



AOTA Critically Appraised Topics and Papers Series

Mental Health Promotion, Prevention, and Intervention for Children and Youth

**A product of the American Occupational Therapy Association's
Evidence-Based Literature Review Project*

CRITICALLY APPRAISED TOPIC (CAT)

Focused Question

What is the effectiveness of activity-based interventions for mental health promotion, prevention, and intervention with children and youth?

The interventions include those focused on peer and social interaction, compliance with adult directives and social rules and norms, and participation in productive and task-focused behavior.

Clinical Scenario:

In the past, perspectives on children's mental health tended to narrowly focus only on services provided in psychiatric settings to children with diagnosed mental illness. More recent approaches, however, have expanded the scope of services. According to Bazyk (2011), children's mental health also focuses on services aimed at helping children develop and maintain mental health. Using this framework, occupational therapy practitioners provide services to all children with and without identified mental health illness in school, community, and health care settings.

The U.S. Surgeon General has estimated that between 5% and 11% of school-age children have mental health disorders that result in "extreme" or "significant" functional impairment (U.S. Department of Health and Human Services [HHS], 1999). This indicates that of the 70 million children and adolescents in the United States, 6 million to 9 million have a serious emotional disturbance. Only 1 in 5, however, receives any professional help, indicating that a significant proportion of this population is underserved.

Occupational therapy is well positioned to provide services to children and youth with behavioral and psychosocial needs and their families, particularly in educational settings because this is where children spend a majority of their time. The psychosocial dimension of human performance is fundamental to all aspects of occupational therapy with every population and in all practice settings. Occupational therapy values the dynamic and interactive relationship between the client and his or her performance skills, the demands of the activity, and the physical and social contexts in which the activity is performed. Occupational therapists understand both the observable and unobservable aspects of an individual's performance and take them into account while conducting the occupation-based evaluation and identifying relevant outcomes and effective interventions (Kannenberg & Greene, 2003). Services are provided on multiple levels: with individual children and their families, on their behalf at the institution and community levels, and in the realm of policy formation.

The mission of public health is to create a society in which people can be healthy (Institute of

Medicine, 1988). This is accomplished by “collaborating to create the expertise, information and tools that people and communities need to protect their health—through health promotion, prevention of disease, injury and disability, and preparedness for new health threats” (Centers for Disease Control and Prevention, 2010). The World Health Organization (WHO, 2001) and national leaders in the field of children’s mental health have advocated for a public health approach to mental health, emphasizing the promotion of mental health as well as the prevention of and intervention for mental illness (American Occupational Therapy Association [AOTA] 2010a, 2010b; Bazyk, 2011). Within a public health model of mental health, the three major levels of service include Tier I—*universal* or whole population, Tier II—*targeted* or selective services, and Tier III—*intensive* services (AOTA, 2008; Miles, Espiritu, Horen, Sebian, & Waetzig, 2010).

Because a public health approach to mental health involves the provision of promotion, prevention, and intensive interventions, it is important to make distinctions between these practices. Mental health *promotion interventions* focus on *competence enhancement*—on building strengths and resources in the whole population (Barry & Jenkins, 2007). As such, this framework emphasizes optimizing health by improving the social, physical, and economic environments that determine the mental health of individuals and populations (Miles et al., 2010). Mental health promotion, while addressing the needs of the whole population, also addresses the needs of those experiencing mental ill health by creating supportive environments, reducing stigma and discrimination, and supporting the social and emotional health of clients and their families (Barry & Jenkins, 2007).

Prevention interventions developed over the past two decades and have traditionally focused on reducing the incidence and seriousness of problem behaviors and mental health disorders (Barry & Jenkins, 2007; Catalano, Hawkins, Berglund, Pollard, & Arthur, 2002). Early prevention programs tended to focus primarily on *reducing risk factors* (e.g., family history of substance abuse, poverty). However, current approaches recognize the importance of *minimizing mental health problems* by enhancing protective factors as well (e.g., social and emotional competencies, clear standards for behavior; Miles et al., 2010).

Intensive individualized interventions are provided to diminish the effects of an identified mental health problem and restore the child to an optimal state of functioning. Intervention at this level is often dependent on the specific mental health problem and/or formal diagnosis. In addition to diminishing problems at this level, it is critical also to focus on promoting or optimizing positive mental health (Miles et al., 2010).

Occupational therapy services share a common emphasis on the use of meaningful occupation to promote occupational performance (education, play, leisure, work, social participation, activities of daily living [ADL], instrumental activities of daily living [IADL], sleep/rest) within a variety of contexts (AOTA, 2008). There are seemingly endless opportunities for using occupation-based strategies in school, home, and community settings to promote mental health because all occupational therapy services emphasize competency enhancement. In schools, occupation-based services can be embedded in a number of natural contexts, including the cafeteria (lunch groups), recess (game clubs), art, and physical education. Increased emphasis is being placed on participation in extracurricular activities, opening doors for occupational therapy practitioners to help children and youth develop and participate in structured leisure

interests during after-school hours. Participation in a variety of community-based activities, including the arts, recreation, music, sports, or club activities, can be promoted using coaching strategies.

Summary of Key Findings:

Summary of Levels I, II, and III

Evidence for Tier 1 Interventions

Universal Social Skills Programs

The first theme within Tier 1 focuses on programs related to social skills. There were 17 studies in this theme, with subthemes of social–emotional learning, social skills training, and cognitive strategies that incorporated stories, parent education, and conflict resolution and bullying prevention.

One Level I meta-analysis (Durlak, Weissberg, Dymnicki, Taylor & Schellinger, 2011) evaluated the effectiveness of universal whole-school social and emotional learning (SEL) programs, and found that compared to controls, participants in the intervention group demonstrated significantly improved social and emotional skills. The authors also found improved behavior, academic performance, and attitudes following participation in SEL programs. A Level I randomized controlled trial (RCT) evaluating a social emotional curriculum to prevent conduct disorders with first to third graders found no difference in social competence at 3-year follow-up (Bierman, et al., 2002). However, children in the intervention group were less likely to exhibit serious conduct problems compared to children in the control group.

Two studies examined social skills programs. Durlak, Weissberg, and Pachan (2010), in a Level I meta-analysis, evaluated the effectiveness of after-school programs that incorporated a goal of either social skills or other personal skills. Participants in after-school programs had improvements in social behaviors, bonding to school, and reduction in problem behaviors. Similar results were found in a Level III study by DeMar (1997) that examined the effectiveness of social skills programming for children in at-risk families. There were mixed results from four Level I studies (Kraag, Zeegers, Kok, Hosman & Abu-Saad, 2006 [meta-analysis]; Mulcahy & Schachter, 1982 [randomized control group]; Tuttle, Campbell-Heider & David, 2006 [RCT]; Vaughan & Ridley, 1983 [RCT]) addressing various subthemes. Kraag and colleagues (2006) found improved coping skills for interventions that included problem-solving training, and Vaughan and Ridley (1983) found improved peer interaction for preschoolers using an intervention that included problem-solving training. Mulcahy and Schachter (1982) found no difference when comparing cognitive self-modeling and counseling for adolescents, and Tuttle, Campbell-Heider, and David (2006) found no difference between cognitive skills training and a group health outreach program to reduce risk behaviors in adolescents.

The effect of parent education on children’s behaviors was studied in two Level I RCTs. Wahler and Meginnis (1997) found that education in the use of mirroring or praise in parents of elementary school children resulted in higher child compliance and higher satisfaction between child and mother as compared to controls. Walker, Kavanagh, Stiller, Golly, Severson, and Feil (1998) examined the effectiveness of a multicomponent universal program that included parent instruction to prevent school antisocial behaviors in at-risk kindergarteners. Those in the

intervention group were reported to have less aggressive behavior at follow-up than those in the control group.

Six studies examined the effectiveness of school-based universal programs to prevent bullying and violence. Vreeman and Carroll (2007) reported inconclusive evidence for bullying prevention programs in a Level I systematic review. In a more recent systematic review and meta-analysis, Ttofi and Farrington (2009) reported that school-based anti-bullying programs were effective in reducing bullying and victimization by approximately 20% as compared to controls. The authors reported that the most important components of an anti-bullying program were parent education, improved playground supervision, and classroom management. Lefebvre-Pinard and Reid (1980 [Level I RCT]) found that social conflict training and modeling had positive effects on communication, and Stevahn, Johnson, Johnson, Oberle, and Wahl (2000 [Level I RCT]) reported that participants in the intervention group who received daily conflict resolution training had increased knowledge of negotiation procedures as compared to controls. A Level III before–after study (Bosworth, Espelage, & DuBay, 1998) evaluated the effectiveness of a computer-based violence prevention program and found that adolescent participants had improved conflict management skills and prosocial behaviors.

Universal Health Promotion Programs

The second theme within Tier 1 included universal programs related to health promotion. Subthemes identified within health promotion were stress management, health literacy, back education, and yoga. A Level I meta-analysis (Kraag et al., 2006) evaluated the effectiveness of school-based stress management and coping skills programs for children in grades 3 through 8. Nineteen studies were included in the meta-analysis, and the results indicated that though there were positive effects for reducing stress and improving coping skills for study participants, there was no effect for self-efficacy. One Level I RCT (Pinto-Foltz, Logsdon, & Myers, 2011) evaluated the effectiveness of a mental health literacy program for adolescents. Though there was no difference in mental health literacy as measured by knowledge or attitudes about mental illness between intervention and control groups at 1-week follow-up, mental health literacy did improve at 4- and 8-week follow-up for those in the intervention group.

Studies of the effectiveness of back education programs were reported in two studies (Cardon, DeClercq, & DeBordeauhuij, 2002 [Level II]; Geldhof, Cardon, DeBordeauhuij, & DeClercq, 2007 [Level I]) with follow-up periods at 1 and 2 years. At 1-year follow-up, results indicated that health promotion programs targeting back education were effective in reducing back and neck pain for elementary-school children (Cardon et al., 2002). At 2-year follow-up, more children in the back education group reported using favorable biomechanical back posture principles when lifting objects, wearing backpacks, and sitting as compared to controls.

Three studies examined the effect of yoga and yoga-based interventions on health promotion for children and adolescents. One Level I systematic review (Galantino, Galbavy, & Quinn, 2008) evaluated 10 studies and reported that yoga is effective in improving cardiorespiratory function, grip strength, flexibility, and body composition. The results of studies of neuromuscular function are inconclusive. An additional Level I systematic review (Birdee, Yeh, Wayne, Phillips, Davis, & Gardiner, 2009) evaluated 26 studies in a variety of populations from 0 to 21. The results of the review indicated that there is preliminary evidence that yoga is beneficial for physical fitness and cardiorespiratory health in children and adolescents. A Level II

nonrandomized controlled trial of 62 fourth and fifth grade inner-city students participating in an after-school yoga program (Berger, Silver & Stein, 2009) found that those in the yoga group reported using negative behaviors less in response to stress as compared to those in the control group. There were no differences between groups for global self-worth and perceptions of physical well-being.

Universal Play/Recreation/Leisure Programs

The third theme in Tier 1 was intervention related to play/recreation/leisure. Subthemes were recreational programs focusing on individual interests of participants; structured arts programs, primarily using drama; and recreational activity programs that stressed cooperation and team-building.

A Level I RCT (McNeil, Wilson, Siever, Ronca & Mah, 2009) studied the use of recreation facilitators or connectors in after-school programs in Alberta, Canada, for grades three to five in areas of high unemployment. The recreation facilitators worked with children and families to increase involvement in recreational activities. Though participants in the intervention group increased participation in physical activity as compared to the control group, there were no differences between groups on a skill-based activity subscale. A Level II nonrandomized study (Jones & Offard, 1989) compared skill-based recreational programs for children age 5 to 15 in a variety of areas to traditional recreation programs without skill-based training. Children in the skill-based group increased their proficiency on activities such as hockey, dance, and guitar, and had some integration into community activities as compared to controls. Though there were no differences between groups on behavioral measures, at follow-up, there were significantly fewer police charges made against those in the intervention group as compared to controls.

Three studies examined the impact of involvement in performing arts activities on children and adolescents. A Level I systematic review (Daykin, Orme, Evans, Salmon, McEachran & Brain, 2008) of performing arts interventions (primarily drama) found the strongest positive outcomes were peer interaction and social skills. Two Level II nonrandomized controlled trials (Walsh-Bowers & Basso, 1999; Wright, John, Ellenbogen, Offord, Duku, & Rowe, 2006) found similar improvements in social skills following participation in drama programs. Wright and colleagues (2006) additionally found a significant reduction in emotional problems in the structured arts intervention in the low-income population studies as compared to the controls.

Skills necessary for participation in groups and activities were explored in three studies. One Level I randomized controlled study (Kutnick & Brees, 1982) incorporated techniques for cooperation in play activities of elementary school children and found increased cooperative and decreased competitive behaviors in the intervention group. Ebbeck and Gibbons (1998 [Level I RCT]) found an improvement in self-concept following team-building activities incorporated into physical challenges in physical education. No difference in self-esteem and the ability to work with others were seen in a Level II nonrandomized controlled study examining the effectiveness of a bike repair program for low-income youth (Kinnevy, Healy, Pollio, & North, 1999).

Evidence for Targeted Interventions

Targeted interventions were examined in Tier 2, which included the same themes of Tier 1, social skills, health promotion, and play/leisure/recreation. The subthemes within the social

skills program are related to the populations studied. The subthemes include children and adolescents rejected by peers; at risk of behavioral problems or aggressive behaviors; with learning disabilities and attention-deficit/hyperactivity disorder (ADHD); with intellectual impairments and developmental delay; and teenage mothers.

Targeted Social Skills Interventions

Seven studies focused on activity-based social skills programs for children and adolescents who have been rejected or disliked by peers or for adolescents with social difficulty (Bierman & Furman, 1984 [Level I RCT]; Bierman, Miller & Stabb, 1987 [Level I RCT]; Csapo, 1986 [Level I RCT]; Hepler & Rose, 1988 [Level II nonrandomized controlled trial]; Jackson & Marziller, 1983 [Level I RCT]; Mevarech & Kramarksi, 1993 [Level II nonrandomized controlled trial]; Morris, Messer & Gross, 1995 [Level I RCT]). The results of the studies indicate that social skill training improves social interaction, peer acceptance, and social standing for children and adolescents who are disliked or have been rejected by peers. Results of the study of adolescents with social difficulty (Jackson & Marziller, 1983) indicate, however, that there was no difference between a social skills intervention compared to a wait-list control condition.

Fifteen studies examined the effectiveness of social skills programming for children and adolescents who were classified as at-risk, aggressive, or antisocial (Charlebois, Normadeau, Vitaro, & Berneche, 1999 [Level III before-after]; Conduct Problems Prevention Research Group, 2007 [Level I RCT]; Dubow, Huesmann, & Eron, 1987 [Level II nonrandomized controlled trial]; Kamps, Tankersley, & Ellis, 2000 [Level I RCT]; Kazdin, Bass, Siegel, & Thomas, 1989 [Level I RCT]; Lochman & Wells, 2002 [Level I RCT]; Lochman & Wells, 2003 [Level I RCT]; Lochman & Wells, 2004 [Level I RCT]; McMahon, Washburn, Felix, Yakin, & Childrey, 2000 [Level III before-after]; Moody, Childs, & Sepples, 2003 [Level III pretest-posttest]; Ohl, Mitchell, Cassidy, & Fox, 2008 [Level II nonrandomized controlled trial]; Rickel, Eshelman, & Loigman, 1983 [Level II nonrandomized controlled trial]; Serna, Nielsen, Lambros & Forness, 2000 [Level I RCT]; Tankersley, Kamps, Mancina, & Weidinger, 1996 [Level I RCT]; Waddell, Hua, Garland, Peters, & McEwan, 2007 [Level I systematic review]). While populations and interventions studied varied, the results indicate that social skills programming results in improved attention, peer interaction, and prosocial behaviors, as well as reduced aggressive, delinquent, and antisocial behaviors. The studies also report fewer diagnoses for conduct disorders and reductions in anxiety and depression for at-risk children.

The effectiveness of social skills programming for children and adolescents with learning disabilities and ADHD was examined in four studies (Drysdale, Casey, & Porter-Armstrong, 2008 [Level I RCT]; Frankel, Myatt, Cantwell, & Feinberg, 1997 [Level II nonrandomized controlled trial]; Lamb, Bibby, & Wood, 1997 [Level III before-after]; Wiener & Harris, 1997 [Level I RCT]). The results of these studies indicate that social skills training either conducted alone or in combination with life skills programming are effective in improving communication and social and functional skills and reducing problem behaviors. Six studies examined the effectiveness of social and life skills programming for children with intellectual impairments and developmental delay (Antia & Kreimeyer, 1996 [Level II nonrandomized controlled trial]; Carter & Hughes, 2005 [Level I systematic review]; Girolametto, 1998 [Level I RCT]; Kingsnorth, Healy & MacArthur, 2007 [Level I systematic review]; O'Connor et al., 2007 [Level II nonrandomized controlled trial]; Wade, Carey & Wolfe, 2006 [Level I RCT]). The

results indicate that social and life skills programming improves social interaction, particularly in the areas of initiation of social interaction and conversational turn-taking. In addition, there was an improvement in performance of life skills, self-management, and compliance, and a reduction in problem behaviors. Coren and Barlow (2001), in a Level I systematic review, found that parenting programs for teenage mothers and their children resulted in improved mother–infant interaction, parental attitudes, parental knowledge, maternal mealtime communication, maternal self-confidence, and maternal identity.

Targeted Health Promotion Interventions

In the theme of health promotion, three studies examined the effects of yoga. Benavides and Caballero (2009 [Level III- before–after]) reported an average weight loss of 5 lbs and improvements in self-esteem for 8- to 15-year-olds at risk for type 2 diabetes participating in a yoga program. One RCT for adolescents with irritable bowel syndrome, reported in a Level I systematic review (Birdee, et al., 2009), found reduced gastrointestinal symptoms following participation in a yoga program. Powell, Gilchrist, and Stapley (2008 [Level II nonrandomized controlled study]) reported on the effectiveness of a program of yoga, massage, and relaxation for children with behavioral difficulties, and found improvements in self-confidence and increased communication as compared to controls. Hernandez-Guzman, Gonzales, and Lopez (2002 [Level I RCT]) found that a guided imagery program with withdrawn or rejected first graders in Mexico resulted in more socialization when imagery was combined with the rehearsal of coping strategies.

Two Level I RCTs examined the effectiveness of training programs with children and adolescents to improve asthma self-management. In Gebert and colleagues (1998, a multicomponent training program that included relaxation, social activities, and sports found an improvement in knowledge about asthma. McPherson, Glazebrook, Forster, James, and Smyth (2006) examined the effectiveness of an interactive computer game and found that participants in the intervention group had improved knowledge about asthma, a more internal locus of control, and fewer days off from school at 6 months postintervention as compared to controls. A Level I RCT (Christian & D’Auria, 2006) evaluated the effectiveness of a life skills management program for children with cystic fibrosis. Children in the intervention group had increased peer support and social competence as well as decreased loneliness at follow-up as compared to the usual care control group. Dolgin, Somer, Zaidel and Zaizov (1997) provided an activity-based group intervention for siblings of children with cancer in a Level III before–after study. In addition to improvements in cancer-related knowledge, participants had improved mood and communication skills.

Targeted Play/Leisure/Recreation Interventions

The third theme for Tier 2 for the targeted interventions is play/leisure/recreation. Three studies examined the effectiveness of play for abused or neglected children (Fantuzzo et al., 1996 [Level I RCT]; Tyndall-Lynd, Landreth, & Giordano, 2001 [Level II nonrandomized controlled trial]; Udwin, 1983 [Level I RCT]). The results indicate that play groups for this population results in improved play, self-esteem, and positive feelings, as well as decreased solitary play and behavior problems. Five studies examined the impact of play and music on children with a variety of intellectual and language impairments (Duffy & Fuller, 2000 [Level I RCT]; Robertson & Weismer, 1997 [Level I RCT]; Schery & O’Connor, 1992 [Level II nonrandomized controlled trial]; Sparling, Walker & Singdahlsen, 1984 [Level III before–

after]; Sussman, 2009 [Level II repeated measures with participants serving as control]). Improvements were noted in social and language skills as well as attention to peers. A Level II nonrandomized controlled study examined the effects of a short-term creative program for children and early adolescents with peer difficulties (Walsh, Kosidoy, & Swanson, 1991). The results indicated an improvement in self-confidence for handling peer conflict as compared to a no-treatment control group.

The second subtheme within play/leisure/recreation is recreation, leisure, and physical education programs. Six studies examined the effects of this subtheme on children and adolescents with intellectual disabilities (Anderson & Allen, 1985a [Level I RCT]; Anderson & Allen, 1985b [Level I RCT]; Carter & Hughes, 2005 [Level I systematic review]; Gencoz, 1997 [Level I RCT]; Jeffree & Cheseldine, 1984 [Level III before–after]; Santomier & Kopczuk, 1981 [Level I RCT]). The results indicate that participating in recreation, leisure, and physical education programs results in improved social interaction. Though participants were able to learn the steps of a recreation activity, the evidence that activity participation continued after training is inconclusive. A Level III before–after study examined the effect of an activity-based summer residential program for children with cleft lip and palate (Lochman, Haynes, & Dobson, 1981). Social interaction and expectations for social interaction with peers improved at the end of the program. Lowenstein (1982 [Level I RCT]) found an increase in extraversion and a decrease in timidity following a structured recreation and activity program for children with extreme shyness as compared to a control group encouraged to increase social contact. Ohl and colleagues (2008 [Level II nonrandomized controlled study]) compared the participation in an activity-based after-school program for children with identified problems to children without identified problems. While both groups improved, those with problems demonstrated a significantly greater effect size on a strengths and difficulties questionnaire than those without identified problems.

Evidence for Intensive Interventions

The focus of Tier 3 is on children and adolescents requiring intensive mental health interventions. The evidence in this tier falls into two themes: interventions targeted to social skill development and those that concentrate on play/leisure/recreation. The populations within this tier have diagnoses of mental illness, severe behavior disorders, and/or autism spectrum disorder (ASD).

Intensive Social Skills Programs

Within the theme of social skills intervention, 15 studies examined children and adolescents with ASD (Aldred, Green, & Adams, 2004 [Level I RCT]; Bauminger, 2007 [Level III pretest–posttest]; Epp, 2008 [Level III pretest–posttest]; Kroeger, Schultz, & Newson, 2007 [Level II nonrandomized controlled study]; Laugeson, Frankel, Mogil, & Dillon, 2009 [Level I RCT]; Lee, Simpson, & Shogren, 2007 [Level I meta-analysis]; LeGoff, 2004 [Level II nonrandomized controlled trial]; LeGoff and Sherman, 2006 [Level II retrospective pre–post control, nonrandomized]; Lopata, Thomeer, Volker, Nida & Lee, 2008 [Level I RCT]; Machalicek, O'Reilly, Beretvas, Sigafos, & Lancioni, 2007 [Level I meta-analysis]; Mackay, Knott, & Dunlop, 2007 [Level III pretest–posttest]; Owens, Granader, Humphrey, Baron-Cohen, 2008 [Level I RCT]; Ozonoff & Miller, 1995 [Level II nonrandomized controlled trial]; Tse, Strulovich, Tagalakis, Meng, & Fombonne, 2007 [Level III pretest–posttest]; Wood et al., 2009 [Level I RCT]). The interventions studied social skills training, self-management training,

friendship skills groups, LEGO® therapy, cognitive-behavioral therapy (CBT), and joint attention. The results indicate that social-skills training has a positive impact on social behavior, social competence, and self-management, but some results are inconclusive. Machalicek and colleagues (2007), in a meta-analysis of single-subject design studies of interventions used to reduce challenging behaviors in children and adolescents with ASD, found that self-management strategies, changes in instructional content, and differential reinforcement were reported to be effective. The authors also reported that even in studies reporting improvements in behavior, participants still demonstrated undesirable behaviors. Lee, Simpson, and Shogren (2007) completed a meta-analysis of single-subject design studies of self-management techniques (e.g., social skills training, self-monitoring) and found no differences with school-age children with ASD.

Other studies reported improvements in social behaviors using specific interventions. Kroeger, Schultz, and Newson (2007) reported improvements in prosocial behaviors and social interaction when using video modeling or direct group instruction to deliver social-skills intervention as compared to free play. Laugeson and colleagues (2009) evaluated the effectiveness of a social-skills training group to improve friendship skill as compared to delayed treatment. The result indicated that the treatment group had better parent-reported social skills and better quality of friendship. Owens and colleagues (2008) compared a LEGO group for children with ASD to a social language program and a no-treatment control group. Reductions in social difficulties were reported in the LEGO group as compared to two comparison groups, and participants in the LEGO and social language groups had reductions in maladaptive behaviors. Two studies examined the effects of a LEGO construction and social-skills group on social competence in elementary-age children with autism (LeGoff, 2004; LeGoff & Sherman, 2006). The LeGoff (2004) study found that social initiation and duration of social interaction increased significantly for the LEGO group as compared to the control group. The LeGoff and Sherman study (2006) reported on results of participating in a LEGO group for 3 years. The results indicated that the LEGO group improved more in social interaction than the control group. Children who initially were higher in language made greater gains during the intervention.

Wood and colleagues (2009) evaluated the effectiveness of CBT to reduce parent-reported anxiety symptoms in children with autism as compared to wait-list controls. The results indicated that children in the intervention group had lower parent-reported anxiety scores at follow-up, and the authors reported a medium to large effect size, particularly for social communication skills. Epp (2008) used CBT strategies in combination with art activities and games, and found a significant improvement in assertive behaviors as well as a reduction in hyperactivity and problem behaviors.

Aldred, Green, and Adams (2004) studied a social communication intervention that included joint attention, the process of sharing the experience of observing an object or event by following gaze or pointing gestures, for preschoolers with autism. When compared with usual care, those in the intervention group had improvements in language and adaptive behavior. In addition, analysis of videos evaluating parent-child interaction found significant increases in positive synchronous communication and children communication. There was no difference in parental stress at follow-up between groups.

Ten studies explored social skills intervention for individuals with diagnosed mental illness

and/or serious behavior disorders, including schizophrenia, depression, anxiety, conduct disorders, severe behavior/emotional disorders, and alcohol and drug abuse (Amish, Gesten, Smith, Clark, & Stark, 1988 [Level II nonrandomized controlled trial]; Baker, Lang, & O'Reilly, 2009 [Level I systematic review]; Butler, Chapman, Forman, & Beck, 2006 [Level I meta-analysis]; Cook, Gresham, Kern, Barreras, Thornton, & Crews, 2008 [Level I meta-analysis]; Dobson, McDougall, Busheikin, & Aldous, 1995 [Level I RCT]; Gangl, 1987 [Level III before-after]; Grizenko, Papineau, & Sayegh, 1993a [Level II cohort using repeated measures]; Grizenko, Papineau, & Sayegh, 1993b [Level II cohort using repeated measures]; Ison, 2001 [Level I RCT]; Stermac & Josefowitz, 1985 [Level III before-after]). The results of the evidence indicate that social-skills interventions improve social behaviors in these populations. Baker, Lang, and O'Reilly (2009), in a systematic review of video modeling, found that the intervention improves peer interaction and on-task behavior and reduces inappropriate behavior. Similar results were noted for the meta-analysis of Cook and colleagues (2008) that reported that social-skills training has a medium effect size for adolescents with serious behavior disorders, particularly for modeling, social-cognitive procedures, and operant procedures. Butler and colleagues (2006) used meta-analytic techniques to evaluate the effectiveness of CBT, and found large effect sizes when CBT was used for childhood depressive and anxiety disorders. Effect sizes for childhood somatic disorders were moderate.

Intensive Play/Leisure/Recreation Programs

The two populations studied within the theme of play/leisure/recreation were children and adolescents with ASD and children with severe behavior disorders. Five studies examined play/leisure/recreation interventions for children and adolescents with ASD (Gold, Wigram, & Elephant, 2009 [Level I systematic review]; Kim, Wigram, & Gold, 2008 [Level I RCT]; Koegel, Dyer, & Bell, 1987 [Level III before-after]; Schleien, Mustonen, & Rynders, 1995 [Level III before-after]; Schleien, Rynders, Mustonen, & Fox, 1990 [Level III before-after]). The results of Schleien and colleagues (1990) indicated that play activities involving higher levels of social play (e.g., group and team) result in more appropriate levels of play behavior in school-age children with autism. A later study by the same authors (Schleien, Mustonen, & Rynders, 1995) reported no change in cooperative behaviors during art activities for children with autism when paired with children without autism. There was improved social interaction by the children without autism with their peers with autism. Gold and colleagues (2009), evaluating the effectiveness of music therapy (singing, listening to music, or playing an instrument), found a medium effect size for improvements in nonverbal communication skills, and small to medium effect size for improvements in verbal communications and reductions in problem behavior. Kim and colleagues (2008) found that improvisational music therapy using a variety of instruments was more effective than play at facilitating joint attention behaviors and nonverbal social communication skills in preschoolers with autism.

The effectiveness of play/leisure/recreation interventions for children and adolescents with serious behavior disorders was evaluated in four studies (Grizenko, Papineau, & Sayegh, 1993a [Level II cohort using repeated measures]; Grizenko, Papineau, & Sayegh, 1993b [Level II cohort using repeated measures]; Ikiugu & Ciaravino, 2006 [Level III mixed design, pretest-posttest with phenomenological design]; Sachs & Miller, 2001 [Level I RCT]). Ikiugu and Ciaravino (2006) used Instrumentalism in Occupational Therapy (IOT) as a conceptual guide to facilitate transition to adulthood for adolescents with emotional and behavioral difficulties. IOT assists adolescents in developing a life mission statement to organize their life. Strategies then

are created to modify participation in areas of occupation. While the authors reported that participation in peer-related occupations such as talking on the phone decreased, there was no difference in participation in leisure, education, and ADL after involvement in the IOT program. The perceived value of family and friends improved following the IOT program. Sachs and Miller (2001) found short-term improvement in adolescents' ability to cooperate following a wilderness experience for teens with behavior disorders.

Summary of Levels IV and V

N/A

Bottom Line for Occupational Therapy Practice:

Implications for Practice

The results of the systematic reviews provide a wealth of evidence that supports an individual client, impairment-focused model of practice; targeted services for at-risk groups; and population, strengths-based approaches. The evidence also provides support for an occupation- and activity-based approach that can be used at all three levels in a wide range of environments (e.g., school, home, community) and contexts.

The results at the universal level indicate that there is strong evidence for occupational therapy practitioners to provide occupation- and activity-based interventions in many areas. The evidence is strong, for example, that activity-based social and emotional learning programs improve social skills, and that schoolwide programs prevent bullying and victimization. Activity-based problem-solving skills programs also have been shown to improve coping behavior in children. Occupational therapy practitioners working in after-school programs should consider incorporating a social skills component, because the evidence is strong that these activities-based interventions improve social behaviors and reduce problem behaviors. In the area of health promotion, school-based stress management programs have been shown to reduce stress and improve coping skills in children in grades three through eight.

At the universal level, occupational therapy practitioners also can play a role in improving participation in play/leisure/recreation. The evidence is strong, for example, that participation in performing arts programs improves social interaction and social skills. A recent report by the National Endowment for the Arts (Catterall, Dumais, & Hampden-Thompson, 2012) indicates that children and adolescents from low socioeconomic backgrounds participating in arts programming either at school or in extracurricular programs achieve better success in school.

At the targeted level, there is strong evidence that social and life skills programs are effective for a wide range of at-risk children, such as those who are aggressive or rejected, and teenage mothers. There is also strong evidence that play groups for abused or neglected children improve play skills and reduce behavior problems. In addition, there is strong evidence that children with intellectual impairments, developmental delays, and learning disabilities would benefit from social skills programming and play, leisure, and recreational activities.

Occupational therapy practitioners are ideal to provide this type of programming because they have a wealth of knowledge of both the challenges for these groups and of activity-based

programming. In the area of health promotion, the evidence is moderate that adolescents with irritable bowel syndrome benefit from yoga to reduce gastrointestinal symptoms. Though not typically seen in a school-based setting, occupational therapy practitioners should consider community-based yoga programming for this population.

The evidence for the effectiveness of social skills programs is also strong for children requiring services at the intensive level. These occupation- and activity-based programs are effective for children with autism spectrum disorder to improve social behavior and self-management. In addition, social skills programs are effective in improving social behaviors for children and adolescents with diagnosed mental illness and/or serious behavior disorders.

Implications for Education

Occupational therapy academic programs have a long history of incorporating mental health practice into curricula. Occupational therapy practitioners are well prepared not only to recognize mental health problems, but also to understand how to assess and provide intervention to children and youth needing intensive services. The information provided in this CAT, however, takes a broader approach in emphasizing mental health promotion and prevention interventions for children and youth without diagnosed mental illness. As such, it is important for academic programs to prepare students for applying a public health model of children's mental health at the universal, targeted, and intensive levels in both school- and community-based practice. This systematic review ensures that the expansion into a public health model can be explored while maintaining an occupation- and activity-based approach.

Implications for Research

Although much of the evidence to date, as reported in this CAT, is published by researchers outside the field of occupational therapy, it is critical for occupational therapy practitioners to use this existing evidence to support practice and future research as described in each tier. For example, when developing new programs focusing on social skills, play/leisure/recreation, or health promotion, summaries of evidence provided can be used to document the benefits of such programs. In addition, occupational therapy practitioners need to be committed to generating evidence-based findings to support services provided at the universal, targeted, and intensive levels. At the universal level, occupational therapy practitioners may want to collaborate with teachers and administrators in assessing school climate or whole-class socioeconomic level following the implementation of whole-school programming. Collecting pre- and posttesting of social skills when implementing small-group intervention to targeted at-risk students is another example of obtaining evidence to evaluate intervention outcomes. Finally, clear documentation of student outcomes when providing individualized services provides evidence regarding the effects of intervention for individual students. Occupational therapy practitioners also can agree to collaborate in any large-scale randomized controlled trials conducted at their setting.

Review Process:

Procedures for the selection and appraisal of articles

Inclusion Criteria:

- Intervention was within the domain of occupational therapy, but did not have to be a common

<p>occupational therapy intervention or administered by an occupational therapy practitioner</p> <ul style="list-style-type: none"> • Outcomes measured in study included social or peer interactions or compliance with adult directives or social rules and norms (including ADLs). • Study participants were between the ages of 3–21 • Peer-reviewed scientific literature • Consolidated information sources, such as the Cochrane Database of Systematic Reviews Published between 1980 and 2009 (later, if recommended by content expert) • Level I, II, III evidence

Exclusion Criteria:

<ul style="list-style-type: none"> • Study did not include an activity-based component • Outside the scope of occupational therapy practice • Dissertations and theses • Non-peer-reviewed literature • Presentations and conference proceedings • Level IV and V evidence
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Search Strategy

<p>Search terms for original search (1980–2002)</p> <p>Activities, activities of daily living, activity groups, adaptation, adaptive behavior, aggression, alcohol, anger management, antisocial behavior, approach, behavior, behavior(al) disorders, bullying, communication skills training, conflict resolution, cooperative behavior, coping strategies, craft, decision-making skills, disruptive behavior disorders, drug, emotional support, emotionally disturbed, exercise, experiential learning, family, field trip, friendship, games, group activities, health, human activities, impulsive behavior, instrumental activities of daily living, interaction, interpersonal, intervention, job training, leisure, mental disorders, mental health, outcome management, peer group, peer interaction, personal care, physical, physical education, play, pregnancy prevention, prevocational, problem solving, program effectiveness, prosocial development, psychiatric, psychological, psychosocial, recreation, reinforcement, religion activities, resistance skills, reward, role, self-care, self-concept, sexual activity, sibling support, social behavior disorders, social competence, social skills, specialized interventions, sports, stress, substance abuse prevention, support, tasks, teaching, team, therapy, token economy, treatment, treatment effectiveness.</p>
<p>Additional search terms for follow-up search (2003–2009)</p> <p>Activities, character strengths, community integration, coping skills, delayed gratification, flow, graded activity, group process, health, hobbies, homeless children, impulse control, impulsivity, interest development, interpersonal, juvenile delinquency, learning, managing emotions, mental health promotion, organized activities, out-of-school activities, participation, positive behavioral , positive mental health, positive psychology, prevention of psychosis, promotion/wellness, public health approach, relationships, resiliency, school mental health, school violence, self calming, self advocacy, self determination, social emotional, social</p>

participation, structured leisure, supports, systems of care, transition, work/vocational.

Databases and Sites Searched

- Medline, PsycINFO, CINAHL, ERIC, OTseeker, Evidence-Based Medicine Reviews—Cochrane Database of Systematic Reviews, Cochrane Controlled Trials Register, and DARE—the Database of Abstracts of Reviews of Effectiveness
- Overlap of searching by question
- Hand searching of bibliographies
- More recent articles (after 2009) added based on recommendations of content experts.

Quality Control/Peer Review Process:

- Updated systematic review question and search terms were developed by review authors, AOTA staff, and project consultant and reviewed by advisory group of occupational therapy practitioners, researchers, and educators.
- Searches were completed by a medical librarian with experience in systematic reviews.
- Initial and final review of titles and abstracts was done by project consultant.
- Articles selected were reviewed by review authors and a team of graduate occupational therapy students for inclusion or exclusion in systematic review.
- Review authors and a team of graduate occupational therapy students critically appraised articles selected for inclusion and summarized the information on an evidence table.
- Evidence table was reviewed by review authors, and AOTA staff.
- Review authors developed CAT, which was reviewed by AOTA staff.

Results of Search:

Summary of Study Designs of Articles Selected for Appraisal

Level of Evidence	Study Design/Methodology of Selected Articles	Number of Articles Selected
I	Systematic reviews, meta-analysis, randomized controlled trials	73
II	Two groups, nonrandomized studies (e.g., cohort, case-control)	26
III	One group, nonrandomized (e.g., before-and-after, pretest, and posttest)	21
IV	Descriptive studies that include analysis of outcomes (single-subject design, case series)	0
V	Case reports and expert opinion, which include narrative literature reviews and consensus statements	0
		TOTAL 120

Limitations of the Studies Appraised

Levels I, II, and III

N/A

Levels IV and V

N/A

Articles Selected for Appraisal

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