Systematic Review of Occupational Engagement and Health Outcomes Among Community-Dwelling Older Adults

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KEY WORDS
- activities of daily living
- geriatric assessment
- health promotion
- health status
- human activities

We conducted this systematic review, one of four related to productive aging, to explore the existing evidence for the health benefits of engagement in occupations and activities among older adults. The review incorporates the breadth of areas of occupation in which older adults engage and the range of health benefits derived from that engagement. The results of this review demonstrate the multidisciplinary appreciation for occupational engagement and associated well-being and elucidate the health effects of engagement in a wide variety of occupations and activities. Additionally, the results of this systematic review support occupational therapy's historical ideologies and core philosophies linking occupational engagement to improved health and well-being. The findings suggest an increasing role for occupational therapy service delivery in community-based health promotion and prevention efforts to meet the everyday activity and health needs of the growing older adult population.

Stav, W. B., Hallenen, T., Lane, J., & Arbesman, M. (2012). Systematic review of occupational engagement and health outcomes among community-dwelling older adults. *American Journal of Occupational Therapy, 66,* 301–310. http://dx.doi.org/10.5014/ajot.2012.003707

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The objectives of this review were to systematically search the literature and critically appraise and synthesize the applicable findings to address the following focused question: "What is the evidence that participation in occupation and activities supports the health of community-dwelling older adults?"

Background and Statement of the Problem

In this early part of the 21st century, the existing knowledge in occupational therapy of the health benefits of engagement in occupation has been largely theoretical. These beliefs date back to the formative years of the profession when Dunton (1915) outlined the basic principles of occupational therapy, which included multiple references to the link among occupation, health, and well-being (American Occupational Therapy Association [AOTA] Commission on Continuing Competence and Professional Development, 2008). Since that time, occupational therapy researchers, theorists, leaders, and practitioners have grounded their work on the assumption that occupational engagement is not only a desired outcome but one that can improve clients' health (Gray, 1998; Reilly, 1962).

The ideologies about the relationship between occupational engagement and health still exist in the philosophical assumptions underlying the profession and the theoretical perspectives used to guide practice (AOTA, 2008a; Christiansen & Baum, 1997; Iwama, 2006; Ludwig, 1993; Reilly, 1962; Yerxa, 1998). Despite the prevalent reference to the health-promoting effects of occupational engagement, this relationship or causality continues to be theoretically based but not empirically supported in the occupational therapy literature. After

nearly a century of growth within the profession, uncovering this scientific evidence is necessary to move toward AOTA's *Centennial Vision* of a "science-driven, and evidence-based profession" (AOTA, 2010, para. 1).

The urgency to identify the evidence linking occupational engagement to health is fueled by the trends in population demographics toward an aging society. Although the portion of the U.S. population ≥55 yr old already exceeds 72 million (U.S. Census Bureau, 2010), the older adult segment of the population is expected to grow as the baby boomer generation ages (U.S. Census Bureau, 2008). The aging process that all older adults experience is complex; changes throughout many years; and combines physical, social, and psychological changes with one's individual perspective. Added to this is the scope of participation in occupations by older adults. The *Occupational Therapy Practice Framework: Domain and Process* (2nd ed.; AOTA, 2008a) describes areas of occupation, and the areas of importance to older adults are activities of daily living (ADLs), instrumental activities of daily living (IADLs), rest and sleep, work, leisure, and social participation. Hinterlong (2008) examined involvement in activities (paid and unpaid employment, volunteerism, caregiving, and informal assistance to others) by older adults over a period of 9 yr. Although participation was variable and declined over the study period, they found that most older adults were involved in activities, many of them in multiple activities. The most prevalent activities were caregiving, informal assistance, and volunteering.

Although the aging process is one factor that influences occupational engagement, the older adult's individual perspective affects not only what the older adult is able and may need to do but also what the older adult chooses and wants to do. In addition, this complex perspective helps influence how satisfied the older adult is with his or her life.

In a survey of community-dwelling older adults, Montross et al. (2006) found that most participants viewed themselves as aging successfully, despite having chronic illnesses and disabilities. Reichstadt, Depp, Palinkas, Folsom, and Jeste (2007) conducted focus groups with older adults living in retirement communities and found that psychosocial factors were more important to participants as keys to successful aging than disease, disability, and function. A more recent focus group study of older adults in retirement communities, a low-income senior housing complex, and a continued learning center (Reichstadt, Sengupta, Depp, Palinkas, & Jeste, 2010) found that participants viewed successful aging as a balance between self-acceptance, on the one hand, and engagement with life and self-growth on the other. Engagement with life and self-growth included subthemes of novel pursuits, giving to others, social interactions, and positive attitudes. Grunenwald, Karlamangla, Greendale, Singer, and Seeman (2007) examined the impact of feelings of usefulness for older adults over a period of 7 yr. The results of the longitudinal study found that older adults who frequently felt useful to others were less likely to die or experience an increase in disability over the 7-yr follow-up period when controlling for demographic, health status, behavioral, and psychosocial factors. Grunenwald et al. stated that feelings of usefulness may have a positive impact on an older adult's development and maintenance of social connections and participation in social activities.

Understanding the evidence for the relationship between occupational engagement by older adults and health and mortality outcomes is vital for the occupational therapy profession. Whether in the areas of practice, education, or research, the results of this systematic review are essential to meeting the needs of community-dwelling older adults.

Method

The systematic review reported in this article was one component of a larger evidence-based literature review project focusing on the effect of occupation as an intervention with community-dwelling older adults. The project generated four focused questions, each of which was answered through a separate systematic review of the literature. The focused question for this review, "What is the evidence that participation in occupation and activities supports the health of community-dwelling older adults?" addressed the impact of occupational engagement on health outcomes among older adults. We defined the term *older adults* as people ≥60 yr old and *community dwelling* as people living at home or with family, in retirement communities, or in assisted living facilities. We used a grading system to evaluate the scientific evidence on the basis of the work of Sackett, Rosenberg, Muir Gray, Haynes, and Richardson (1996). Detailed information about the methodology for the entire evidence-based literature review and this particular focused question can be found in the article "Methodology for the Systematic Reviews on Occupation- and Activity-Based Intervention Related to Productive Aging" (Arbesman & Lieberman, 2012) in this issue.

Results

The systematic review yielded 98 peer-reviewed journal articles that reported on the results of 59 longitudinal

studies that were discussed in 95 Level II articles (longitudinal cohort or follow-up studies). In addition, there were 3 level I articles (systematic reviews and meta-analyses). The studies were conducted in a wide array of disciplines, including occupational therapy, gerontology, medicine, psychology, epidemiology, and public health. They covered several areas of occupational engagement and participation and included an extensive range of health outcomes. The literature revealed older adults' participation in occupations and activities could be grouped into these categories: IADLs, work, sleep, and physical, social, leisure, and religious activities. The categories were based on the variables examined in the articles and paralleled the areas of occupation and their components from the *Framework* (AOTA, 2008a). We should note that several of the articles included in the review encompassed several categories (e.g., work and leisure), so the sum of the number of articles in the categories is >98. Except as noted, the studies discussed in this article are Level II longitudinal studies. Only those articles from the systematic review that are mentioned in this article are included in the reference list. Supplemental Table 1 (available online at http://ajot.aotapress.net [navigate to this article, and click on "supplemental materials"]) summarizes the design, interventions and outcome measures, results, and limitations of select articles that helped answer the focused question in this evidence-based literature review and were representative of the themes of the categories of the systematic review.

Participation in Physical Activity

The physical activity area of occupation or activity was substantially represented in the literature (23 articles), and several studies found strong evidence linking engagement in physical activity to positive health outcomes. The literature also revealed the converse to be true: Physical inactivity was related to higher rates of mortality, higher prevalence of disease, and decreased levels of function. Most researchers studying the health benefits of physical activity did not provide prescriptive intensities, frequencies, or specific physical activities that were more beneficial than others. Activities in the studies included general exercise, walking, gardening, home maintenance, meal preparation, shopping, dancing, and swimming. Despite the lack of continuity among the activities, all the studies yielded similar results, and improved health was defined by maintenance of an active lifestyle (Burton, Shapiro, & German, 1999), lower mortality rate (Glass, Mendes de Leon, Marottoli, & Berkman, 1999; Gregg et al., 2003), some protection against functional limitations (Keysor, 2003; Level I systematic review), improved performance and independence in ADLs and IADLs (Seeman & Chen, 2002; Stessman, Hammerman-Rozenberg, Maaravi, & Cohen, 2002), and reduced disease severity and slowed progression of disability (Laukkanen, Kauppinen, & Heikkinen, 1998; Miller, Rejeski, Reboussin, Ten Have, & Ettinger, 2000). Although these studies revealed the positive effects of engaging in physical activity, other studies demonstrated that not participating in physical activity can have detrimental health effects in terms of dependence and mortality (Hirvensalo, Rantanen, & Heikkinen, 2000), worse health trajectories (Kaplan, Baltrus, & Raghunathan, 2007; Kaplan, Strawbridge, Cohen, & Hungerford, 1996), and onset of disability (Wu, McCrone, & Lai, 2008). These studies clearly depict a consistent trend of positive health outcomes resulting from participation in physical activities.

Participation in Work

Despite being past the age of retirement, many older adults continue to engage in work or volunteer activities. The evidence, represented by 14 articles in this category, suggests that remaining active in work or volunteering can positively affect a variety of outcomes. The health benefits appear to extend to overall health and well-being and improved mortality (Ayalon, 2008; Harris & Thoreson, 2005; Hsu, 2007; Luoh & Herzog, 2002; Oman, Thoreson, & McMahon, 1999) and ADL independence for people who work compared with those who do not work (Hammerman-Rozenberg, Maaravi, Cohen, & Stessman, 2005). Engaging in work or volunteer activities also results in better mental health outcomes, including lower levels of depression (Musick & Wilson, 2003), a more positive view of life (Hao, 2008; Lum & Lightfoot, 2005; Shmotkin, Blumstein, & Modan, 2003), and greater life satisfaction (Van Willigen, 2000). Musick and Wilson (2003) suggested that this type of activity has a cumulative effect because the longer a person participates in volunteering, the greater the impact on mood is.

Participation in Social Activity

The results of the review in this category (33 articles) indicate that strong evidence links engagement in social activities and participation in social networks to decreased cognitive and physical decline. Several common social activities identified in the studies were attendance in groups outside the home, presence of a spouse, regular contact with a friend, and participation in social networks. The cognitive benefits of being a part of these social networks were clear and consistent: Research participants experienced decreased cognitive decline (Barnes, Mendes de Leon, Wilson, Bienias, & Evans, 2004; Bassuk, Glass, & Berkman, 1999; Ertel, Glymour, &

Berkman, 2008) and better cognitive function (Seeman, Lusingnolo, Albert, & Berkman, 2001). Participation in social activities also resulted in improved physical health and functioning in terms of ADL performance (Mendes de Leon et al., 1999; Mendes de Leon, Glass, & Berkman, 2003), better performance in spite of living with a chronic disease (Seeman & Chen, 2002), and lower mortality rates (Avlund, Damsgaard, & Holstein, 1998; Giles, Glonek, Luszcz, & Andrews, 2005). Additionally, engaging in social activities has been shown to improve quality of life (Dahan-Oliel, Gélinas, & Mazer, 2008 [Level I systematic review]; Silverstein & Parker, 2002). Like lack of physical activity, lack of participation in social activities appears to be detrimental to the health of older adults and is correlated with declines in mobility (Ayis, Gooberman-Hill, Bowling, & Ebrahim, 2006) and increased dementia (Crooks, Lubben, Petitti, Little, & Chiu, 2008; Fratiglioni, Wang, Ericsson, Maytan, & Winblad, 2000).

Participation in Leisure Activity

The body of literature (12 articles) examining the effect of leisure activity on the health of older adults is not as extensive as that for physical and social activities, but it reveals the importance of engaging in leisure activities nonetheless. Researchers have demonstrated that engaging in leisure activities can result in a variety of health outcomes. Leisure activities incorporated into the studies in the review included playing games, completing crossword puzzles, gardening, going on outings, reading, visiting others, playing sports, and participating in clubs. Several studies found that participation in cognitively challenging leisure activities such as reading, taking museum trips, completing cognitive puzzles, and playing board games resulted in higher cognitive levels or decreased risk of dementia (Ghisletta, Bickel, & Lövdén, 2006; Scarmeas, Levy, Tang, Manly, & Stern, 2001; Verghese et al., 2003; Wang, Karp, Winblad, & Fratiglioni, 2002; Wilson et al., 2002). Participation in leisure activities can also have global health benefits, such as increased survival rates (Jacobs, Hammerman-Rozenberg, Cohen, & Stessman, 2008) and, for widows, increased coping and well-being (Janke, Nimrod, & Kleiber, 2008).

Participation in Religious Activity

Older adults who engage in various religious activities, including attendance at religious services, self-reported religiousness, and private prayer, may experience positive health outcomes. Evidence (14 articles) has supported a relationship between religious activity and health. Although attending religious services appears to have the strongest impact on lowering mortality and supporting mental health, identification with a religious group alone can also have benefits. General health benefits include lower mortality rates, better mental health, and fewer functional problems. Researchers found reduced mortality rates for older adults participating in religious activity (McCullough, Hoyt, Larson, Koenig, & Thoresen, 2000; Level I meta-analysis; Strawbridge, Cohen, & Shema, 2000); however, some caveats are associated with this type of participation. Clark, Friedman, and Martin (1999), for example, found lower mortality rates only among women. In a study that distinguished physical attendance from listening to religious media, la Cour, Avlund, and Schultz-Larsen (2006) determined that only those who regularly attended religious activities experienced lower mortality rates, not those listening to religious media. In contrast, Helm, Hays, Flint, Koenig, and Blazer (2000) found that participation in private religious activity was sufficient to lower mortality risk among older adults. In addition to decreased mortality rates, engagement in religious activities can yield better mental health outcomes specific to decreased depressive symptoms (Greenfield & Marks, 2007; Hebert, Dang, & Schulz, 2006), better ADL and IADL outcomes (Park et al., 2008), general mental health, and social connectedness (Strawbridge, Shema, Cohen, & Kaplan, 2001). Keyes and Reitzes (2007) found that religious participation predicted increased self-esteem and decreased depressive symptoms, but religious identity rather than religious attendance generated the positive health outcomes. No evidence has shown that religious activity (prayer and religious attendance) is predictive of slower cognitive decline (Ghisletta et al., 2006).

Participation in Sleep

The recent addition of sleep as its own area of occupation in the second edition of the *Framework* (AOTA, 2008a) warrants examination of the health outcomes related to sleep and quality of sleep. The four articles in this category suggest that older adults need between 6 and 7.5 hr of sleep for optimal health (Goldman et al., 2007). Specific patterns of sleep, including napping (Bursztyn, Ginsberg, Hammerman-Rozenberg, & Stessman, 1999; Bursztyn & Stessman, 2005) and too much or too little sleep for women (Goldman et al., 2007) are associated with functional limitations and a potential increased risk of mortality. In addition, women who slept more during the day reported increased functional limitations (Goldman et al., 2007).

Participation in IADLs

Thirteen studies evaluated the impact of participation in IADLs on various health outcomes. One study, for

example, found that dependence in IADLs generated increased mortality risk (Ginsberg, Hammerman-Rozenberg, Cohen, & Stessman, 1999). Other researchers examined the impact of community mobility on health. A study by Inoue, Shono, and Matsumoto (2006) found that older adults who did not engage in outdoor activities had increased mortality rates, and Kono, Kai, Sakato, and Rubenstein (2004) similarly found that older adults who went outside ≥4 times weekly had decreased mortality rates. Xue, Fried, Glass, Laffan, and Chaves (2008) found that women who did not leave their homes or neighborhoods had more difficulty with mobility and more problems with IADLs and ADLs and were more likely to become frail.

Bookwala et al. (2004) found that older adults involved in the IADL of caregiving had poor health as reflected by their increased long-term care service utilization. In addition, the research indicated that caregivers were restricted in engagement in personal and social activities because of caregiving activities. In other research, Hughes, Waite, LaPierre, and Luo (2007) found that living in a home with grandchildren resulted in negative health outcomes only in highly stressful situations.

Discussion and Implications for Practice, Education, and Research

Most of the studies reviewed support the concept that work and physical, leisure, community, and social activities all have a positive impact on health and quality of life for older adults. These findings have far-reaching implications for the occupational therapy profession in the areas of clinical and community-based occupational therapy services, program development, health care delivery and health policy, reimbursement for occupational therapy health promotion and prevention services, education and training of occupational therapy students, and development of occupational therapy theory. If the aging portion of society continues on its current health trajectory, the health care demands of older adults may not be satisfied by the current health care system. Occupational therapy may be able to contribute to reducing future burdens on health care by improving the health of older adults through promotion of occupational engagement in the areas addressed in this review. The use of occupational therapy services in this manner has already proven effective at improving the health of community-dwelling older adults (Clark et al., 2011).

Over the past 30 yr, a small portion of occupational therapy practitioners has begun working in the community through home health agencies, outpatient services, private practice, and more. This change has come as a result of a paradigm shift within health care to a more holistic approach that supports the goal of occupational therapy in the promotion of well-being and the prevention of illness (Christiansen, 1999), which fit well in the community setting. AOTA supports and is facilitating the transition toward prevention and health promotion; the *Framework* "was developed to articulate occupational therapy's contribution to promoting the health and participation of people, organizations, and populations through engagement in occupation" (AOTA, 2008a, p. 625). Further clarifying the role of occupational therapy in this paradigm shift is the overarching statement of the domain of occupational therapy practice in "supporting health and participation in life through engagement in occupation" (AOTA, 2008a, p. 626).

Although a defined agenda and approach are outlined further in AOTA's (2008b) official document on health promotion and prevention, the development of programs and resources in which occupational therapy practitioners can fulfill their roles in this area has not yet taken place. Occupational therapy practitioners, program managers, program developers, and third-party payers often find themselves in no-win situations. Developing and administering programs without the necessary evidence to justify reimbursement from traditional payers of health services is challenging, and generating convincing data is even more difficult when programs providing such services are usually only supported through university research and funded by community or private grants (V. J. Thomas, personal communication, June 2, 2011).

The results of this systematic review provide evidence to support the development of primary, secondary, and tertiary prevention and wellness occupational therapy programs for community-dwelling older adults. The evidence can be used to help develop client-centered and occupation-based interventions that are focused on the needs of an individual client, organization, or population. Although the evidence indicates that social, productive, and physical activities each provide independent benefits for survival (Glass et al., 1999), occupational therapy practitioners understand that occupations do not exist in isolation. The evidence presented here strengthens the concept of the interconnectedness of occupations in the lives of older adults. For example, the occupation of volunteering may serve a variety of needs. For one person, the main focus of volunteering may be to have more social participation, and another person may volunteer for religious reasons. A third person volunteering at a national park does so to fulfill a drive for leisure pursuits, and a fourth person targets all three reasons through

his or her volunteerism. It is noteworthy that although engagement in self-benefiting occupations chosen by the individual is health promoting, engagement in some occupations that benefit others, such as caregiving for ill family members, may be detrimental to the health of older adults. Occupational therapy interventions in both clinical and community-based settings should foster client engagement in various occupations of choice while identifying supports for occupations that may have negative health effects.

The task of developing and implementing occupational therapy programs that offer health promotion and prevention services has been particularly difficult because of the need for a better link supporting the relationship between occupational engagement and health. The evidence presented in this review can assist program developers interested in offering health-promoting occupation-based services. However, individual service providers or programs alone are not sufficient to meet the health promotion and prevention needs of older adults. Changes and adjustments to health care delivery are necessary to assist in a paradigm shift that will welcome and reimburse health promotion and prevention services. Developing and executing programs without the anticipation of funding to support, sustain, and grow such programs is unrealistic. Although third-party payers currently reimburse for occupational therapy for acute rehabilitative services, occupational therapy practitioners find it more difficult to receive reimbursement not only for community-based preventive services, but also for community integration interventions (V. J. Thomas, personal communication, June 2, 2011).

In light of the strong evidence that engagement in occupation and activities is indeed health promoting for older adults, the education and training of occupational therapy students should reflect and include that evidence. Specifically, the evidence-based findings regarding those factors that lower mortality rates and improve the health of older adults should be incorporated into occupational therapy practitioners' training. The breadth and multidisciplinary nature of the evidence also helps broaden occupational therapy students' understanding of aging in older adults. For example, mortality is not a typical outcome in the occupational therapy literature. Infusing evidence related to mortality, however, provides a broader perspective on the final trajectory of disability and comorbidity for frail older adults than is seen without the inclusion of mortality.

The evidence discussed here should be incorporated into academic curricula through infusion into theoretical courses, practice classes, administration and management courses, and classes addressing professional issues and emerging areas of practice. Opportunities for fieldwork experiences in community-based settings serving older adults could serve as a culminating experience to illustrate the health effects of occupational engagement and grow interest in health promotion and prevention practice.

The systematic review and the articles included in the review have several strengths and limitations. The studies included in the review are primarily longitudinal (Level II evidence). A *longitudinal study* is an observational study that involves repeated measures over an extended period of time. Because the same participants are followed over time, personal characteristics remain constant, and researchers are able to document the growth and change that take place during follow-up. Although this type of study does not prove causation, the longitudinal nature of the study permits the tracking of exposures. In addition, the relationship of those exposures to the individuals is analyzed. For this systematic review, longitudinal studies provided important information not only on the changes taking place in the lives of older adults, but also on the relationship of engagement in everyday occupations to the health of that population.

Some of the strengths of the longitudinal studies presented here, however, also serve as limitations. The planning of large, longitudinal studies often requires the use of multiple outcomes (e.g., mortality, disability, dementia, quality of life), which is done to make sure that future follow-up can include outcomes that are appropriate over a number of years and through developmental change. The outcomes used are based on the constructs included in the study. For this review, the constructs include religiosity, physical activity, and leisure participation. Because these constructs have been developed by many disciplines, the likelihood of several varied outcomes is high. Because these disciplines are distinct from occupational therapy, it also means that the constructs may be measured slightly differently than by occupational therapy researchers. In addition, the studies had a wide range in number of participants, and several included in the review are from outside of the United States. The occupations and outcomes used in this review may possibly have had a different operational definition on the basis of cultural context.

Finally, this evidence-based literature review supports the fundamental assumptions of occupational therapy that were first proposed by the founders of the profession. The literature in this review provides evidence that advances the factual knowledge of occupational therapy and further supports the idea that engagement in meaningful occupations can influence a person's health and well-being. Moreover, the results of this literature review confirm Mary Reilly's (1962) hypothesis "that man, through the

use of hands as they are energized by his mind and will, can influence the state of his own health" (p. 3). The results of this review also support the inclusion of constructs such as occupation, activity, meaning, motivation, volition, intrinsic needs, spirituality, self-direction, choice, and control in occupational therapy theoretical perspectives. Given the evidence justifying the inclusion of these concepts, revisiting theoretical perspectives widely used in practice may be necessary to evaluate the proper and full inclusion of these constructs and can also be used to ensure the structure and principles of these perspectives to allow for application in community-based, health promotion, and prevention practice areas.

The findings of this review warrant further research specific to occupational therapy. Despite the fact that 98 peer-reviewed studies documented the relationship between participation in activities and health, only 1 study (Dahan-Oliel et al., 2008) was conducted by occupational therapists and recognized the role of occupational therapy in facilitating that participation. In addition, although this review provides fundamental support for the use of occupation as a health-promoting medium, the literature included in this review does not depict how occupational therapy intervention can improve or support health and well-being.

This systematic review specifically addressed the health effects of participation in occupation and activity among community-dwelling older adults. The articles included in the review provide the current best evidence to address this question and inform the profession about the health benefits or health predictors of a variety of forms of occupational engagement in this population. However, the ultimate result of this review offers much more to the profession in its validation of the founding principles of occupational therapy and verifies that engagement in occupation is indeed good for the health of older adults.

In summary, the results of this review have the following implications for occupational therapy practice:

- Work, volunteering, physical activity, leisure, and social and religious activities have a positive impact on health and quality of life for older adults.
- The evidence indicates that participation in occupations and activities should be the core of occupational therapy wellness and prevention programs for community-dwelling older adults.
- Occupational therapy interventions in both clinical and community-based settings should foster client engagement in various occupations of choice.
- Occupational therapy practitioners need to identify occupations that may have negative health effects (e.g., caregiving for ill family member) and provide interventions to reduce the negative consequences.
- Occupational therapy practitioners need to be aware that the benefits of engagement in occupation may vary based on the occupation or activity and personal characteristics. ▲

Acknowledgments

We acknowledge Dana Burns, Emily Hawthorne, Shira Kirschenbaum, and Stephanie Ramey for their assistance in reading, critiquing, and summarizing the literature during this evidence-based literature review. In addition, we thank Deborah Lieberman for guidance and support throughout the review process.

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