative or mixed method research design to assess the impact of intergenerational programs on older adults.

Variation in programming

Selected studies presented various types of intergenerational programs and activities, including intergenerational service learning programs, which promoted

Table 1. Summary characteristics of scoping review articles, ordered by year of publication.

No.	Author(s)	Program	Older Participants	Younger Participants	Outcome(s) Assessed	Scales	Major Finding(s)
1	Kim and Lee 2018	Intergenerational program (i.e., making picture frames, singing, and painting)	Nursing home residents (N = 60)	High school students	1) Ego integrity 2) Positive and negative affect 3) Nursing home adaptation	1) Ego Integrity Scale (Kim, 1989) 2) Korean version of the Positive Affect Negative Affect Schedule (Lee et al., 2003; Watson et al., 1988) 3) Nursing home adaptation Scale (Lee, 2007)	Increased levels of ego integrity, positive emotion, and nursing home adaption
2	Andreoletti and Howard 2018	Intergenerational service-learning	Assisted living residents	College students	Generativity	Loyola Generativity Scale	Increased generativity
3	Baker et al. 2017	Avondale Intergenerational Design Challenge (AVID)	Long-term care residents (N = 25, M = 87.13, SD = 7.56)	Technology students (aged 13–15)	1) Engagement 2) Affect	1) Homecare Measure of Engagement-Staff report 2) 100-point Visual Analog Scale (VAS)	Increased levels of resident engagement and positive affect.
4	Lin et al. 2017	Intergenerational health promotion program	Older adults (N = 9, M = 69.33, SD = 5.27)	Young adults (aged 18–29)	1) Attitudes toward aging 2) Physical, mental, and social domains of health	1) Attitudes toward Aging Scale 2) Spiritual Health Scale	Significant improvement for spiritual health
5	Schroeder et al. 2017	Dance for Health	Adults (N = 372, M = 52.5, SD = 14.5)	Children (M = 12.2, SD = 9.5)	1) Heart rates 2) Perceived exertion 3) Acceptability of the program	1) Manual palpation of the radial artery 2) Borg Rating of Perceived Exertion (RPE) (Borg, 1998) 3) Modified Physical Activity Enjoyment Scale (PACES)	Compared to children, older adults were more likely to reach target heart rate.
6	Sakurai et al. 2016	REPRINTS (Research of Productivity by Intergenerational Sympathy)	Older adults (N = 349, M = 67.7, SD = 5.7)	Children at kindergartens, elementary schools, and public childcare centers	1) Functional capacity 2) Depression 3) Self-esteem 4) Physical functions	1) TMIG Index of Competence 2) Geriatric Depression Scale 3) Rosenberg Self-Esteem Scale 4) Comfortable and maximum walking speed (CSW and MWS)	Maintained greater functional reach

(*Continued*)

Table 1. (Continued).

No.	Author(s)	Program	Older Participants	Younger Participants	Outcome(s) Assessed	Scales	Major Finding(s)
7	McConnell and Naylor 2016	Intergenerational Physical Activity Leadership program	Older adults (55+)	4th-5th grade students	1) Intergenerational interaction 2) Knowledge of active games and garnering children's attention 3) General leadership confidence	1) Intergenerational Observational Scale (Jarrott, Smith, & Weintraub, 2008) 2) Specific physical activity leadership confidence measures 3) Environmental responsibility and leadership scales (Powell, Stern, Krohn, & Ardoin, 2011)	High levels of confidence in leadership abilities
8	Murayama et al. 2015	REPRINTS	Older adults (N = 80, 65+)	Public elementary school children	1) Sense of coherence 2) Depressive mood	1) Japanese version of the Sense of Coherence (Togari & Yamazaki, 2005) 2) Geriatric Depression Scale-Short Version-Japanese (Sheikh & Yesavage, 1986)	Indirect effects of the intergenerational program on depressive mood through sense of meaningfulness
9	Au et al., 2015	Proactive aging psychoeducation program	Older adults (N = 17, M = 60, SD = 6.41)	College students	Loneliness	de Jong Gierverld Loneliness Scale for elderly Chinese (Wu, Tang, & Yan, 2005);	No significance changes in loneliness
10	Low et al., 2015	Grandfriends program	Nursing home residents (N = 40, M = 91.1, SD = 6.1)	Preschool children	1) Observations of engagement and mood of older participants 2) Functional ability 3) Agitated behaviors 4) Psychological sense of community 5) Quality of life for people living in long-term care	1) Menorah Park Engagement Scale (i.e., active/passive engagement, self-engagement/disengagement, pleasure, and sadness) (Camp et al., 1997) 2) Functional Assessment Staging Tool (Reisberg, 1988) 3) Cohen-Mansfield Agitation Inventory (Cohen-Mansfield, 2005) 4) Brief Sense of Community Scale (Peterson, Speer, & McMillan, 2008) 5) Long Term Care Quality of Life Scale (McDonald, 2013)	No differences between the intervention and control groups on quality of life, agitation, or sense of community
11	DeMichelis et al., 2015	Intergenerational teaching for wisdom program	Older adults (N = 10, M = 72, SD = 7.6)	Highschool children	1) Wisdom 2) Life satisfaction	1) Self-Assessed Wisdom Scale (SAWS) (Webster, 2003, 2007) 2) Temporal Satisfaction with Life Scale (TSLS) (Pavot et al., 1998)	Increased past-life satisfaction at posttest

(*Continued*)

Table 1. (Continued).

No.	Author(s)	Program	Older Participants	Younger Participants	Outcome(s) Assessed	Scales	Major Finding(s)
12	Gruenewald et al., 2015	Experience Corps	Older adults (N = 702, M = 67.4, SD = 5.9)	Elementary school children	Perceptions of generative desire and generative achievement	Measure developed for the Baltimore Experience Corps Trial (BECT)	Higher levels of generative desire and generative achievement over time
13	Skropeta et al., 2014	Intergenerational playgroups	48 aged care residents age from 68 to 101	Children (aged 0–4)	1) Quality of life 2) Depression	1) SF-36 (RAND 36- Item Survey 1.0) 2) Geriatric Depression Scale	A declining trend in energy/fatigue
14	Ehlman et al., 2014	Intergenerational service learning projects	Older adults (N = 124, M = 78.4, SD = 5.8)	College students	Generativity	Loyola Generativity Scale (McAdams & de St Aubin, 1992)	Increased levels of perceived generativity
15	Gaggioli et al., 2014	Intergenerational group reminiscence activities	Older adults (N = 32, M = 67.53, SD = 6.04)	Primary school students	1) Loneliness 2) Quality of life 3) Self-esteem 4) Quality of experience	1) Italian Loneliness Scale (Zammuner, 2008) 2) World Health Organization Quality of Life Scale for Older People (WHO QOL-Old; WHOQOL-Group, 1995) 3) Italian validation (Prezza, Trombaccia, & Armento, 1997) of the Rosenberg's Self-Esteem Scale (Rosenberg, 1965); Flow State Scale (Jackson & Marsh, 1996) 4) Italian version (Diana, Villani, Muzio, & Riva, 2012) of the Flow State Scale	Decreased levels of loneliness and increased levels of perceived quality of life
16	George, 2011	Intergenerational volunteering programs	Older adults (N = 7, M = 85.7, SD = 5.97)	Children (aged 5–6 and 11–14)	1) Cognitive functioning 2) Stress 3) Depression	1) Mini-Mental State Exam, MMSE 2) Stress (Beck Anxiety Inventory) 3) Beck Depression Inventory	Decreased levels of depression
17	Perry & Weatherby, 2011	Intergenerational physical activity program	Older adults (N = 7, aged 60–85)	Youth (aged 8–14)	1) Physical activity 2) Enjoyment	1) 7-Day Physical Activity Recall (Blair et al., 1985; Sallis, 1997; Sallis, Buono, Roby, Micale, & Nelson, 1993) 2) Physical Activity Enjoyment Scale (Motl et al., 2001)	An increase in physical activity, although not statistically significant

(*Continued*)

Table 1. (Continued).

No.	Author(s)	Program	Older Participants	Younger Participants	Outcome(s) Assessed	Scales	Major Finding(s)
18	Jarrott & Smith, 2010	Shared-site intergenerational program	Older adults (N = 10, 50+)	Children (aged 15 months to 5 years)	Social behavior	Intergenerational Observation Scale upon the Play Observation Scale (Rubin, 2001)	A significant group effect for intergenerational interactive, parallel, peer interactive, watching, and solitary
19	Doll & Bolender, 2010	Shared-site intergenerational program	Nursing home residents (N = 21)	Children from a kindergarten program	Activities of daily living and any changes	MDS (minimum data set) (i.e., mood, activities of daily living (ADLs), frequency and intensity of pain, weight, and number of medication)	No significant changes
20	Chung, 2009	Intergenerational reminiscence program	Older adults with early dementia (N = 49, M = 79, SD = 6.05)	Youth	1) Quality of life 2) Depression	1) Quality of Life- Alzheimer's Disease (QoL-AD) 2) Chinese version of Geriatric Depression Scale	Significant differences in QoL-AD and CGDS.

(*Continued*)

Table 1. (Continued).

No.	Author(s)	Program	Older Participants	Younger Participants	Outcome(s) Assessed	Scales	Major Finding(s)
21	Fujiwara et al., 2009	REPRINTS	Older adults (N = 67, 60+)	Public elementary school and kindergarten children	1) Physical health conditions 2) Higher level functional capacity 3) Subjective health status and psychological health (i.e., depression, self-esteem, generalized expectancies for internal and external control of reinforcement) 4) Social participation 5) Social network and social support 6) Cognitive function (i.e., episodic memory, language capability, and intelligence) 7) Physical performance test	1) Histories of outpatient and inpatient medical treatment, medication, chronic illness 2) Tokyo Metropolitan Institute of Gerontology (TMIG) Index of Competence (i.e., self-maintenance, intellectual activity, and social role) (Koyano et al., 1991) 3) Self-rated health, the Short version of Geriatric Depression Scale (Niino, Kawakami, & Imaizumi, 1991); Rosenberg's 10-item scale (Rosenberg, 1979); Kamahara's 18-item version of Locus of Control (Kambara, Higuchi, & Shimizu, 1982) 4) Social activity checklist (Takahashi et al., 2000) 5) Social network & Social support (Noguchi, 1991) 6) Japanese version of the Rivermead Behavioral Memory Test (Watamori, Hara, Miyamori, & Eto, 2002); Phonological and semantic verbal fluency tests (Sasanuma, 1998); Japanese version of the Wechsler Adult Intelligence Scale-Revised, Information, Picture Completion, and Digit Symbol (Shinagawa, Kobayashi, Fujita, & Maekawa, 1990) 7) Walking speed, one-leg standing duration test, grip strength, elaboration of fingers, and blood pressure	Significant interactions on social network scores, social support scores, self-rated health, and grip strength
22	Hernandez & Gonzalez, 2008	Intergenerational service-learning program	Older adults living alone, with mid- to low-income, and with slight depression (N = 101, M = 75, SD = 6.00)	College students	1) Depression 2) Negative old age stereotypes	1) Yesavage Geriatric Depression Scale (Yesavage, 1983) 2) Questionnaire for negative old age stereotypes (Montorio & Izal, 1991)	Decreased levels of depressive symptoms

(*Continued*)

Table 1. (Continued).

No.	Author(s)	Program	Older Participants	Younger Participants	Outcome(s) Assessed	Scales	Major Finding(s)
23	Montoro-Rodriguez & Pinazo, 2005	University Intergenerational Program	Older adults aged 55 and over (N = 212, M = 62, SD = 5.3)	College students	1) Social integration (i.e., community and university) 2) Attitudes about the elderly and old age 3) Social psychological outcomes	1) Aging scales (Pigram, 1987) 2) Philadelphia Geriatric Center Morale Scale (i.e., agitation, attitude toward aging, and lonely-dissatisfaction) (Lawton, 1975, p. 3) Geriatric Depression Scale (Yesavage et al., 1983); Rosenberg scale (i.e., self-esteem) (1965)	Older adults participating longer in the program reported significant higher levels of social integration
24	Herrmann, Sipsas-Herrmann, Stafford, & Herrmann, 2005	Intergenerational life-skill program	Older adults (N = 62, aged 60–81)	Middle school students	Psychosocial well-being	Measures of Psychosocial Development (i.e., overall psychological health and positive and/or negative stage attitudes for each of Erickson's final two stages of human development, generativity vs stagnation, and ego integrity vs despair) (Hawley, 1988)	Increased levels of positive psychosocial change
25	Meshel & McGlynn, 2004	Intergenerational programs	Older adults (N = 17, 60+)	Middle school adolescents (agend 11–13)	1) Attitudes toward younger 2) Life satisfaction	1) Five 7-point semantic differential scales (i.e., friendly/unfriendly, good/bad, pleasant/unpleasant, wise/foolish, and wonderful/terrible) 2. Satisfaction with Life Scale (Diener et al., 1985)	Increased levels of life satisfaction
26	Segrist, 2004	Service-learning course	Older adults (N = 31)	College students	Emotional and social wellness	1) Life Satisfaction in the Elderly Scale (Salamon & Conte, 1984), p. 2) Geriatric Depression Scale (Brink, et al., 1982)	No significant findings
27	Scott et al., 2003	"Young at Heart" intergenerational volunteer program	Older adults (N = 101, 60+)	Children in childcare settings	1) Generativity (a motivation to guide younger generations) 2) Life satisfaction	1) Loyola Generativity Scale (McAdams & de St Aubin, 1992, p. 2) Diener's brief (five-item) Satisfaction with Life Scale (Pavot & Diener, 1993)	Higher levels of generativity
28	Wenzel & Rensen, 2000	Intergenerational activities	Older adults (N = 20, M = 71.1, SD = 8.3)	Children (aged 8–11)	Intergroup attitude changes	Semantic differential measuring intergenerational attitudes (Caspi, 1984; Seefeldt, 1987)	Increased levels of positive attitudes toward children

college students' skills working with older adults (Andreoletti & Howard, 2018; Ehlman, Ligon, & Moriello, 2014; Hernandez & Gonzalez, 2008; Segrist, 2004), volunteer programs (DeMichelis, Ferrari, Rozin, & Stern, 2015; George, 2011; Gruenewald et al., 2015; Low, Russell, McDonald, & Kauffman, 2015; Scott, Reifman, Mulsow, & Feng, 2003), lifelong learning programs for seniors (Au, Ng, Garner, Lai, & Chan, 2015; Montoro-Rodriguez & Pinazo, 2005), and shared-site intergenerational programs (Doll & Bolender, 2010; Jarrott & Smith, 2010). Select intergenerational programs had specific foci, such as physical activity and health promotion (Lin, Dai, Huang, Wang, & Huang, 2017; McConnell & Naylor, 2016; Perry & Weatherby, 2011; Schroeder et al., 2017), and reminiscence (Chung, 2009; Gaggioli et al., 2014).

Sample

Older adults' ages ranged from 50–90+ years across the studies. While the average age of older adults in some studies was over the age of 80 (Baker, Webster, Lynn, Rogers, & Belcher, 2017; George, 2011; Low et al., 2015; Murayama et al., 2015), some studies included younger adults under the age of 55 (Jarrott & Smith, 2010; Schroeder et al., 2017). Younger participants with whom older adults interacted also ranged from preschool and elementary students to high school and college students. Skropeta, Colvin, and Sladen (2014) included the youngest age group of children aged birth to 4 in their study that examined intergenerational programming with older adults living in long-term care facilities aged between 68 and 101. The capacities of older adults participating in the included studies varied, from older adults with higher levels of functioning (Gruenewald et al., 2015; Low et al., 2015; Montoro-Rodriguez & Pinazo, 2005; Scott et al., 2003) to older adults with early dementia (Chung, 2009). Many older adults were recruited from long-term care facilities, such as a nursing home (Doll & Bolender, 2010; Kim & Lee, 2018) and an assisted living facility (Andreoletti & Howard, 2018; Baker et al., 2017; Skropeta et al., 2014).

Outcome measures

Nine of the 28 sampled studies assessed indicators of mental health of the older adult participants. In all nine of these studies, depressive symptoms were evaluated using different geriatric depression scales measuring mood and agitation, social withdrawal, and general depressive affect (Chung, 2009; Fujiwara et al., 2009; George, 2011; Hernandez & Gonzalez, 2008; Montoro-Rodriguez & Pinazo, 2005; Murayama et al., 2015; Sakurai et al., 2016; Segrist, 2004; Skropeta et al., 2014). All but one study (George, 2011) utilized the validated Geriatric Depression Score and instead employed the Beck Depression Inventory.

Reflecting the importance of psychosocial well-being, researchers also focused on measuring loneliness, life satisfaction, self-esteem, and generativity. Two of the sampled studies presented findings of the impact of intergenerational programs on older adults' loneliness (Au et al., 2015; Gaggioli et al., 2014). Au et al. (2015) measured loneliness using the Chinese version of the de Jong Gierverld Loneliness Scale for elderly Chinese (Leung, de Jong Gierveld, & Lam, 2008), and the Zammuner's (2008) Italian Loneliness Scale was used by Gaggioli et al. (2014). Both scales included an emotional loneliness subscale and a social loneliness subscale. Four of the 16 studies presented older participants' global judgments regarding their life satisfaction. Investigators utilized various measures – the Diener's Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985), the brief version of Diener's Satisfaction with Life Scale (Pavot & Diener, 1993), the Temporal Satisfaction with Life Scale (Pavot, Diener, & Suh, 1998), and the Life Satisfaction in the Elderly Scale (Salamon & Conte, 1984). Furthermore, four of the 16 studies (Fujiwara et al., 2009; Gaggioli et al., 2014; Montoro-Rodriguez & Pinazo, 2005; Sakurai et al., 2016) presented the overall self-esteem of older participants using Rosenberg's Self-Esteem Scale (1965), which is a widely used one-dimensional measure of self-esteem that includes items related to general feelings of self-worth or self-acceptance and is rated on a 4-point Likert-type scale. Lastly, three out of the four studies (Andreoletti & Howard, 2018; Ehlman et al., 2014; Gruenewald et al., 2015; Scott et al., 2003) utilized the Loyola Generativity Scale (McAdams & de St Aubin, 1992) to understand psychosocial well-being using ratings of participants' overall sense of life during their experiences with the intergenerational activities.

Attitudes were also explored as outcomes of or influences on intergenerational program experiences. In two of the 28 studies, the older adult respondents were surveyed on attitudes about older adults and old age (Lin et al., 2017; Montoro-Rodriguez & Pinazo, 2005). Montoro-Rodriguez and Pinazo (2005) used the Philadelphia Geriatric Center Morale Scale (Lawton, 1975) that measured agitation, loneliness, dissatisfaction, and attitudes toward aging, which tapped attitudes toward older adults, the aging process, younger people, and society's discrimination against older adults. Two other studies (Meshel & McGlynn, 2004; Wenzel & Rensen, 2000) presented measures of attitudes toward the younger generation using semantic differential scales consisting of pairs of words with opposite meaning, such as friendly-unfriendly, good-bad, pleasant-unpleasant, wise-foolish, and wonderful-terrible.

Lastly, some researchers attempted to capture various aspects of health and well-being of older adults in intergenerational programming by measuring physical functioning (Schroeder et al., 2017), activity of daily living performance (Doll & Bolender, 2010; Low et al., 2015; Perry & Weatherby, 2011), and quality of life (Chung, 2009; Gaggioli et al., 2014; Low et al., 2015; Skropeta et al., 2014). With diverse samples, different scales were chosen, such as the Long-Term Care Quality of Life Scale (McDonald, 2013) and the

Quality of Life- Alzheimer's Disease (QoL-AD; Logsdon, Gibbons, McCurry, & Teri, 1999), which capture physical function and other dimensions (e.g., psychological and social) of well-being. Other measures of physical health included the 36-Item Short Form Health Survey (SF-36) from the RAND Corporation and the World Health Organization Quality of Life Scale for Older People (WHO QoL-Old; WHOQOL-Group, 1995).

Findings

Findings of the analyzed studies varied, with primarily positive results presented. Still, multiple studies presented non-significance in their outcome measures. The small sample size, participant characteristics of the participants (e.g., older adults with mild dementia), ceiling effects (Segrist, 2004), and the frequency and/or duration of programming were identified as potential factors that contributed to researchers' non-significant findings (Doll & Bolender, 2010; Low et al., 2015; Perry & Weatherby, 2011). Those reporting statistically significant results had much larger samples. Other influential factors may have included practices employed by practitioners, which were typically not measured.

Discussion and implications

Clinical outcome measures on psychosocial, physical, and cognitive functioning

Measures outcomes in the studies included in our scoping review primarily depicted physical, psychological, and social benefits older adults perceived as a result of intergenerational programs. It is important to note that some factors common to many intergenerational programs (i.e., older adults' cognitive impairment, functional limitations, or physical disabilities) often constrain outcome measurement efforts. Also, older adult participants in intergenerational programs are not an exception for demonstrating a proclivity toward providing socially desirable answers, which may limit validity of program evaluation findings (Huizinga & Elliott, 1986). The capacity for self-report among some older participants may limit the range of evaluation techniques that can be reliably and validly used to assess participant outcomes.

We suggest that researchers employ objective indicators of stress and health, such as the use of salivary diurnal cortisol or blood pressure, which could be collected before and after the intervention (Dabelko-Schoeny et al., 2014). These physiological markers offer objective indicators of health-related outcomes of older adults' participation in intergenerational programming. They also represent new resources in a multi-disciplinary research toolkit.

Intergenerational programming as a non-pharmacological intervention

The predominance of intergenerational programming studies presenting only youth outcomes could reflect a few things. First, the potential for older adults to benefit from intergenerational programming may be underestimated if practitioners focus on the needs of children to the exclusion of older adults. Second, practitioners may position programming to achieve mutual benefit and simply lack access to appropriate measures for older adults. If the former, practitioners should develop interventions that are tailored to the needs of older adults as well as youth.

Viewing older participants as mechanisms for benefiting young participants neglects the opportunity to support lifespan development with intergenerational programming. Of particular interest would be interventions appropriate for older adults with dementia and/or mild cognitive impairment as they are common older participants in intergenerational programming. As our review identified study samples that represented the vulnerable older adult population, future research should focus on designing and testing various intergenerational programs as a non-pharmacological intervention to benefit a range of psychosocial, physical, and cognitive health and well-being. Partnering with gerontology professionals and utilizing intergenerational program development resources, a need identified among shared site professionals (Jarrott, 2019) can help practitioners implement best practices like age- and ability-appropriate programming for youth and older adults (Jarrott, Stremmel, & Naar, 2019). Further efforts are needed to represent these older adults in the scientific evidence of intergenerational program impact.

Long-term outcomes of intergenerational activities

Intergenerational programs are often characterized by short-term nature precluding longitudinal follow up. It was not surprising that few studies represented longitudinal follow-up of the sustained effects of intergenerational programming on participants (Canedo-García et al., 2017). In the literature, the small number of longitudinal studies of participant outcomes exclusively addressed younger participants (Aday, Sims, McDuffie, & Evans, 1996; Cummings et al., 2002; Schwalbach & Kiernan, 2002). Future efforts are required to examine intergenerational programming's long-term impact on older participants.

Other forms of older adult programs, such as formal volunteering, have used longitudinal methods to examine issues such as functional decline and mortality (e.g., Harris & Thoresen, 2005; Morrow-Howell, Hinterlong, Rozario, & Tang, 2003; Van Willigen, 2000). Future research should reference the Experience Corps protocol, which highlights strategies for examining participant outcomes, including among older adults, but has not reported longitudinal program impact. Strategies may involve assessing a large national sample and using repeated

measures over an extended period of time. Given that many intergenerational programs have been in operation for years, even small programs can contribute to the body of evidence informing intergenerational practices by collecting data from multiple cohorts over time. Such techniques can contribute to a dataset amenable to rigorous analysis of diverse benefits across the life course.

Mutual benefits for both generations

By definition intergenerational programming should be beneficial to older adults and youth. Intergenerational outcome studies are typically age-specific without parallel measures of the other age group (Jarrott, Smith, & Weintraub, 2008). Only a few researchers have examined intergenerational activities in order to identify mutual benefits for both old and young participants (Friedman & Godfrey, 2007; Griff, Lambert, Dellmann-Jenkins, & Fruit, 1996; Jarrott & Smith, 2010; Meshel & McGlynn, 2004). For example, Jarrott, Smith, and Weintraub (2008) developed the Intergenerational Observation Scale to assess social interactions of younger and older participants in intergenerational activities. Future research should focus on developing data collection methods that can be utilized across generations. While these are not always appropriate given the different program objectives and characteristics associated with the different age groups, their incorporation can promote a value of mutual benefit.

Beyond younger and older participants, intergenerational program evaluation can yield valuable insight on staff experience, such as the unique needs for training about the different age groups or how to design and implement effective intergenerational programs (Kaplan, 2003; Weaver, Naar, & Jarrott, 2017). For example, teachers and community members are often unsure whether an intergenerational activity will be suitable for older adults, and they lack training to inform the selection of outcome measure specific to older adult participants (Griff et al., 1996; Jarrott et al., 2019). Intergenerational program researchers should represent the experiences of other stakeholders as these groups are also critical in a program's success and longevity.

Conclusion

With an eye to the growing number of older adults available to potentially contribute to and benefit from intergenerational programming, we structured the current scoping review to identify the older adult outcomes that have been assessed in intergenerational programming and the quantitative tools used to measure such outcomes. Because much intergenerational research presents outcomes exclusive to younger generations, it is critical to increase the representation of older adults in future intergenerational research. Although intergenerational programming appears to benefit

older adult participants, high-quality methods need to be widely adopted to reliably assess outcomes, particularly among vulnerable older adult populations. Incorporation of rigorous tools designed to measure health and other targeted outcomes of older adults as well as youth participants with varied abilities will reflect the vast diversity of intergenerational programs and enhance the success, reach, and sustainability of intergenerational programs.

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