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A Bibliometric Analysis of the Occupational Therapy Literature Addressing Interventions for Children and Adolescents with Mental Health Needs

Sharon A. Gutman^a, Ted Brown^b , Pat Precin^c, Lauren J. Chan^c, Devin C. Czuj^c, Brooke N. Hartman^c, Brittany M. Meindl^c, Amanda R. O'Connor^c, Atara Safrin^c, Jennifer N. Stein^c, and Julia H. Wolinsky^c

^aOccupational Therapy Doctorate Program, Rehabilitation and Movement Sciences, School of Health Professions, Rutgers University, Newark, NJ, USA; ^bDepartment of Occupational Therapy, School of Primary and Allied Health Care, Faculty of Medicine, Nursing, and Health Sciences, Monash University, Frankston, Australia; ^cPrograms in Occupational Therapy, Rehabilitation and Regenerative Medicine, Columbia University Irving Medical Center, New York, NY, USA

ABSTRACT

A bibliometric analysis was performed to examine the occupational therapy peer-reviewed literature addressing interventions for children and adolescents with mental health disorders (1980–2019). The search strategy yielded 82 articles that have not produced significant support for the profession's role in this practice area, have not been well-cited, and may not be readily accessible by stakeholders. A third of this literature addressed children with ADHD using sensory-based approaches. Depression, anxiety, and bipolar disorder were addressed comparatively less. The profession must increase advocacy to enhance awareness of therapists' role in this practice area and engage in research supporting practice.

KEYWORDS

Occupational therapy; mental health interventions; childhood; adolescence

According to the 2016 National Survey of Children's Health (Data Resource Center for Child and Adolescent Health, *n.d.*; Whitney & Peterson, 2019), it is estimated that approximately 7.7 million children and adolescents experience a mental health disorder before age 18. The most commonly experienced psychiatric disorders of childhood and adolescence are reported to be anxiety (40.2%) including (a) generalized anxiety disorder, social anxiety disorder, specific phobias, panic disorder, post-traumatic stress disorder, and separation anxiety disorder; (b) behavioral disorders (29.2%) including oppositional defiant disorder, conduct disorder, and attention deficit hyperactivity disorder (ADHD); (c) mood disorders (25.5%) including major depressive disorder, dysthymia, and bipolar disorder; and (d) eating disorders (2.7%) (Centers for Disease Control & Prevention [CDC], 2020; Child Mind Institute, 2015).

CONTACT Sharon A. Gutman  sharon.gutman@rutgers.edu  Rutgers University, Occupational Therapy Doctorate Program, 65 Bergen Street, Stanley S. Bergen Building 7th Floor, Newark, NJ, USA

Childhood and adolescent mental health disorders are serious conditions that affect life course and societal functioning. It is estimated that approximately 70% of juveniles in the justice system meet the criteria for at least one diagnosable psychiatric disorder (Child Mind Institute, 2015; McCormick et al., 2017). Young people with untreated mental health disorders are at a heightened risk for adult incarceration and more than half of prison inmates have a psychiatric condition that is first diagnosed in the correctional system (Child Mind Institute, 2015; Mulvey & Schubert, 2017). It is estimated that approximately 12,000 children 5–14 years of age are annually admitted to psychiatric facilities for suicidal behavior and an estimated 4,600 adolescents aged 14–18 complete suicide attempts (CDC, 2015; Child Mind Institute, 2015). Approximately one-half (49.4%) of youth with a diagnosable mental health disorder do not receive treatment (Whitney & Peterson, 2019); this percentage includes an estimated 40% of youth with ADHD, 60% with depression, and 80% with anxiety disorder (Child Mind Institute, 2015; Ghandour et al., 2019).

Recent reports from the CDC (2021) suggest that the corona virus pandemic of the last two years has exacerbated child and adolescent mental health problems. Data collected regarding adolescent emergency department visits for suspected or attempted suicide during February and March of 2021, showed a statistically significant increase by 50% for female adolescents and 4% for male adolescents compared to 2019 rates. In 2020, hospitals nationwide reported a 31% increase in adolescents aged 12–17 admitted for mental health concerns and a 24% increase for children aged 5–11. The Substance Abuse and Mental Health Services Administration (2021) projects that the impact on child and adolescent mental health resulting from the isolation and reduced access to mental health services caused by the pandemic will have profound and lasting effects for years to come.

Despite the increased percentage of youth experiencing mental health disorders in the last 5 years, the US Department of Health and Human Services projects a shortage of 3,600 mental health providers by 2030 (US Department of Health & Human Services et al., 2018). Clearly, our nation's young people are facing a mental health crisis that specialists suggest is being inadequately managed as a result of behavioral health staff shortages, under-identification of young people at risk, and interventions that may not sufficiently address the client-identified needs of young people in crisis (Bitsko et al., 2018). Although occupational therapy services have been mandated by several public acts (i.e., Education for All Handicapped Children Act, later becoming the Individuals with Disabilities Education Act, [2004]) to be provided to students in need in both the school system and early intervention programs, and despite the profession's robust history

in mental health provision until the 1970s, occupational therapists have largely not assumed a mental health provider role for children and adolescents in the US (Blackwell & Bilics, 2018; Cahill & Egan, 2016; Chan et al., 2017). Several occupational therapists have noted this discrepancy, theorized about reasons accounting for this oversight in service provision, and called for the profession to answer the country's need to assist young people with mental health disorders (Chan et al., 2017; Hardaker et al., 2007; Schultz, 1992). Studies examining occupational therapists' attitudes regarding their ability to provide intervention for children and adolescents with mental health conditions found that therapists report feeling undertrained in this area, perceive that other professionals do not consider them as qualified mental health providers, and lack time to address emotional disturbance due to large caseloads (Barnes et al., 2003; Beck et al., 2006; Blackwell & Bilics, 2018; Cahill & Egan, 2016; Milliken et al., 2007). Other studies reported that occupational therapists in the school system and private practice are more comfortable with services addressing gross and fine motor skills, handwriting, sensory processing, and visual-perceptual skills (Beck et al., 2006; Chan et al., 2017; Greene, 1993; Schultz, 1992). Some researchers have suggested that the literature of mental health interdisciplinary team members (e.g., psychiatrists, psychologists, social workers) does not recognize the role of occupational therapy in behavioral interventions for children and adolescents (Gutman & Brown, 2018; Sholle-Martin & Alessi, 1990), suggesting that the profession itself has neither sufficiently educated colleagues about nor advocated for occupational therapy's role in this practice area (Cahill & Egan, 2016).

Occupational therapy researchers who have examined the profession's body of literature regarding child and adolescent mental health have found a dearth of literature compared to other practice areas. In one literature review, Hardaker et al. (2007) identified only 5 studies examining the efficacy of occupational therapy interventions for adolescents with mental health diagnoses. In two systematic reviews of occupational therapy literature, researchers found that of the articles addressing occupational therapy and youth, less than 14% pertained to youth with mental health conditions (Bendixen & Kreider, 2011; Kreider et al., 2014). The lack of professional literature addressing the profession's role in the intervention of young people with mental health disorders raises concern regarding whether the profession has adequately articulated our unique skill set in this practice area to those making legislative and referral decisions—decisions that could identify occupational therapists as qualified mental health providers; recruit occupational therapists to interdisciplinary teams in schools, private practice, and psychiatric facilities; and secure reimbursement for rendered services.

One way to examine how adequately the profession has articulated its role in child and adolescent mental health services is to analyze the occupational therapy peer-reviewed literature in this practice area through bibliometrics. Bibliometrics are analytic strategies that provide a quantitative assessment of publications with regard to such items as citation and view counts, journal status and impact factor, level of evidence and rigor of research design, and article country of origin (Bellis, 2009; Brown, 2011; Garfield, 2006; Meho & Yang, 2007). The purpose of the present study was to perform a bibliometric analysis of the profession's body of peer-reviewed child and adolescent mental health literature with a specific focus on interventions that addressed the most common psychiatric disorders of this developmental period—depression (and other mood disorders), anxiety, and behavioral disorders. Our research questions asked, over the period of 1980–2019,

1. how many articles were published in which an occupational therapist either designed and/or delivered intervention (alone or in collaboration with an interprofessional team) to children or adolescents having a psychiatric condition?
2. what types of articles were published (e.g., descriptive accounts of intervention delivery, empirical research studies) and how did this affect the evidence level of the collective body of literature?
3. what types of intervention were described and for which psychiatric diagnoses were these intended?
4. what was the probable impact and use of these studies as measured by citation and view count?
5. in what journals were these articles published and how might this have affected publication access and use by occupational therapists, interdisciplinary colleagues, and lay persons?
6. from which countries did these articles originate and what is the implication of this finding for occupational therapy's participation in this practice area in the United States?

Method

Search strategy

A database search of seven peer-reviewed, health care publication indexes (i.e., Cumulative Index to Nursing and Allied Health Literature, Medline, PsycInfo, Education Resources Information Center, Embase, Psychiatry online premium, and SCOPUS) was performed by a research librarian to identify articles addressing occupational therapy interventions for children and adolescents with psychiatric disorders. Psychiatric disorders were

defined as mental health conditions classified in the Diagnostic Statistical Manual of Mental Disorders-5 (DSM-5, American Psychiatric Association, 2013) as common to the developmental period between birth and 18 years of age. Occupational therapy intervention was defined as treatment developed by an occupational therapist and delivered by an occupational therapist or occupational therapy assistant.

Three sets of key search terms were combined: (1) occupational therapy, occupational therapist, OT, occupational therapy assistant, and occupational therapy intervention; (2) children, child, childhood, youth, adolescent, teen, teenager, pediatric, paediatric, infant, preschooler, kids, and toddler; and (3) mental health, mental illness, psychiatric disorder, psychosocial skill, behavioral health, behavioral management, behavioral problems, conduct disorder, emotional disturbance, oppositional defiant disorder, classroom disruption, anxiety, social anxiety, stress, depression, bipolar disorder, schizophrenia, eating disorder, mood disorder, substance use disorder, and attentional disorder.

Study selection

Inclusion criteria consisted of the following: articles (1) were peer-reviewed, (2) retrievable through a recognized online database, (3) written in English, (4) published within the time period of January 1980 to December 2019, (5) reported details of occupational therapy interventions for children or adolescents presenting with mental health disorders as described in the DSM-5, (6) reported adequate details to allow for data extraction to occur in accordance with study criteria, and (7) provided sufficient description to determine if intervention met study criteria. Articles could be both narrative description of intervention or empirical quantitative and qualitative research studies. Interventions could be carried out by an interprofessional team if an occupational therapist was a team member.

We excluded articles addressing autism spectrum disorder (ASD) because this body of occupational therapy literature is relatively large and should be analyzed singularly in a separate study. Articles addressing sensory integrative disorders and sensory intervention were similarly excluded because of the relatively large size of this body of literature, which should be analyzed independently. If articles described intervention for samples having DSM-5 diagnoses, such as developmental coordination disorder or ADHD, but only addressed sensorimotor, visual-perceptual, or cognitive aspects of the disorder—and not psychosocial problems—those articles were excluded. Articles addressing interventions that could be considered to be within the domain of occupational therapy, but were neither developed nor delivered by occupational therapists (or occupational therapy assistants) were not

included in this study, as we believed that these articles did not reflect the body of literature generated by occupational therapists. Articles were excluded if they (1) addressed intervention for children or adolescents with ASD or sensory integrative disorder; (2) addressed sensory integration intervention; (3) addressed only motoric, visual-perceptual, or cognitive dysfunction; and (4) addressed an intervention only for the parents/caregivers of a child or adolescent with a psychiatric disorder and not the child or adolescent (if intervention addressed both parents/caregivers and youth, articles were included).

Data extraction

Once the database search had been executed, data were extracted by the first and third authors independently. Articles identified separately by both authors were then compared jointly and decisions were made about inclusion until consensus was reached. Decisions for articles for which consensus could not be attained were then determined by the second author. When relevant systematic reviews were identified during data extraction, they were searched to target their single research studies; systematic reviews were then excluded.

Abstracts of identified publications were read by the first and third authors to determine whether retrieved articles met study inclusion criteria. When articles did not identify author or interventionist profession, an internet search was performed to determine whether article authorship included an occupational therapist. Once articles were identified as matching inclusion criteria, their references were hand searched by the first and third authors to identify further articles matching inclusion criteria. Additionally, journal volumes of *Occupational Therapy in Mental Health (OTMH)* and the *Journal of Occupational Therapy, Schools, and Early Intervention (JOTSEI)*, published between January 1980 to December 2019, were searched by the first and third authors to identify relevant articles, as we believed that these journals would likely have the highest volume of articles describing occupational therapy for children and adolescents with mental health disorders.

To obtain article citation counts (i.e., the number of times an article was cited in other peer-reviewed journal articles), we chose counts computed by Google Scholar instead of other citation indices such as Web of Science. Google Scholar was selected because it indexes all occupational therapy journals as well as a large number of interdisciplinary journals in comparison to Web of Science (De Winter et al., 2014), which only indexes 8 out of the 21 currently published occupational therapy journals. Both article total citation (TC) and citation per year (CPY) counts were used in

analysis. TC count referred to the total number of citations accrued for each article since publication (Ming et al., 2011). CPY count was calculated by dividing TC count by the number of years an article was in publication to obtain the average number of citations per year (Chuang & Ho, 2015). Using both TC and CPY count provides a more equivalent comparison of all articles and removes possible inflation of citation count caused by unequal numbers of years in publication; articles in print for longer periods tend to accrue higher TC counts (Brown, 2011).

We also collected data regarding article view count (i.e., the number of times an article was viewed electronically on the journal's website) and journal impact factor score (i.e., the average number of times articles in one journal volume were cited by another source in a 2-year period). Article view count was obtained from the website of the journal in which the article was published. Journal impact factor score was retrieved from the Journal Citation Reports of Web of Science (Clarivate, 2020).

Results

The search strategy identified 7,875 peer-reviewed articles with 357 duplicates, which were removed, leaving 7,518 articles. A total of 7,436 articles did not meet inclusion criteria and were excluded, leaving 82 articles that described occupational therapy intervention for children and/or adolescents with a mental health condition (see Table 1).

Article type

Over half of the 82 articles ($n = 54$, 65.85%) were empirical quantitative or qualitative studies. Approximately one-third of the articles ($n = 25$, 30.48%) presented narrative description of an intervention or program without an attempt to measure outcomes, and 3 (3.65%) articles reported program evaluation in which data of client outcomes were provided but not statistically analyzed. Article type was broken down into the following categories: narrative description ($n = 25$, 30.48%), one-group pretest-posttest design ($n = 21$, 25.60%), randomized controlled design ($n = 13$, 15.85%), two-group controlled or one-group crossover design ($n = 7$, 8.53%), single subject design ($n = 6$, 7.31%), qualitative exploratory design ($n = 6$, 7.31%), program evaluation ($n = 3$, 3.65%), and survey design ($n = 1$, 1.21%) (see Table 1).

A quarter of this literature ($n = 20$, 24.39%) was either Level 1 or 2 evidence (Arbesman & Logsdon, 2011) derived from a fairly rigorous empirical study that provided strong support for intervention effectiveness. Another approximate quarter ($n = 21$, 25.60%) produced Level 3 evidence


Table 1. Articles of Bibliometric Analysis Categorized by Grouped Clinical Condition.

	Reference	Short Description	Article Type/Evidence Level/ Intervention Category	Participants	Total Citations (TC) and Citations Per Year (CPY)	View No.	Journal Impact Factor (for publication year)	Country of Origin
1	<ul style="list-style-type: none"> Abuse Davidson (1995) 	The author described intervention approaches for children who have sustained physical abuse and their parents. Approaches include promoting positive parent-child interactions, educating parents in child development and management, and promoting children's psychosocial development.	Narrative description of intervention [psychoeducation, skill training, behavioral]	Children (ages 3–5 years) who have sustained physical abuse, and their parents	TC = 17.00 CPY = 0.68	No information available	N/A	United States
2	Goldshtroum et al. (2011)	This study assessed the effect of rhythmic exercises using the Rhythmix® Program on the function and behavior of maltreated children residing in a residential group facility. Aggressive behavioral scores were significantly lower among the exercise group participants compared to the control group. The authors describe a program for homeless youth that focuses on job skills and employability.	Nonequivalent 2-group, controlled design; Level 2 [sensorimotor]	37 children (ages 6–11 years) residing in a residential facility for maltreated, abused children	TC = 11.00 CPY = 1.22	381	N/A	Israel
3	Kammenberg & Boyer (1997)	The authors describe a program for homeless youth that focuses on job skills and employability.	Narrative program description [skill training]	Homeless youths (ages 15–22 years) with histories of child abuse and neglect	TC = 16.00 CPY = 0.69	No information available	1.466	United States
ADHD, attentional problems, self-regulatory difficulties, learning disability								
4	Arnold et al. (1985)	This study assessed the effect of (1) vestibular stimulation alone, (2) visual stimulation alone, and (3) combined vestibular and visual stimulation in one group of children who were assigned to a 3-condition series. Behavior ratings demonstrated significant gains at the end of the final treatment and at a 1-year follow-up.	Split-sample Latin square crossover design, Level 2 [sensory-based]	30 children (ages 5–9 years) with ADHD	TC = 48.00 CPY = 1.37	No information available	N/A	United States
5	Barnes et al. (2017)	The study assessed whether an RCT intervention study addressing the social play, social skills, and parent-child relationships of children with ADHD and their playmates,	2-group pretest posttest design with a longitudinal component; Level 2 [behavioral, play-based]	13 children (ages 5–13 years) with ADHD and their playmates	TC = 14.00 CPY = 4.66	No information available	1.823	Australia

6	Cantrill et al. (2015)	<p>would have lasting gains. Results from immediately following the RCT to the 12-month follow-up showed that children with ADHD maintained social play skill gains in the home environment. This study examined the long-term effectiveness of a pilot parent-delivered intervention intended to improve the social play skills of children with ADHD and their playmates. Both children with ADHD and their playmates demonstrated the maintenance of social play skills following the intervention in both home and clinic settings.</p>	1-group pretest posttest design with a longitudinal component, Level 3 [behavioral, play-based]	5 children (ages 10 years) with ADHD who had completed an intervention 18-months previously, their typically developing playmates, and mothers of children with ADHD	1,404	Australia
7	Case-Smith et al. (2010)	<p>This study assessed children's perceptions of an 8-week school yoga program designed to reduce stress and improve classroom behaviors. Students reported that the program helped them (a) have higher concentration, (b) provided strategies to regulate their behaviors in response to stressful situations, and (c) helped them to feel more positively about themselves. This study assessed the effect of an intervention for children with ADHD involving environmental modification, parent and teacher education, behavioral management, and remediation of sensory and perceptual-motor deficits. 11 children demonstrated statistically significant changes in an ADHD behavioral rating scale from pretest to posttest.</p>	5 qualitative focus groups with 4-5 children were held 2 weeks post-intervention [sensory-based]	21 3rd graders (mean age = 7.4 years) at risk for learning disabilities in a low-income neighborhood	N/A	United States
8	Chu & Reynolds (2007)	<p>This study assessed the effect of an intervention for children with ADHD involving environmental modification, parent and teacher education, behavioral management, and remediation of sensory and perceptual-motor deficits. 11 children demonstrated statistically significant changes in an ADHD behavioral rating scale from pretest to posttest.</p>	1-group pretest posttest design, Level 3 [behavioral, sensory-based]	20 children (ages 5-10 years) with ADHD	N/A	United Kingdom
9	Esmail et al. (2019)	<p>This study assessed the effect of an intervention designed for children with specific learning disabilities to facilitate executive function through peer-play. Intervention promoted executive function skills but had no effect on occupational competence.</p>	RCT, Level 1 [behavioral, cognitive, skill training]	49 children (ages 8 years) with specific learning disabilities and decreased social skills	N/A	Iran

(continued)

Table 1. Continued.

Reference	Short Description	Article Type/Evidence Level/ Intervention Category	Participants	Total Citations (TC) and Citations Per Year (CPY)	View No.	Journal Impact Factor (for publication year)	Country of Origin
Fedewa and Erwin (2011)	This study assessed the effect of stability balls on on-task and in-seat behavior with school children with ADHD. Children demonstrated increased attention, decreased hyperactivity, and increased on-task and in-seat behaviors. Therapy is an attachment-based intervention for children and their parents that aims to build relationships through (1) calming touch and activities and (2) the promotion of self-control and internalization of structure. A significant reduction in oppositional behavior was observed in the intervention group.	Single-subject A-B continuous time-series design [sensory-based]	8 children (ages 9–10 years) with ADHD in a school setting	TC = 115.00 CPY = 12.77	No information available	1.697	United States
Fourie et al. (2007)	Theraplay is an attachment-based intervention for children and their parents that aims to build relationships through (1) calming touch and activities and (2) the promotion of self-control and internalization of structure. A significant reduction in oppositional behavior was observed in the intervention group.	RCT, Level 1 [behavioral, sensory-based, attachment-based]	20 children (ages 5–8 years) with ADHD	TC = 2.00 CPY = 0.15	No information available	N/A	South Africa
Gol and Janus (2005)	9 children with ADHD were randomly selected to participate in a social skills training group. The 9 children with ADHD were compared to 10 children without ADHD who were randomly selected as a comparison group but who did not participate in the social skills intervention. At post-intervention the children with ADHD who received intervention performed better than the children without ADHD at tasks requiring attention and focus.	RCT, Level 1 [behavioral, cognitive]	19 children (ages 5–6 years); 9 with ADHD and 10 without	TC = 76.00 CPY = 5.06	No information available	1.790	Israel
Gutman et al. (2004)	The authors describe intervention for children with regulatory issues who display psychosocial deficits (and their parents). Intervention is based on providing education, promoting needed skills, allowing expression of feelings, and managing emotions.	Narrative description of intervention [psychoeducation, behavioral, sensory-based, skill training]	Children (ages 5–10 years) who exhibit psychosocial problems secondary to regulatory disorders, and their parents	TC = 8.00 CPY = 0.50	187	N/A	United States

14	Hahn-Markowitz et al. (2017)	This study supported the effectiveness of the Cog-Fun intervention for improving executive functions and participation in children with ADHD.	RCT with crossover design, Level 1 [behavioral, cognitive]	99 children (ages 7–10 years) diagnosed with ADHD	TC = 9.00 CPY = 3.00	No information available	2,493	Israel
15	Hahn-Markowitz et al. (2018)	This study assessed an intervention designed to promote positive behavioral changes in children with ADHD. The intervention was based on cognitive strategies and parental involvement. The intervention group demonstrated statistically significant improvements in targeted behaviors; these improvements were replicated by the control group in their crossover intervention phase.	RCT with crossover design, Level 1 [cognitive, behavioral]	99 children (ages 7–10 years) with ADHD and their parents	TC = 6.00 CPY = 3.00	1,055	1,536	Israel
16	Hahn-Markowitz et al. (2011)	Intervention was tailored to the executive dysfunction of ADHD and addressed cognitive strategies for occupational performance. Gains in social and behavioral skills were observed at posttest.	1-group pretest posttest with follow-up, Level 3 [behavioral, cognitive]	14 children (ages 7–8 years) with ADHD and their parents	TC = 53.00 CPY = 5.88	No information available	1,697	Israel
17	Leew (2001)	The author describes a school-based program for children with organizational difficulties based on learning cognitive strategies.	Narrative program description [cognitive]	Children (ages 6–13 years) with organizational difficulties secondary to learning disability, ADHD, and developmental coordination disorder; in a school setting	TC = 8.00 CPY = 0.42	148	N/A	Canada
18	Levanon-Erez et al. (2019)	The study assessed the preliminary effect and feasibility of an intervention designed to help adolescents to develop strategies to function optimally at home and school. Statistically significant gains were observed from pre- to posttest in occupational performance, executive functioning, and strategy behavior. No significant gains in self-awareness were observed.	1-group pretest posttest, Level 3 [behavioral, cognitive, skill training]	27 adolescents (ages 12–17 years) with ADHD and their parents	TC = 1.00 CPY = 1.00	No information available	N/A	Israel

(continued)



Table 1. Continued.

	Reference	Short Description	Article Type/Evidence Level/ Intervention Category	Participants	Total Citations (TC) and Citations Per Year (CPY)	View No.	Journal Impact Factor (for publication year)	Country of Origin
19	Lin et al. (2014)	Children in the weighted vest condition displayed increased attention and processing speed, and decreased fidgeting and out of seat behavior.	1-group, two-period, crossover design; Level 2 [sensory-based]	110 children (mean age = 8.6 years) with ADHD	TC = 36.00 CPY = 6.00	No information available	1.532	China
20	Maier et al. (2014)	Intervention targeted cognitive, emotional, and environmental barriers to participation. Cog-Fun group showed improvement in goals; waitlist control did not. Waitlist group demonstrated gains once they received intervention. Groups maintained gains at follow-up.	2-group controlled crossover design with follow-up. Level 2 [behavioral, cognitive]	19 children (ages 5–7 years) diagnosed with ADHD	TC = 26.00 CPY = 4.33	No information available	1.532	Israel
21	Pfeiffer et al. (2008)	This study assessed the effect of Disk O' Sit cushions used throughout the school day to increase attention in 2nd graders with attentional difficulties. The intervention group demonstrated a statistically significant improvement in attention compared the control group at post-intervention.	RCT, Level 1 [sensory-based]	61 second grade students (ages 7–9 years) with attention difficulties	TC = 100.00 CPY = 8.33	No information available	0.921	United States
22	Rosenberg et al. (2015)	Intervention helped preschoolers to self-regulate behaviors through emotional, cognitive, and environmental strategies. Intervention improved daily, executive, and social functioning.	1-group pretest posttest, Level 3 [behavioral, cognitive]	17 preschoolers (ages 4–6 years) with ADHD and their parents	TC = 18.00 CPY = 3.60	No information available	1.806	Israel
23	Schilling et al. (2003)	Therapy balls as seating were used to enhance in-seat behavior and legible word productivity of students with attention deficit: hyperactivity disorder. Both in-seat behavior and legible word productivity increased when children were seated on therapy balls.	single subject A-B-A-B interrupted time series design across 3 students, Level 4 [sensory-based]	3 students (ages 9 years) with ADHD	TC = 214.00 CPY = 12.58	No information available	0.610	United States
24	Shaffer et al. (2001)	This study measured the effects of Interactive Metronome on selected motor and cognitive skills in children with ADHD. The interactive metronome group demonstrated significant	RCT with 3 matched groups: (1) interactive metronome, (2) video treatment, and (3) no treatment. Level 1 [sensory-based]	56 boys (ages 6–12 years) with ADHD	TC = 210.00 CPY = 11.05	No information available	0.674	United States

25	Srija and Sugi (2019)	<p>improvements in attention, motor control, language processing, reading ability, and regulation of aggressive behaviors compared to the other two groups.</p> <p>Coping strategies were taught to intervention group children using social stories and role-play. Control group participants received traditional occupational therapy along with coping strategies and role-play. Both groups demonstrated statistically significant gains in coping strategies needed to deal with bullying situations.</p>	RCT, Level 1 [skill training, cognitive]	22 children (ages 8–13 years) with ADHD, learning disabilities, and intellectual disabilities	TC = 1.00 CPY = 1.00	No information available	India
26	Srija et al. (2019)	<p>Intervention helped children who have been bullied to develop coping skills through social stories. A control group received role play. Both intervention and control groups improved equally. Social stories helped children to improve and apply coping skills during bullying situations.</p>	Randomized controlled trial (RCT), Level 1 [behavioral, cognitive]	22 children (ages 8–13 years) diagnosed with ADHD, learning disability, and mild intellectual disability	TC = 0 CPY = 0	No information available	India
27	Wilkes et al. (2011)	<p>Intervention addressed play; therapist modeling; and self-therapist, peer-, and self-modeling to improve play and social skills within the natural context of play. Children made positive gains in social play skills supporting the use of play, video modeling, therapist- and peer-modeling, and parent involvement.</p>	1-group pretest posttest, Level 3 [behavioral, play-based]	14 children (5–11 years) with ADHD and age-matched typically developing playmates; parents of children with ADHD	TC = 73.00 CPY = 8.11	No information available	Australia
28	Wilkes-Gillan et al. (2014a)	<p>Children who had participated in a social play intervention were assessed 18 months later. Children's social play skills improved and were maintained</p>	1-group pretest posttest, Level 3 [behavioral, play-based]	5 children (mean age ~8 years) with ADHD who had previously participated in a play-based intervention; children's parents also participated.	TC = 27.00 CPY = 4.50	No information available	Australia
29	Wilkes-Gillan et al. (2014b)	<p>This study assessed the effect of a parent-delivered play-based intervention for children with ADHD. Children's social play skills improved from pre- to posttest.</p>	1-group pretest posttest design, Level 3 [play-based, behavioral, skill training]	10 Children (ages 6–11 years) with ADHD, and their parents	TC = 19.00 CPY = 3.16	No information available	Australia

(continued)

Table 1. Continued.

Reference	Short Description	Article Type/Evidence Level/ Intervention Category	Participants	Total Citations (TC) and Citations Per Year (CPY)	View No.	Journal Impact Factor (for publication year)	Country of Origin
Wilkes-Gillan et al. (2016)	This study assessed an intervention designed to increase the social play skills of children with ADHD. Children in the intervention group demonstrated statistically significant improvement in social play skills compared to waitlist controls. When waitlist controls received intervention and all participants were compared pre- to post-intervention, all showed a statistically significant gain in social play skills.	RCT with 2-group parallel trial design, Level 1 [play-based, skill training]	29 children (ages 5–11 years) with ADHD	TC = 41.00 CPY = 10.25	No information available	2.806	Australia
Wilkes-Gillan et al. (2017)	Video-modeling was used to improve children's social play skills. Two children showed an increase in their social play skills, and three a decrease. Three playmates showed consistent social play skills, one an increase, and one a decrease. Parents reported that they felt better able to support their child.	1-group pretest posttest study, Level 3 [behavioral]	5 children (ages 7–11 years) with ADHD and mild-moderate oppositional defiant disorder, their mothers, and 5 typically developing playmates	TC = 5.00 CPY = 1.66	No information available	0.754	Australia
Wong et al. (2014)	This study assessed the effect of a social emotional learning program for primary school students demonstrating difficulty with social and emotional management. Intervention group displayed significantly fewer social-emotional problems after intervention.	RCT, Level 1 [behavioral]	27 primary school students in grades 1 to 3; 4 were diagnosed with learning difficulties and 3 with ADHD.	TC = 29.00 CPY = 4.83	No information available	0.667	China
van Niekerk (2007)	Description of a vocational program to prepare adolescents with learning disabilities to gain work habits and endurance, and job seeking skills.	Narrative program description [skill training]	Adolescents (grade 11) with learning disabilities	TC = 6.00 CPY = 0.46	No information available	N/A	South Africa

34	VandenBerg (2001)	Weighted vests were used to determine if they could increase on-task behavior in children with ADHD and attentional difficulties. On-task behavior increased by 18–25% while children wore the weighted vests.	Single subject A-B design; Level 4 [sensory-based]	4 students (ages 5–6 years) with ADHD and attentional difficulties	TC = 167.00 CPY = 8.78	No information available	0.674	United States
Anxiety								
35	Mohammadi et al. (2017)	This pilot study assessed whether an occupational therapy play-based intervention could decrease anxiety, pain, and fatigue in two hospitalized children with lymphoblastic leukemia. Anxiety, pain, and fatigue all decreased during intervention.	Single subject A-B-A-B-A-B design [play-based]	2 hospitalized children (ages 7 and 9 years) with acute lymphoblastic leukemia with anxiety, pain, and fatigue secondary to cancer	TC = 13.00 CPY = 4.33	No information available	N/A	Iran
36	Tokolahi et al. (2013)	This study assessed an intervention designed to help participants use developmentally appropriate occupations to participate in cognitive, behavioral, and functional skills to manage anxiety. Parents reported their children's anxiety to decrease. Clinician's rated children's functional performance to increase. Children perceived no change in anxiety level.	1-group pretest posttest; Level 3 [skill training]	34 children (ages 10–14 years) with anxiety	TC = 10.00 CPY = 1.42	No information available	0.897	New Zealand
37	Weaver (2016)	This study assessed the effect of a school-based yoga program on student anxiety and self-regulation; sensory responses and daily life function were also assessed. Ten students were randomized to the yoga group; 9 to a physical exercise group. Although no statistically significant results were observed, students in the yoga group reported decreased anxiety.	RCT; Level 1 [sensory-based]	19 student-parent dyads; students were 6th through 8th graders (mean age = 12; with anxiety	TC = 0 CPY = 0	No information available	2.053	United States
38	West et al. (2017)	This study investigated whether guided sensory room use could decrease anxiety for adolescents in inpatient psychiatric units. Although	2-group controlled study; Level 2 [sensory-based]	112 adolescents with anxiety (ages 12–18) residing in an inpatient psychiatric unit	TC = 6.00 CPY = 2.00	No information available	1.823	Australia

(continued)

Table 1. Continued.

Reference	Short Description	Article Type/Evidence Level/ Intervention Category	Participants	Total Citations (TC) and Citations Per Year (CPY)	View No.	Journal Impact Factor (for publication year)	Country of Origin
<ul style="list-style-type: none"> • Attachment disorder 	<p>seclusion rates 12 months pre- and post-sensory room introduction did not change, anxiety levels did decrease following sensory room use.</p>						
<ul style="list-style-type: none"> • Beetz et al. (2015) 	<p>Study compared equine-assisted intervention (EAI) to a conventional play-based therapy as early intervention approaches for mother-child dyads with insecure attachment. EAI sought to enhance maternal caregiving and security in the mother-child relationship. While both groups made gains, no statistically significant differences were found between groups at post-intervention.</p>	<p>RCT, Level 1 [attachment-based, play-based]</p>	<p>20 mother-child dyads (children aged 1-2 years) from a high-risk background, with attachment insecurities, and emotional dysregulation</p>	<p>TC = 3.00 CPY = 0.60</p>	<p>490</p>	<p>N/A</p>	<p>Germany and Sweden</p>
<ul style="list-style-type: none"> • Behavioral disorder, conduct disorder, emotional disturbance 							
<ul style="list-style-type: none"> • Agrin (1987) 	<p>The authors describe a program for children with emotional disturbance delivered in a self-contained classroom in public school system.</p> <p>The program provided a task oriented group through which a shared working environment could facilitate both (1) and awareness of the relationship between their feelings and behaviors, and their impact on others; and (2) social skills including cooperation, sharing, and self-regulation.</p>	<p>Narrative program description [behavioral]</p>	<p>8 boys (ages 9-10 years) with emotional disturbance who were placed in a self-contained classroom</p>	<p>TC = 11.00 CPY = 0.33</p>	<p>50</p>	<p>N/A</p>	<p>United States</p>
<ul style="list-style-type: none"> • Baron (1987) 	<p>Description of a newspaper group for adolescents with conduct disorder. Group focused on self-esteem, self-regulation,</p>	<p>Narrative description of intervention [behavioral and skill training]</p>	<p>Adolescents (ages 12-18 years) with conduct disorder residing in inpatient psychiatric unit</p>	<p>TC = 6.00 CPY = 0.18</p>	<p>105</p>	<p>N/A</p>	<p>United States</p>

42	Baron (1991)	confidence, time management, self-expression, and social interaction. The authors describe a play fair intervention for children with psychiatric diagnoses at an inpatient facility. The intervention promoted an understanding of appropriate child/adults roles and behaviors, development of social interaction skills with peers and adults, and enhanced self-regard and esteem.	Narrative description of intervention [play-based, behavioral]	Children residing in an inpatient psychiatric facility; emphasis on one 4-year old child with oppositional conduct disorder	TC = 10.00 CPY = 0.34	24	N/A	United States
43	Hardison and Llorens (1988)	The authors describe a craft group for adolescent females on probation for juvenile delinquent behaviors. The craft group provided opportunities to develop social skills, including cooperation, sharing, and self-regulation.	Narrative description of intervention with some outcome measures provided in a case study format [behavioral]	6 adolescent females (ages 16–18 years) who were on probation for juvenile delinquent behaviors and residing in group homes	TC = 5.00 CPY = 0.15	51	N/A	United States
44	Jensen et al. (2018)	Exposure to a therapy dog for 1 hr a day in a classroom for children with behavioral management disorders significantly increased both positive and negative behaviors.	1-group pretest posttest, Level 3; mixed methods [sensory-based, behavioral]	7 children in 2nd–5th grades with behavioral disorders, who attended part of each school day in a behavioral classroom; 6 staff members	TC = 0 TC = 0	No information available	1,952	United States
45	Lopez and Swinith (2008)	This study examined the effect of a proprioception-based group exercise program to reduce physically aggressive behaviors in children with sensory processing and behavioral disorders. Duration and number of aggressive acts decreased in some participants.	Single-subject A-B design, Level 4 [sensory-based]	3 boys (ages 9 years) with sensory processing disorders in a special education classroom for children with behavioral disorders	TC = 7.00 CPY = 0.58	405	N/A	United States
46	Mac Cobb et al. (2014)	The authors describe how the Alert Program was used with students with behavioral management disorders to help them gain insight and self-regulatory strategies. Teachers reported the program content and management strategies to be appropriate. Students reported that the program was enjoyable and beneficial.	Program evaluation with teacher and student surveys at post-intervention [sensory-based, behavioral]	85 students (ages 12–13 years) with behavioral management disorders, and 4 teachers in four schools in low socioeconomic areas	TC = 13.00 CPY = 2.16	1,120	N/A	Ireland

(continued)



Table 1. Continued.

Reference	Short Description	Article Type/Evidence Level/ Intervention Category	Participants	Total Citations (TC) and Citations Per Year (CPY)	View No.	Journal Impact Factor (for publication year)	Country of Origin
47 Mac Cobb et al. (2014).	The authors describe the collaboration between teachers and occupational therapists in an adapted version of the Alert Program for students with challenging behaviors. Program helped students learn self-management strategies for the classroom.	Narrative description of study with audit trail derived from teacher and therapist interview and documentation [behavioral, sensory-based]	85 children (ages 12–13 years) from four mainstream post-primary schools in low of socio-economic areas; children had social, emotional, and behavioral difficulties	TC = 10.00 CPY = 1.66	1,767	N/A	Ireland
48 Madsen and Conte (1980)	This study assessed the effect of an intervention designed to increase attention in adolescents with behavioral disorders through tactile, vestibular, and proprioceptive stimulation. Only one participant demonstrated improved focus on a mathematical task at post-intervention.	Multiple-baseline A-B design, Level 4 [sensory-based]	3 adolescents (ages 11–13 years) with behavior disorders in a specialized day program	TC = 5.00 CPY = 0.12	No information available	N/A	United States
49 McKibbin and King (1983)	The authors describe an activity group for boys with learning disabilities and behavioral problems. Intervention was occupation- and play-based. Outcomes included improved interaction with siblings, greater cooperative behavior, and increased impulse control and anger management.	Narrative description of intervention [behavioral, play-based]	Boys (ages 9–10 years) with learning disabilities and behavioral problems	TC = 4.00 CPY = 0.10	No information available	N/A	United States
50 Piergrossi (2009)	The author describes a psychodynamic occupational therapy intervention for emotionally disturbed children in which choice, emotions, and relationships, were emphasized. This study assessed a consultative and training program for teachers of children with behavioral disorders in Head Start. Children demonstrated statistically significant improvements in their ability to enact positive behaviors in the classroom.	Narrative description of intervention [psychodynamic, behavioral]	Children with emotional disturbance	TC = 0 CPY = 0	101	N/A	Italy
51 Reynolds (2008)	This study assessed a consultative and training program for teachers of children with behavioral disorders in Head Start. Children demonstrated statistically significant improvements in their ability to enact positive behaviors in the classroom.	1-group pretest posttest design, Level 3 [sensory-based, behavioral, skill training]	3 teachers and 5 children (ages 3–5 years) who displayed behavioral disorders in Head Start classrooms	TC = 3.00 CPY = 0.25	207	N/A	United States

52	Schultz (1992)	The author describes occupational activity grouping as an alternative curriculum for students with serious behavioral disorders who are unable to attend mainstreamed educational classes. The program involves enhancing student self-competency, independent problem solving, cooperation, and adaptive responses to challenges.	Narrative description of [behavioral, psychoeducation]	School age children and adolescents who are identified as seriously emotionally disturbed	TC = 9.00 CPY = 0.32	88	N/A	United States
53	Wade (1985)	The author describes an inpatient program for adolescents with severe emotional and behavioral disturbances based on a community approach and involvement in task groups, individual goal setting, and promoting self-awareness and accountability.	Narrative program description [behavioral, cognitive]	Adolescents (ages 13–17 years) with emotional and behavioral disturbances residing in an inpatient psychiatric facility	TC = 0 CPY = 0	17	N/A	United States
Depression								
54	Brollier et al. (1995)	This study assessed the effect of an aerobic program (consisting of brisk walking and running) to decrease depression in adolescents with major depression. Depression was measured at 5 time points throughout the study and decreased continuously.	1-group pretest posttest, Level 3 [sensorimotor]	4 male adolescents (ages 12–18 years) from a private psychiatric hospital with a primary diagnosis of major depression	TC = 11.00 CPY = 0.44	200	N/A	United States
Developmental delay								
55	George et al. (1982)	Individual and group developmental therapy, and play therapy were used to address the developmental delays of children in an early intervention program. The intervention group received developmental therapy and their regular classroom experience. The control received only classroom experience. Intervention obtained statistically higher scores at both pre- and posttest compared to control.	2 group controlled trial, Level 2 [play-based]	58 children (ages 3–6 years) from low socioeconomic areas and who had developmental delays	TC = 19.00 CPY = 0.50	No information available	N/A	United States

(continued)

Table 1. Continued.

Reference	Short Description	Article Type/Evidence Level/ Intervention Category	Participants	Total Citations (TC) and Citations Per Year (CPY)	View No.	Journal Impact Factor (for publication year)	Country of Origin
56	Sheppard et al. (2013) This study assessed a school readiness program for preschoolers with developmental delays. At program end, children displayed increased social behavior, decreased behavioral disruption, increased functional task skills, and improved language skills.	1-group pretest posttest, Level 3 [behavioral, skill training]	17 children (ages 4–6 years) with developmental disabilities, their parents, and preschool teachers	TC = 3.00 CPY = 0.42	457	N/A	Australia
Eating disorder							
57	Kloczko and Ikiugu (2006) Three occupational therapists with expertise in the treatment of adolescents with eating disorders were interviewed about the profession's role in this practice area. Findings included that therapists viewed themselves as part of an interdisciplinary team, needed to address co-morbid problems associated with eating disorders, and teaching strategies to manage illness.	Qualitative study with phenomenological design [behavioral, skill training]	3 occupational therapists with expertise in the treatment of adolescents with eating disorders	TC = 19.00 CPY = 1.35	4,683	N/A	United States
Fetal alcohol syndrome							
58	Bergstrom et al. (2019) This qualitative study collected information from seven practitioners regarding their use of Snoezelen rooms with children with fetal alcohol syndrome. Therapists reported the following uses: promotion of self-regulation skills, supporting child self-awareness, and encouraging positive parent-child interactions and parent education.	Qualitative interviews with grounded theory analysis [sensory-based]	7 occupational therapists who treat children with fetal alcohol syndrome	TC = 0 CPY = 0	256	N/A	Canada
59	Keightley et al. (2018) This study assessed a theater-based intervention for adolescents with fetal alcohol syndrome and social participation difficulties. A focus group held 2-weeks post-	1-group assessment of intervention through qualitative focus group [expressive-based, play-based]	3 adolescents (ages 9–14) with fetal alcohol syndrome and social participation difficulties	TC = 2.00 CPY = 1.00	No information available	1.098	Canada

60	Wagner et al. (2017)	<p>intervention revealed that participants reported increased self-esteem, social communication skills, and emotional awareness. The authors describe the development and piloting of an adapted version of the Alert Program for aboriginal children with self-regulations difficulties.</p>	<p>1-group pretest posttest; mixed methods: Phase 1 involved participatory action research with stakeholders; Phase 2 involved both unstructured interviews with occupational therapists and a focus group with teachers; Phase 3 involved a pilot test to assess program feasibility. [sensory-based, psychoeducation, skill training]</p>	<p>27 aboriginal children (ages 6–12 years) attending school in remote communities with self-regulation problems. Some children had fetal alcohol spectrum disorder impairing their ability to self-regulate.</p>	<p>TC = 6.00 CPY = 2.00</p>	<p>No information available</p>	1,823	Australia	
Food aversion									
61	Caldwell et al. (2018)	<p>This study assessed the feasibility of an intervention in which parents of young children with food aversions were trained to use routines and play during mealtime. Parent training demonstrated that mealtime routines could be altered to promote greater food acceptance.</p>	<p>1-group pretest posttest, Level 3 [behavioral and skill training]</p>	<p>11 children (ages 18–36 months) with sensory food aversions and their parents</p>	<p>TC = 3.00 CPY = 1.50</p>	<p>No information available</p>	1,952	United States	
• Grief issues									
62	Milliken et al. (2007)	<p>School-based occupational therapists in Ohio were surveyed to determine how many children with grief issues were on caseloads, and what types of interventions were used to address grief issues. Results suggest that both a large number of students have grief issues and that therapists feel limited in their ability to address such issues due to lack of knowledge, time, and appropriate reimbursement systems.</p>	<p>Survey design [expressive therapy]</p>	<p>56 school-based occupational therapists practicing in Ohio with caseloads of children experiencing grief</p>	<p>TC = 12.00 CPY = 0.92</p>	1,012	N/A	United States	

(continued)

Table 1. Continued.

Reference	Short Description	Article Type/Evidence Level/Intervention Category	Participants	Total Citations (TC) and Citations Per Year (CPY)	View No.	Journal Impact Factor (for publication year)	Country of Origin
<ul style="list-style-type: none"> Mental health issues secondary to obesity Bazyk and Winne (2013)	The authors describe a multi-tiered approach to obesity in children that addresses mental health promotion, prevention, and individualized intervention.	Narrative description of intervention [psychoeducation, skill training]	Children with obesity and mental health issues	TC = 8.00 CPY = 1.14	2,412	N/A	United States
Multiple diagnoses addressed Bobler et al. (2015)	The authors describe the development and use of a sensory modulation room in an inpatient psychiatric facility for children and adolescents. Chart review revealed a reduction in the use of seclusion and restraint, and increased patient energy and arousal.	Program Evaluation [sensory-based]	Adolescents (ages 14–18 years) residing in an inpatient psychiatric unit; diagnoses included depression, bipolar disorder, anxiety, post-traumatic stress disorder, and adjustment disorder	TC = 8.00 CPY = 1.60	2,030	N/A	New Zealand
Knis-Matthews et al. (2005)	Description of an occupational therapy program for inpatient adolescents with psychiatric diagnoses. Services included community trips, group discussions, and individualized meetings.	Narrative program description [behavioral, skill training]	Adolescents (ages 11–17 years) with psychiatric diagnoses (e.g., depression, bipolar disorder) residing in an inpatient psychiatric facility	TC = 7.00 CPY = 0.46	798	N/A	United States
Precin et al. (2010)	The authors describe the role of occupational therapy in assessing and providing intervention to children in foster care.	Narrative description of intervention [behavioral, skill training]	Children and adolescents in foster care with a range of mental health concerns including attachment disorders, behavioral problems, conduct disorder, oppositional defiant disorder, depression, anxiety, ADHD, and bipolar disorder	TC = 6.00 CPY = 0.60	2,584	N/A	United States
Regev and Reiter (2011)	This study assessed the effects of combined occupational, speech, and art therapy to improve students' self-image, decrease classroom adaptive behavioral incidents, and enhance classroom function. Self-image and adaptive behavior scores significantly increased.	1-group pretest posttest, Level 3 [behavioral, skill training, expressive therapy]	50 elementary school special education students in five booster classes (ages 6–12 years) with a variety of conditions including developmental delays, emotional disturbance, mild intellectual disability, cerebral palsy, and sensory processing disorder	TC = 3.00 CPY = 0.33	No information available	N/A	Israel

67	Ryan et al. (2017)	The authors describe a multidisciplinary intervention to address the psychiatric concerns of young children who experienced trauma. Intervention included combined play therapy, relationship building, self-regulation, and caregiver involvement.	Narrative description of intervention [sensory-based, play-based]	Children who experienced trauma and may have resultant anxiety, depression, behavioral disorder, or poor self-regulation	TC = 24.00 CPY = 8.00	No information available	N/A	United States
Obsessive compulsive disorder								
69	Söchting and Third (2011)	This study assessed a group intervention for adolescents with OCD aimed at controlling obsessions through modification of behaviors and thoughts, and exposure to targeted items. 5 of 7 participants demonstrated statistically significant improvements at posttest and 12-month follow-up.	1-group pretest posttest design, Level 3 [cognitive, behavioral, exposure therapy]	7 adolescents (ages 14–17 years) with OCD in outpatient treatment	TC = 9.00 CPY = 1.00	No information available	0.440	Canada
• Substance use								
70	Gangl (1987)	The authors describe a program evaluation for chemically dependent and emotionally disturbed adolescents. Occupational therapy groups included work skill development, and/or relationship skills. Those who attended both both groups and who completed their occupational therapy goals demonstrated the greatest behavioral change.	Program evaluation comparing the outcomes of residents who received occupational therapy to those who did not [behavioral, skill training]	33 adolescents (ages 13–17 years) residing in an inpatient psychiatric unit and who have alcohol/drug abuse and related emotional problems (e.g., familial and socio-psychological dysfunction)	TC = 9.00 CPY = 0.27	49	N/A	United States
• Suicidal ideation								
71	Doll and Brady (2013)	This study assessed a culturally appropriate, sensory-based program to enhance positive feelings in children and adolescents identified as suicidal. At intervention-end, a majority of students reported feeling that their mood had been uplifted.	1-group pretest posttest, Level 3 [sensory-based]	Children and adolescents (ages 5–18 years) at risk for suicide, attending two public schools on a reservation	TC = 3.00 CPY = 0.42	1,588	N/A	United States
Trauma								
72	Davis (1999)	The author describes intervention approaches for children who	Narrative description of intervention	Children exposed to trauma and at risk for developing	TC = 12.00 CPY = 0.57	No information available	N/A	United States

(continued)



Table 1. Continued.

Reference	Short Description	Article Type/Evidence Level/ Intervention Category	Participants	Total Citations (TC) and Citations Per Year (CPY)	View No.	Journal Impact Factor (for publication year)	Country of Origin
73	<p>Fraser et al. (2019)</p> <p>have been exposed to trauma and display emotional disturbance. Intervention is based on expressive therapy, stress management, and cognitive behavioral therapy. This study reports the results from a master's thesis consisting of a scoping review and qualitative study examining occupational therapists' role with children having complex trauma. Themes included the need to use a variety of assessments to target function, the importance of caregiver involvement, and the need to use sensory-based interventions to address bottom-up foundational skills.</p>	<p>[behavioral, expressive therapy]</p> <p>Qualitative study in which 9 experienced occupational therapists were interviewed about their role in practice with children and adolescents with complex trauma. [sensory-based]</p>	<p>post-traumatic stress disorder</p> <p>9 occupational therapists with experience in the treatment of children and adolescents with complex trauma</p>	<p>TC = 0 CPY = 0</p> <p>824</p>	N/A	N/A	Canada
74	<p>Whiting (2018)</p> <p>The authors describe occupational therapy interventions for children in the public school system who have experienced trauma. Intervention includes using sensory-based approaches to adapt environments, tasks, and routines; providing consultation and participating on a multidisciplinary school team; and delivering direct care services that support classroom activities.</p>	<p>Narrative description of intervention [sensory-based, skill training]</p>	<p>Children in public schools who have experienced trauma</p>	<p>TC = 5.00 CPY = 2.50</p> <p>1,808</p>	N/A	N/A	United States
75	<p>Rowe et al. (2013)</p> <p>This study assessed the efficacy of an intervention designed to reduce tic severity and improve functional behavior in children with tic disorder. The program addressed habit reversal, relaxation training, and functionally-based approaches to environmental and social stressors. Number of tic behaviors and severity, and anxiety significantly improved.</p>	<p>1-group pretest posttest, Level 3 [behavioral]</p>	<p>30 children (ages 7–19 years) with tic disorder</p>	<p>TC = 19.00 CPY = 2.71</p> <p>No information available</p>	1,552	1,552	United States

76	Soler et al. (2019)	This study assessed an adapted version of the Alert Program to decrease tic behaviors in children with tic disorders. The sensorimotor-based approach decreased tic severity in children.	1-group pretest posttest, Level 3 [sensory-based]	10 children and adolescents (ages 7–16 years) with tic disorders	TC = 3.00 CPY = 3.00	No information available	N/A	Australia
Unspecified psychiatric disorder								
77	Melia and Weikert (1987)	The authors describe interventions for adolescents with psychiatric disorders that have the aim of developing self-awareness, social behaviors, and self-regulation strategies.	Narrative description of intervention [behavioral]	Adolescents (ages 13–18) residing in inpatient psychiatric facilities (diagnosis not specified)	TC = 2.00 CPY = 0.06	45	N/A	United States
78	Nelson and Condrin (1987)	The authors describe a vocational readiness and independent living skills training program for adolescents in an inpatient psychiatric unit. Program emphasized work behaviors and life skills needed to succeed in adult roles.	Narrative description of intervention [behavioral, skill training]	Adolescents (ages 12–18 years) with severe psychiatric impairment and residing in an inpatient facility (diagnosis not specified)	TC = 5.00 CPY = 0.15	79	N/A	United States
79	Olson (2006)	Description of a parent-child activity group for children residing in an inpatient psychiatric facility. Group was an arts and crafts, occupation-based program.	Narrative description of intervention [behavioral]	Children with psychiatric disorders residing in inpatient care (specific diagnoses not provided)	TC = 0 CPY = 0	94	N/A	United States
80	Olson et al. (1989)	The authors describe a parent-child activity group in a community outreach program for preschool children at risk for developing psychiatric disorders.	Narrative description of intervention [behavioral, skill training, play-based]	Children (ages unspecified) at risk for developing psychiatric disorders and their parents (diagnosis not specified)	TC = 3.00 CPY = 0.09	14	N/A	United States
81	Warner et al. (2013)	The authors describe the use of sensory diets, sensory rooms, and direct and consultative occupational therapy in the treatment of adolescents with psychiatric diagnoses who have difficulty with anger management and self-regulatory disorders.	Narrative description of intervention [sensory-based]	Adolescents (ages 13–19 years) residing in inpatient psychiatric facilities (diagnosis not specified)	TC = 57.00 CPY = 8.14	2,624	0.657	United States
82	Williams and Metz (2014)	Photovoice was used to allow 5 at-risk adolescent males to express their perceptions about participation in an animal rescue training program. Themes included developing patience, bonding with their dog, desiring to make better choices, and helping others.	Qualitative interview and focus groups [skill training, attachment-based]	5 adolescents (ages 15–17 years) in inpatient residential care described as at-risk (diagnosis not specified)	TC = 6.00 CPY = 1.00	789	N/A	United States

with less empirical rigor and confidence in intervention effectiveness. Roughly 7% ($n = 6$, 7.31%) produced Level 4 evidence with low empirical rigor and confidence in intervention effectiveness. More than a third ($n = 35$, 42.68%) of this body of literature were article types that produced little or no evidence demonstrating support for the effectiveness of occupational therapy interventions with children and adolescents having mental health conditions (i.e., narrative intervention description, qualitative exploratory, program evaluation, and survey) (see [Table 1](#)).

Fifty-four empirical studies reported sample sizes that collectively ranged from 2 to 112 participants ($M = 28.28$, $SD = 29.53$). The majority ($n = 37$, 68.51%) of these studies possessed sample sizes of under 30 participants; 16 (29.62%) studies reported 30 or more participants. Ten (18.51%) of the 16 studies with samples over 30 had 50 or more participants. Studies having fewer than 30 participants are often too small to avoid type 2 statistical errors and cannot be generalized to the larger clinical population for which the study sample was intended to represent (Portney & Watkins, 2015), thus weakening confidence in intervention results (see [Table 1](#)).

Intervention categories and mental health conditions

Although all interventions described in the 82 articles were occupation-based, many also used other therapeutic approaches and modalities, often simultaneously or in tandem. [Table 2](#) shows the range and frequency of use of intervention categories. Eleven different intervention approaches were described in the 82 articles: more than half ($n = 46$ (56.09%)) of the articles used behavioral approaches, approximately one-third ($n = 28$ (34.14%)) used sensory-based approaches, and another third ($n = 25$, 30.48%) used skill training (note that percentages exceed 100% because most articles reported that multiple intervention approaches were used in combination). Behavioral approaches shaped normative behaviors through the use of occupation and social interaction with therapists, parents/teachers, and peers. Sensory-based approaches used equipment and techniques to regulate a child's or adolescent's emotional state and activity level, and included therapy balls, weighted vests, sensory diets, Snoezelen rooms, and vestibular and rotational stimulation. Skill training used the direct instruction of specific competencies along with opportunities for practice of desired occupations, and included social skill, life skill, vocational skill, and food acceptance programs.

Twenty-eight clinical conditions were addressed in the 82 articles; 47 (57.31%) articles reported an intervention for children and/or adolescents designed to target one specific clinical diagnosis; 35 (42.68%) articles described intervention intended for use with variable mental health

diagnoses. The most frequently addressed diagnosis was ADHD ($n = 27$ articles, 32.92%), followed by behavioral disorder ($n = 11$, 13.41%), emotional disturbance ($n = 9$, 10.97%), anxiety ($n = 8$, 9.75%), and learning disability ($n = 8$, 9.75%). Depression ($n = 5$, 6.09%), bipolar disorder ($n = 3$, 3.65%), substance use ($n = 1$, 1.21%), and suicidal ideation ($n = 1$, 1.21%) were addressed in comparatively fewer articles (see [Table 3](#)).

More than two-thirds ($n = 55$, 67.07%) of the 82 articles addressed interventions for children with mental health concerns, while only a quarter ($n = 21$, 25.60%) addressed adolescents. Six (7.31%) articles described interventions designed for both children and adolescents.

Article citations and views, journals, and impact factor scores

The 82 articles collectively accrued a cumulative TC count of 1838 (range = 0–214, $M = 22.41$, $SD = 40.70$) and a cumulative CPY of 195.65 (range = 0–12.77, $M = 2.38$, $SD = 3.10$) over a 40-year period (1980–2019). As a group, the 82 articles were published in 25 journals (see [Table 4](#)), including 13 (52%) occupational therapy-specific and 12 (48%) interdisciplinary journals. The majority of the 82 articles were published in three journals: *American Journal of Occupational Therapy* (AJOT, $n = 21$, 25.60%), *OTMH* ($n = 18$, 21.95%), and *JOTSEI* ($n = 9$, 9.75%).

The majority of the 82 articles were published during the period of 2001–2019 ($n = 64$, 78.04%). Of the 54 (65.85%) empirical studies in which quantitative or qualitative analysis was used, 38 (70.37%) were published after 2010 when the profession began to increase efforts to generate evidence for occupational therapy intervention effectiveness (Gutman, 2009a). The majority of narrative intervention descriptions ($n = 20$, 80%) were published before 2011, when the profession had fewer researchers able to conduct empirical research, and evidence-based practice had not yet been prioritized.

Only nine of the 82 (10.97%) articles were published in journals having the highest impact factors (IF) of all 25 journals: *PLOS ONE* (IF = 2.806 in 2016, 1 article), *AJOT* (IFs of 1.806, 2.053, 2.493, and 1.952 during the years of 2015–2018, respectively; 5 articles), and the *Australian Occupational Therapy Journal* (AOTJ, IF = 1.823 in 2018, 3 articles). Although articles published in journals with higher IFs tend to accrue higher citations (Brown & Gutman, 2019a), none of these nine articles were identified as the highest cited of all 82 articles, as described below.

Although article views were attempted to be obtained, only 8 journals were housed on websites that provided this information, accounting for less than half ($n = 36$, 43.90%) of the 82 articles: *OTMH* ($n = 18$, 21.95%), *JOTSEI* ($n = 8$, 9.75%), *Occupational Therapy in Health Care* ($n = 4$,

Table 2. Intervention Categories Addressed in the 82 Articles.

Clinical Category (N = 11)	Number and Percentage of Articles
Behavioral	46 (56.09%)
Sensory-based	28 (34.14%)
Skill training	25 (30.48%)
Play-based	14 (17.07%)
Cognitive	13 (15.85%)
Psychoeducation	6 (7.31%)
Expressive therapy	4 (4.87%)
Attachment-based	3 (3.65%)
Psychodynamic	1 (1.21%)
Exposure therapy	1 (1.21%)
Sensorimotor	1 (1.21%)

Note: Percentages do not add up to 100% because most articles used multiple intervention approaches.

4.87%), *Physical and Occupational Therapy in Pediatrics* ($n=2$, 2.43%), *World Federation of Occupational Therapists Bulletin* ($n=1$, 1.21%), *Emotional and Behavioral Difficulties* ($n=1$, 1.21%), *Journal of Bodywork and Movement Therapies* ($n=1$, 1.21%), and *Journal of Family Violence (JFV)* ($n=1$, 1.21%). As such, we were unable to fully collect and analyze data regarding article view counts.

Most highly cited articles

Eleven of the 82 articles were identified as highly cited and each accrued a TC of at least 40.00 and a CPY of 5.00 or greater (see Table 5). Collectively, this group of 11 highly cited articles accrued a TC of 1161 (range = 41–214, $M=105.54$, $SD=63.51$) and a CPY of 96.45 (range = 5.06–12.77, $M=8.76$, $SD=2.67$), accounting for almost two-thirds (63.16%) of all 1838 citations accrued by the entire group of 82 articles.

Nine (81.81%) of the 11 highly cited articles described intervention for children with ADHD and attentional problems. One (9.09%) article addressed children with learning disabilities and one (9.09%) article described intervention for adolescents with psychiatric conditions. More than half ($n=7$, 63.63%) of the 11 highly cited articles addressed sensory-based interventions. More than two-thirds ($n=8$, 72.72%) of these highest cited articles were published in occupational therapy-specific journals, including *AJOT* ($n=6$, 54.54%), *AOTJ* ($n=1$, 9.09%), and *JOTSEI* ($n=1$, 9.09%). Three (27.27%) articles were published in interdisciplinary journals: *Developmental Medicine and Child Neurology (DMCN)*, ($n=1$, 9.09%), *PLOS ONE* ($n=1$, 9.09%), and *JFV*, ($n=1$, 9.09%).

Country of origin

The 82 articles were generated by researchers and scholars from 14 countries. Over 80% of this body of literature originated from the United States

Table 3. Clinical Conditions Addressed in the 82 Articles.

Clinical Condition	Number and Percentage of Articles
ADHD	27 (32.92%)
Behavioral disorder	11 (13.41%)
Emotional disturbance	9 (10.97%)
Anxiety	8 (9.75%)
Learning disability	8 (9.75%)
Poor self-regulation	6 (7.31%)
Depression	5 (6.09%)
Developmental delays	3 (3.65%)
Bipolar disorder	3 (3.65%)
Fetal alcohol syndrome	3 (3.65%)
Intellectual disability	3 (3.65%)
Physical Abuse	3 (3.65%)
Poor social skills	3 (3.65%)
Trauma	3 (3.65%)
Attachment disorder	2 (2.43%)
PTSD	2 (2.43%)
Sensory processing disorder	2 (2.43%)
Tic Disorder	2 (2.43%)
Attentional problems	1 (1.21%)
Eating disorder	1 (1.21%)
Grief issues	1 (1.21%)
Mental health issues secondary to obesity	1 (1.21%)
Food Aversion	1 (1.21%)
Cerebral palsy	1 (1.21%)
Substance use	1 (1.21%)
Suicidal ideation	1 (1.21%)
Obsessive compulsive disorder	1 (1.21%)
Developmental coordination disorder	1 (1.21%)

Note: Percentages do not total 100% because ~58% of articles addressed multiple diagnoses.

($n = 42$, 51.21%), Australia ($n = 11$, 13.41%), Israel ($n = 9$, 10.97%), and Canada ($n = 5$, 6.09%). When the 82 articles were broken down into categories of empirical research and narrative intervention description, more than half of Level 1 and 2 (Arbesman & Logsdon, 2011) research studies ($n = 20$) were produced by Israel ($n = 5$, 25%), the United States ($n = 5$, 25%), and Australia ($n = 3$, 15%). The United States also produced 84% of all narrative intervention description articles ($n = 25$) (see Table 6).

Discussion

Over a 40-year period from 1980 to 2019, only 82 articles addressing occupational therapy interventions for children and adolescents with mental health disorders were globally generated by the profession. As a group, the 82 articles forming this body of literature were largely narrative intervention descriptions and Level 3 or lower research studies with small sample sizes of 30 or fewer participants. Collectively, this group of articles produced a limited amount of high quality research evidence supporting the effectiveness of occupational therapy interventions for the targeted

Table 4. Journals in Which the 82 Articles Were Published.

Journal (N = 25)	Number and Percentage of Articles
American Journal of Occupational Therapy	21 (25.60%)
Occupational Therapy in Mental Health	18 (21.95%)
Journal of Occupational Therapy, Schools, & Early Intervention	8 (9.75%)
Australian Occupational Therapy Journal	6 (7.31%)
British Journal of Occupational Therapy	4 (4.87%)
Occupational Therapy in Health Care	4 (4.87%)
Indian Journal of Occupational Therapy	2 (2.43%)
Physical & Occupational Therapy in Pediatrics	2 (2.43%)
Asia-Pacific Journal of Oncology Nursing	1 (1.21%)
Australasian Psychiatry	1 (1.21%)
Canadian Journal of Occupational Therapy	1 (1.21%)
Developmental Medicine and Child Neurology	1 (1.21%)
Emotional and Behavioral Difficulties	1 (1.21%)
Hong Kong Journal of Occupational Therapy	1 (1.21%)
International Journal of Adolescent Medicine and Health	1 (1.21%)
International Journal of Group Psychotherapy	1 (1.21%)
International Journal of Play Therapy	1 (1.21%)
Journal of Bodywork and Movement Therapies	1 (1.21%)
Journal of Family Violence	1 (1.21%)
Occupational Therapy International	1 (1.21%)
PLOS ONE	1 (1.21%)
Psychiatric Services	1 (1.21%)
South African Journal of Occupational Therapy	1 (1.21%)
Work	1 (1.21%)
World Federation of Occupational Therapists Bulletin	1 (1.21%)

population. It is noteworthy, however, that over half of the articles were empirical research studies, the majority of which were published after 2010 when the profession began to prioritize intervention effectiveness studies (Gutman, 2009a).

The most frequently addressed clinical diagnosis, forming at least a third of the literature, was children with ADHD. No other psychiatric condition was addressed nearly as frequently; diagnoses such as depression, anxiety, bipolar disorder, substance use, and suicidal ideation—some of the most frequently occurring child and adolescent psychiatric conditions in the US (Centers for Disease Control & Prevention, 2020; Child Mind Institute, 2015)—were addressed 3 times less in comparison. Moreover, the majority of the 82 articles addressed children; only a quarter addressed adolescents with a mental health concern. Although reasons accounting for these findings are unclear, they may in part be attributed to the large number of children in the US school system who have ADHD diagnoses and who are mandated to receive occupational therapy services (Nyarko et al., 2017). Other contributing factors may be the continued closing of psychiatric facilities in the US since the 1970s (Lamb & Weinberger, 2020), and the country's disparity between mental and physical health care service provision (Haffajee et al., 2019).

It is also interesting to note that while half of the articles used behavioral approaches, over a third used sensory-based approaches—including therapy balls, interactive metronomes, disk ‘o’sit cushions, weighted vests, vestibular and rotational stimulation, sensory rooms, Snoezelen rooms, and sensory diets. Although sensory-based approaches are commonly used by occupational therapists—particularly for children with ADHD and sensory regulation disorders—such approaches may not be as readily understood by people outside of the profession (e.g., legislators, policy-makers, school administrators, parents, counselors, and teachers) compared to traditional behavioral approaches, play-based therapy, and skill training (Heilbroner, 2005; Koziol et al., 2011), contributing to the confusion about the role of occupational therapy in child and adolescent mental health services.

As a set, the 82 articles were not heavily cited, producing only 1838 collective citations over 40 years. Two thirds of these citations were accrued by only 11 highly cited papers that, by themselves, received 1161 citations. Eighty-two percent of these 11 highly cited articles addressed children with ADHD and roughly 64% used the sensory-based interventions described above. These data indicate that of the entire body of literature addressing occupational therapy interventions for children and adolescents with mental health disorders, only 13.41% was highly cited and presumably well-read. Although articles that are highly-cited are characteristically well-read, it is unclear whether such articles are accessed by lay people, who may use this literature to make decisions about occupational therapist recruitment and employment.

In an attempt to better understand whether articles may be accessed by key stakeholders (e.g., legislators, policy-makers, school administrators, parents, counselors, and teachers), we sought to collect data regarding article views. While citation count provides information about the use of literature by other scholars and researchers, article views may provide information about article access by people other than scholars (Schloegl & Gorraiz, 2010). Because article views, however, could not be obtained for more than half of the 82 papers, we were unable to analyze these data.

Another indicator of article access, however, may be determined by the journal in which an article is published. Journals with higher IFs are usually more highly accessed (Brown, 2011). Such journals are often open access (i.e., freely available to anyone with an internet connection) or are indexed in a larger number of databases and thus, more readily accessible. Nine of the 11 highly cited articles were published in *AJOT*, *DMCN*, *JFV*, and *PLOS ONE*. These journals have relatively high IFs, are open access or provide options for open and free access of articles, and are indexed in multiple databases (e.g., *DMCN* and *JFV* are indexed in 46–49 databases).

Table 5. Most Highly Cited Papers with both Total Citations (TC, 40.00+) and Citations Per Year (CPY, 5.00+).

Reference	Short Description	Article Type/Evidence Level/ Intervention Category	Participants	Total Citations (TC) and Citations Per Year (CPY)	Journal Impact Factor (in publication year)	Country of Origin
1 Case-Smith et al. (2010)	This study assessed children's perceptions of an 8-week school yoga program designed to reduce stress and improve classroom behaviors. Students reported that the program helped them (a) have higher concentration, (b) provided strategies to regulate their behaviors in response to stressful situations, and (c) helped them to feel more positively about themselves.	5 qualitative focus groups with 4–5 children were held 2 weeks post-intervention [sensory-based]	21 3rd graders (mean age = 7.4 years) at risk for learning disabilities in a low-income neighborhood	TC = 55.00 CPY = 5.50	N/A	United States
2 Fedewa and Erwin (2011)	This study assessed the effect of stability balls on on-task and in-seat behavior with school children with ADHD. Children demonstrated increased attention, decreased hyperactivity, and increased on-task and in-seat behaviors.	Single-subject A-B continuous time-series design [sensory-based]	8 children (ages 9–10 years) with ADHD in a school setting	TC = 115.00 CPY = 12.77	1.697	United States
3 Gol and Janus (2005)	9 children with ADHD were randomly selected to participate in a social skills training group. The 9 children with ADHD were compared to 10 children without ADHD who were randomly selected as a comparison group but who did not participate in the social skills intervention. At post-intervention the children with ADHD who received intervention performed better than the children without ADHD at tasks requiring attention and focus.	RCT, Level 1 [behavioral, cognitive]	19 children (ages 5–6 years), 9 with ADHD and 10 without	TC = 76.00 CPY = 5.06	1.790	Israel
4 Hahn-Markowitz et al. (2011)	Intervention was tailored to the executive dysfunction of ADHD and addressed cognitive strategies for occupational performance. Gains in social and behavioral skills were observed at posttest.	1-group pretest posttest with follow-up, Level 3 [behavioral, cognitive]	14 children (ages 7–8 years) with ADHD and their parents	TC = 53.00 CPY = 5.88	1.697	Israel
5 Pfeiffer et al. (2008)	This study assessed the effect of Disk 'O' Sit cushions used throughout the school day to increase attention in 2nd	RCT, Level 1 [sensory-based]	61 second grade students (ages 7–9 years) with attention difficulties	TC = 100.00 CPY = 8.33	0.921	United States

6	Schilling et al. (2003)	<p>grades with attentional difficulties. The intervention group demonstrated a statistically significant improvement in attention compared to the control group at post-intervention.</p> <p>Therapy balls as seating were used to enhance in-seat behavior and legible word productivity of students with attention deficit hyperactivity disorder. Both in-seat behavior and legible word productivity increased when children were seated on therapy balls.</p>	<p>single subject A-B-A-B interrupted time series design across 3 students, Level 4 [sensory-based]</p>	<p>3 students (ages 9 years) with ADHD</p>	<p>TC = 214.00 CPY = 12.58</p>	0.610	United States
7	Shaffer et al. (2001)	<p>This study measured the effects of Interactive Metronome on selected motor and cognitive skills in children with ADHD. The interactive metronome group demonstrated significant improvements in attention, motor control, language processing, reading ability, and regulation of aggressive behaviors compared to the other two groups.</p>	<p>RCT with 3 matched groups: (1) interactive metronome, (2) video treatment, and (3) no treatment. Level 1 [sensory-based]</p>	<p>56 boys (ages 6–12 years) with ADHD</p>	<p>TC = 210.00 CPY = 11.05</p>	0.674	United States
8	VandenBerg (2001)	<p>Weighted vests were used to increase on-task behavior in children with ADHD and attentional difficulties. On-task behavior increased by 18–25% while children wore the weighted vests.</p>	<p>Single subject A-B design; Level 4 [sensory-based]</p>	<p>4 students (ages 5–6 years) with ADHD and attentional difficulties</p>	<p>TC = 167.00 CPY = 8.78</p>	0.674	United States
9	Wilkes et al. (2011)	<p>Intervention addressed play; therapist modeling; and therapist, peer, and self-modeling to improve play and social skills within the natural context of play. Children made positive gains in social play skills supporting the use of play, video modeling, therapist- and peer-modeling, and parent involvement.</p>	<p>1-group pretest posttest, Level 3 [behavioral, play-based]</p>	<p>14 children (5–11 years) with ADHD and age-matched typically developing playmates; parents of children with ADHD</p>	<p>TC = 73.00 CPY = 8.11</p>	0.677	Australia
10	Wamer et al. (2013)	<p>The authors describe the use of sensory diets, sensory rooms, and direct and consultative</p>	<p>Narrative description of intervention [sensory-based]</p>	<p>Adolescents (ages 13–19 years) residing in inpatient psychiatric facilities</p>	<p>TC = 57.00 CPY = 8.14</p>	0.657	United States

(continued)

Table 5. Continued.

Reference	Short Description	Article Type/Evidence Level/ Intervention Category	Participants	Total Citations (TC) and Citations Per Year (CPY)	Journal Impact Factor (in publication year)	Country of Origin
11 Wilkes-Gillan et al. (2016)	<p>occupational therapy in the treatment of adolescents with psychiatric diagnoses who have difficulty with anger management and self-regulatory disorders.</p> <p>This study assessed an intervention designed to increase the social play skills of children with ADHD. Children in the intervention group demonstrated statistically significant improvement in social play skills compared to waitlist controls. When waitlist controls received intervention and all participants were compared pre- to post-intervention, all showed a statistically significant gain in social play skills.</p>	RCT with 2-group parallel trial design, Level 1 [play-based, skill training]	29 children (ages 5–11 years) with ADHD	TC = 41.00 CPY = 10.25	2.806	Australia

Table 6. Breakdown of 82 Articles by Country of Origin.

Country Representation	Number (<i>N</i> = 82) and Percentage of Articles
United States	42 (51.21%)
Australia	11 (13.41%)
Israel	9 (10.97%)
Canada	5 (6.09%)
China	2 (2.43%)
India	2 (2.43%)
Iran	2 (2.43%)
Ireland	2 (2.43%)
New Zealand	2 (2.43%)
South Africa	2 (2.43%)
Germany and Sweden	1 (1.21%)
Italy	1 (1.21%)
United Kingdom	1 (1.21%)

Empirical Research Studies (Level 1 and 2) Broken Down by Country Origin	
Country Representation	Number (<i>N</i> = 20) and Percentage of Articles
Israel	5 (25%)
United States	5 (25%)
Australia	3 (15%)
China	2 (10%)
India	2 (10%)
Germany and Sweden	1 (5%)
Iran	1 (5%)
South Africa	1 (5%)

Narrative Intervention Descriptive Articles Broken Down by Country Origin	
Country Representation	Number (<i>N</i> = 25) and Percentage of Articles
United States	21 (84%)
Canada	1 (4%)
Ireland	1 (4%)
Italy	1 (4%)
South Africa	1 (4%)

In contrast, *OTMH* and *JOTSEI*—where one third of the 82 articles were published—are indexed in fewer databases (i.e., 4–7) and, although they provide open-access options for a cost, do not otherwise provide open and free access of articles. As a result, the profession’s literature about occupational therapy interventions for children and adolescents with mental health disorders may not be readily accessible to the broad array of stakeholders needing to understand the profession’s role in this practice area.

Of note is the US’ large contribution to this body of literature, despite American occupational therapists’ reduced service provision in mental health practice over the last 5 decades (American Occupational Therapy Association, 2015; Paul, 1996). Of the 82 papers, approximately half were produced by American authors—far exceeding all other 13 countries represented by this body of literature. In all article types including empirical research and narrative intervention description, American authors generated the greatest percentage compared to other countries, or equaled other high producing countries such as Israel and Australia. This finding was particularly surprising, since British, Canadian, Australian, European, and Israeli occupational therapists still maintain a viable role in mental health

service provision in their respective countries (Gutman & Brown, 2018). The high yield of articles by American authors may be accounted for by several factors: (1) the dedicated efforts of US mental health occupational therapists to revive the profession's once robust role in this practice area; (2) the larger number of institutions of higher learning and doctorally-prepared occupational therapists in the US, whose role it is to generate research, compared to other countries (Gutman et al., 2017); and (3) the higher number of US publication venues through which American occupational therapists can disseminate scholarship (Brown & Gutman, 2019b).

Additional factors may have also hindered the collective generation of articles. As noted previously, the percentage of occupational therapists practicing in mental health settings has steadily declined and presently accounts for 2.4% of AOTA members (AOTA, 2015). Concomitantly, there has been a growing shortage of mental health fieldwork sites for students and in 1991, AOTA eliminated the educational standards requiring the completion of a Level 2 mental health fieldwork affiliation—a factor that may have further contributed to decreased numbers of therapists practicing in the area of mental health (AOTA, 1991). Only 54 articles over a 40-year period were empirical research studies addressing occupational therapy interventions for children and adolescents with mental health disorders. As indicated above, this finding was likely influenced by the low number of occupational therapy researchers who were doctorally-trained to generate evidence during this time period (Gutman, 2009a). Another contributing factor, however, may have been the higher level of institutional review board restrictions in place designed to protect minors in human subject research studies (Gutman, 2009b). Difficulties inherent in conducting human subject research with young people may have hindered the profession's generation of intervention studies with children and adolescents with mental health concerns.

A further factor influencing the small number of articles addressing occupational therapy interventions with young people may relate to the reluctance of mental health care professionals to diagnose and label children and adolescents with mental health conditions because of stigmatization (Taylor et al., 2019). Children and adolescents with mental health disorders may be less likely to receive occupational therapy intervention because of the reluctance to attach a psychiatric diagnosis to a child or adolescent. Yet, even when young people do receive diagnoses, it is unclear whether our mental health colleagues (e.g., psychiatrists, psychologists, counselors, social workers, nurses) understand occupational therapy services sufficiently to make a referral. Several occupational therapy scholars have suggested that the profession's role in child and adolescent mental

health care is not understood by colleagues and have urged the profession to enhance advocacy and awareness efforts (Blackwell & Bilics, 2018; Cahill & Egan, 2016; Sholle-Martin & Alessi, 1990).

Limitations

One limitation of this study was the inability to collect and analyze data regarding article view count. While citation count provides an accurate measure of an article's use by scholars and researchers, view count may in part provide information about article use by lay people attempting to better understand occupational therapy services (e.g., legislators and policymakers, health care administrators, psychiatrists and psychologists, parents, and teachers). To truly understand such usage, however, it would be necessary to survey these groups regarding their desire to access this body of literature and for what reasons.

A second limitation of this study was the lack of clarity in many articles regarding diagnosis. Approximately 43% of articles reported that their intended population targeted more than one mental health diagnosis and many articles described samples using terminology that could have encompassed several DSM-5 diagnoses (e.g., emotional disturbance, developmental delay, and behavioral disorder). As such, computed percentages of reported diagnoses may not have accurately captured information regarding the specific diagnostic categories addressed in practice.

A third limitation of this study involved the sole use of English-language, peer-reviewed literature. While we chose to singularly examine peer-reviewed literature because of its greater accessibility, information about occupational therapy interventions for children and adolescents with mental health disorders may have been published in other publication venues (e.g., books, book chapters, newsletters, conference abstracts, theses, and dissertations) and other languages. Such materials may have been inadvertently omitted by our search strategy.

One final limitation involved a possible omission of some articles authored by occupational therapists and addressing mental health interventions for young people. We used the search terms, "occupational therapy," "occupational therapist," and "occupational therapy assistant" to identify articles describing occupational therapy interventions. When author credentials and affiliations were not provided, internet searches were performed to determine whether authors were members of the profession. If author credentials and affiliations were unlisted, however, and interventionists were not identified as occupational therapists or assistants, our search strategy may have unintentionally missed such articles.

Future research

Future research should examine occupational therapy mental health interventions for children and adolescents with ASD, since we excluded this diagnostic category in the present analysis because of its large quantity. Future research should also examine occupational therapy literature addressing the prevention of mental health disorders in the school system and community for children and adolescents without a mental health diagnosis, since we excluded articles describing intervention for healthy populations.

Conclusion

This bibliometric analysis revealed that the profession has produced a small body of literature addressing occupational therapy interventions for children and adolescents with mental health concerns that has neither been highly cited nor well read. In its totality, the 82 articles produced limited research evidence supporting occupational therapy interventions for this population and there is some evidence that this body of literature may not be readily accessible by stakeholders outside of the profession. The analysis also revealed that a third of this literature specifically addressed children with ADHD and used sensory-based approaches. Traditional diagnoses of depression, anxiety, bipolar disorder, substance use, and suicidal ideation were addressed significantly less (between 1 and 10%) in comparison. Only a quarter of this literature addressed the mental health concerns of adolescents. It is evident that the profession must increase its efforts to generate a greater quantity of literature addressing child and adolescent mental health interventions, and research with more rigorous empirical designs that can support the effectiveness of occupational therapy services. This literature should be made available to stakeholders involved in occupational therapy reimbursement, recruitment, and referral through open and free access publication initiatives by authors, editors, and publishers.

Members of the profession should additionally engage in advocacy efforts to enhance public awareness of therapists' unique skill set in intervention with children and adolescents with mental health conditions. Occupational therapists have the potential to contribute significantly and uniquely to the treatment team of professionals caring for young people with mental health needs. As the mental health concerns of young people in the US are projected to increase, and shortages of mental health providers continue, the profession is challenged to grasp the opportunity to regain our former role in the provision of services for those members of society most at risk for the mental health disorders of childhood and adolescence.

A bibliometric analysis of the occupational therapy literature addressing interventions for children and adolescents with mental health needs

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ORCID

Ted Brown  <http://orcid.org/0000-0001-9403-5877>

References

- Agrin, A. R. (1987). Occupational therapy with emotionally disturbed children in a public elementary school. *Occupational Therapy in Mental Health, 7*(2), 105–114. https://doi.org/10.1300/J004v07n02_08
- American Occupational Therapy Association (AOTA). (1991). Essentials and guidelines for an accredited educational program for the occupational therapist. *American Journal of Occupational Therapy, 45*(12), 1077–1084. file:///C:/Users/sg2422/Downloads/1077.pdf
- American Occupational Therapy Association (AOTA). (2015). *Salary and workforce survey. Executive summary*. <http://www.aota.org/~media/corporatefiles/secure/education-careers/salary-survey/2015-aota-workforce-salary-survey-high-res.pdf>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders*. 5th edition. American Psychiatric Association.
- Arbesman, M., & Logsdon, D. W. (2011). Occupational therapy interventions for employment and education for adults with serious mental illness: A systematic review. *The American Journal of Occupational Therapy, 65*(3), 238–246. <https://doi.org/10.5014/ajot.2011.001289>
- Arnold, L. E., Clark, D. L., Sachs, L. A., Jakim, S., & Smithies, C. (1985). Vestibular and visual rotational stimulation as treatment for attention deficit and hyperactivity. *The American Journal of Occupational Therapy, 39*(2), 84–91. <https://doi.org/10.5014/ajot.39.2.84>
- Barnes, K. J., Beck, A. J., Vogel, K. A., Grice, K. O., & Murphy, D. (2003). Perceptions regarding school-based occupational therapy for children with emotional disturbances. *The American Journal of Occupational Therapy, 57*(3), 337–341. <https://doi.org/10.5014/ajot.57.3.337>
- Barnes, G., Wilkes-Gillan, S., Bundy, A., & Cordier, R. (2017). The social play, social skills and parent-child relationships of children with ADHD 12 months following a RCT of a play-based intervention. *Australian Occupational Therapy Journal, 64*(6), 457–465. <https://doi.org/10.1111/1440-1630.12417>
- Baron, K. B. (1987). The Model of Human Occupation: A newspaper treatment group for adolescents with a diagnosis of conduct disorder. *Occupational Therapy in Mental Health, 7*(2), 89–104. https://doi.org/10.1300/J004v07n02_07

- Baron, K. B. (1991). The use of play in child psychiatry: Reframing the therapeutic environment. *Occupational Therapy in Mental Health, 11*(2–3), 37–56. https://doi.org/10.1300/J004v11n02_04
- Bazyk, S., & Winne, R. (2013). A multi-tiered approach to addressing the mental health issues surrounding obesity in children and youth. *Occupational Therapy in Health Care, 27*(2), 84–98. <https://doi.org/10.3109/07380577.2013.785643>
- Beck, A. J., Barnes, K. J., Vogel, K. A., & Grice, K. O. (2006). The dilemma of psychosocial occupational therapy in public schools: The therapists' perceptions. *Occupational Therapy in Mental Health, 22*(1), 1–17. https://doi.org/10.1300/J004v22n01_01
- Beetz, A., Winkler, N., Julius, H., Uvnäs-Moberg, K., & Kotschal, K. (2015). A comparison of equine-assisted intervention and conventional play-based early intervention for mother-child dyads with insecure attachment. *Journal of Occupational Therapy, Schools, & Early Intervention, 8*(1), 17–39. <https://doi.org/10.1080/19411243.2015.1026017>
- Bellis, N. (2009). *Bibliometrics and citation analysis: From the Science Citation Index to Cybermetrics*. Scarecrow Press.
- Bendixen, R. M., & Kreider, C. M. (2011). Review of occupational therapy research in the practice area of children and youth. *The American Journal of Occupational Therapy, 65*(3), 351–359. <https://doi.org/10.5014/ajot.2011.000976>
- Bergstrom, V. N., O'Brien-Langer, A., & Marsh, R. (2019). Supporting children with fetal alcohol spectrum disorder: Potential applications of a Snoezelen multisensory room. *Journal of Occupational Therapy, Schools, & Early Intervention, 12*(1), 98–114. <https://doi.org/10.1080/19411243.2018.1496869>
- Bitsko, R. H., Holbrook, J. R., Ghandour, R. M., Blumberg, S. J., Visser, S. N., Perou, R., & Walkup, J. T. (2018). Epidemiology and impact of health care provider-diagnosed anxiety and depression among US children. *Journal of Developmental and Behavioral Pediatrics, 39*(5), 395–403. <https://doi.org/10.1097/DBP.0000000000000571>
- Blackwell, C. D., & Bilics, A. (2018). Preparing occupational therapy students to address mental health promotion, prevention, and intervention in school-based practice. *Journal of Occupational Therapy, Schools, & Early Intervention, 11*(1), 77–86. <https://doi.org/10.1080/19411243.2017.1386605>
- Bobier, C., Boon, T., Downward, M., Loomes, B., Mountford, H., & Swadi, H. (2015). Pilot investigation of the use and usefulness of a sensory modulation room in a child and adolescent psychiatric inpatient unit. *Occupational Therapy in Mental Health, 31*(4), 385–401. <https://doi.org/10.1080/0164212X.2015.1076367>
- Brollier, C. B., Hamrick, N., & Jacobson, B. (1995). Aerobic exercise: A potential occupational therapy modality for adolescents with depression. *Occupational Therapy in Mental Health, 12*(4), 19–29. https://doi.org/10.1300/J004v07n02_05
- Brown, T. (2011). Journal quality metrics: Options to consider other than impact factors. *The American Journal of Occupational Therapy, 65*(3), 346–350. <https://doi.org/10.5014/ajot.2011.001396>
- Brown, T., & Gutman, S. (2019a). Impact factor, eigenfactor, article influence, scopus SNIP, and SCImage journal rank of occupational therapy journals. *Scandinavian Journal of Occupational Therapy, 26*(7), 475–483. <https://doi.org/10.1080/11038128.2018.1473489>
- Brown, T., & Gutman, S. A. (2019b). A comparison of bibliometric indicators in occupational therapy journals published in English. *Canadian Journal of Occupational Therapy. Revue Canadienne D'ergotherapie, 86*(2), 125–135. <https://doi.org/10.1177/0008417419831453>
- Cahill, S., & Egan, B. (2016). Learning Together: Exploring instructional support personnel's perceptions of occupational therapists in school mental health – A pilot study.

- American Journal of Occupational Therapy*, 70(4_Supplement_1), 7011505092p1. <https://doi.org/10.5014/ajot.2016.70S1-RP303B>
- Caldwell, A. R., Skidmore, E. R., Raina, K. D., Rogers, J. C., Terhorst, L., Danford, C. A., & Bendixen, R. M. (2018). Behavioral activation approach to parent training: Feasibility of promoting routines of exploration and play during mealtime (Mealtime PREP). *American Journal of Occupational Therapy*, 72(6), 7206205030. <https://doi.org/10.5014/ajot.2018.028365>
- Cantrill, A., Wilkes-Gillan, S., Bundy, A., Cordier, R., & Wilson, N. J. (2015). An eighteen-month follow-up of a pilot parent-delivered play-based intervention to improve the social play skills of children with attention deficit hyperactivity disorder and their playmates. *Australian Occupational Therapy Journal*, 62(3), 197–207. <https://doi.org/10.1111/1440-1630.12203>
- Case-Smith, J., Shupe Sines, J., & Klatt, M. (2010). Perceptions of children who participated in a school-based yoga program. *Journal of Occupational Therapy, Schools, & Early Intervention*, 3(3), 226–238. <https://doi.org/10.1080/19411243.2010.520246>
- Centers for Disease Control and Prevention (CDC). (2015). *Suicide facts at a glance*. <https://www.cdc.gov/violenceprevention/pdf/suicide-datasheet-a.pdf>
- Centers for Disease Control and Prevention (CDC). (2020). *Children's mental health: Data and statistics*. <https://www.cdc.gov/childrensmentalhealth/data.html>
- Centers for Disease Control and Prevention (CDC). (2021). Emergency department visits for suspected suicide attempts among persons aged 12–25 years before and during the COVID-19 pandemic – United States, January 2019–May 2021. <https://www.cdc.gov/mmwr/volumes/70/wr/mm7024e1.htm#suggestedcitation>
- Chan, C., Dennis, D., Kim, S. J., & Jankowski, J. (2017). An integrative review of school-based mental health interventions for elementary students: Implications for occupational therapy. *Occupational Therapy in Mental Health*, 33(1), 81–101. <https://doi.org/10.1080/0164212X.2016.1202804>
- Child Mind Institute. (2015). *Children's mental health report*. <https://childmind.org/2015-childrens-mental-health-report/>
- Chu, S., & Reynolds, F. (2007). Occupational therapy for children with attention deficit hyperactivity disorder (ADHD), part 2: A multicentre evaluation of an assessment and treatment package. *British Journal of Occupational Therapy*, 70(10), 439–448. <https://doi.org/10.1177/030802260707001005>
- Chuang, K. Y., & Ho, Y. S. (2015). An evaluation based on highly cited publications in Taiwan. *Current Science*, 108(5), 933–941. <https://www.jstor.org/stable/24216522>
- Clarivate. (2020). InCites journal citation reports. <https://jcr-clarivate-com.ezproxy.cul.columbia.edu/JCRLandingPageAction.action?Init=Yes&SrcApp=IC2LS&SID=H2-1f0x2FXouhHap03HINXlIXBplo4YWTwhjW-18x2dPiqINZK8lj8a4tn0JGiq6Ax3Dx3DqmMZcm7eF3iyIW6IS64MOAx3Dx3D-qBgNuLRjcgZrPm66fhjx2Fmwx3Dx3D-h9tQNJ9Nv4eh45yLvkdX3gx3Dx3D>
- Data Resource Center for Child and Adolescent Health. (n.d.). Child and Adolescent Health Measurement Initiative. *Johns Hopkins Bloomberg School of Public Health*. <http://www.childhealthdata.org>
- Davidson, D. A. (1995). Physical abuse of preschoolers: Identification and intervention through occupational therapy. *The American Journal of Occupational Therapy : official Publication of the American Occupational Therapy Association*, 49(3), 235–243. <https://doi.org/10.5014/ajot.49.3.235>
- Davis, J. (1999). Effects of trauma on children: Occupational therapy to support recovery. *Occupational Therapy International*, 6(2), 126–142. <https://doi.org/10.1002/oti.93>

- De Winter, J. C., Zadpoor, A. A., & Dodou, D. (2014). The expansion of Google Scholar versus Web of Science: A longitudinal study. *Scientometrics*, *98*(2), 1547–1565. <https://doi.org/10.1007/s11192-013-1089-2>
- Doll, J., & Brady, K. (2013). Project HOPE: Implementing sensory experiences for suicide prevention in a Native American community. *Occupational Therapy in Mental Health*, *29*(2), 149–158. <https://doi.org/10.1080/0164212X.2013.788977>
- Esmaili, S. K., Mehraban, A. H., Shafaroodi, N., Yazdani, F., Masoumi, T., & Zarei, M. (2019). Participation in peer-play activities among children with specific learning disability: A randomized controlled trial. *American Journal of Occupational Therapy*, *73*(2), 7302205110. <https://doi.org/10.5014/ajot.2018.028613>
- Fedewa, A. L., & Erwin, H. E. (2011). Stability balls and students with attention and hyperactivity concerns: Implications for on-task and in-seat behavior. *The American Journal of Occupational Therapy*, *65*(4), 393–399. <https://doi.org/10.5014/ajot.2011.000554>
- Fourie, A. J., van Vuuren, S., Venter, A., & Nel, M. (2007). Theraplay for children with attention deficit hyperactivity disorder. *South African Journal of Occupational Therapy*, *37*(1), 10–17.
- Fraser, K., MacKenzie, D., & Versnel, J. (2019). What is the current state of occupational therapy practice with children and adolescents with complex trauma? *Occupational Therapy in Mental Health*, *35*(4), 317–338. <https://doi.org/10.1080/0164212X.2019.1652132>
- Gangl, M. (1987). The effectiveness of an occupational therapy program for chemically dependent adolescents. *Occupational Therapy in Mental Health*, *7*(2), 67–88. https://doi.org/10.1300/J004v07n02_06
- Garfield, E. (2006). The history and meaning of the journal impact factor. *JAMA*, *295*(1), 90–93. <https://doi.org/10.1001/jama.295.1.90>
- George, N. M., Braun, B. A., & Walker, J. M. (1982). A prevention and early intervention mental health program for disadvantaged pre-school children. *The American Journal of Occupational Therapy*, *36*(2), 99–106. <https://doi.org/10.5014/ajot.36.2.99>
- Ghandour, R. M., Sherman, L. J., Vladutiu, C. J., Ali, M. M., Lynch, S. E., Bitsko, R. H., & Blumberg, S. J. (2019). Prevalence and treatment of depression, anxiety, and conduct problems in US children. *The Journal of Pediatrics*, *206*, 256–267. <https://doi.org/10.1016/j.jpeds.2018.09.021>
- Gol, D., & Jarus, T. (2005). Effect of a social skills training group on everyday activities of children with attention-deficit-hyperactivity disorder. *Developmental Medicine & Child Neurology*, *47*(8), 539–545. <https://doi.org/10.1017/S0012162205001052>
- Goldshtroum, Y., Korman, D., Goldshtroum, I., & Bendavid, J. (2011). The effect of rhythmic exercises on cognition and behaviour of maltreated children: A pilot study. *Journal of Bodywork and Movement Therapies*, *15*(3), 326–334. <https://doi.org/10.1016/j.jbmt.2010.06.006>
- Greene, S. (1993). Occupational therapy intervention with children in school systems. *Hospital & Community Psychiatry*, *44*(5), 429–431. <https://doi.org/10.1176/ps.44.5.429>
- Gutman, S. A. (2009a). Why haven't we generated sufficient evidence? Part I: Barriers to applied research. *The American Journal of Occupational Therapy*, *63*(3), 235–237. <https://doi.org/10.5014/ajot.63.3.235>
- Gutman, S. A. (2009b). Why haven't we generated sufficient evidence? Part II: Building our evidence. *The American Journal of Occupational Therapy*, *63*(4), 381–383. <https://doi.org/10.5014/ajot.63.4.383>

- Gutman, S. A., & Brown, T. (2018). A bibliometric analysis of the quantitative mental health literature in occupational therapy. *Occupational Therapy in Mental Health, 34*(4), 305–346. <https://doi.org/10.1080/0164212X.2017.1413479>
- Gutman, S. A., & Brown, T., & Ho, Y. S. (2017). A bibliometric analysis of highly cited and high impact occupational therapy publications by American authors. *Occupational Therapy in Health Care, 31*(3), 167–187. <https://doi.org/10.1080/07380577.2017.1326192>
- Gutman, S. A., McCreedy, P., & Heisler, P. (2004). The psychosocial deficits of children with regulatory disorders: Identification and treatment. *Occupational Therapy in Mental Health, 20*(2), 1–32. https://doi.org/10.1300/J004v20n02_01
- Haffajee, R. L., Mello, M. M., Zhang, F., Busch, A. B., Zaslavsky, A. M., & Wharam, J. F. (2019). Association of federal mental health parity legislation with health care use and spending among high utilizers of services. *Medical Care, 57*(4), 245–255. <https://doi.org/10.1097/MLR.0000000000001076>
- Hahn-Markowitz, J., Berger, I., Manor, I., & Maeir, A. (2017). Impact of the Cognitive-Functional (Cog-Fun) intervention on executive functions and participation among children with attention deficit hyperactivity disorder: A randomized controlled trial. *American Journal of Occupational Therapy, 71*(5), 7105220010. <https://doi.org/10.5014/ajot.2017.022053>
- Hahn-Markowitz, J., Berger, I., Manor, I., & Maeir, A. (2018). Cognitive-functional (cog-fun) dyadic intervention for children with ADHD and their parents: Impact on parenting self-efficacy. *Physical & Occupational Therapy in Pediatrics, 38*(4), 444–456. <https://doi.org/10.1080/01942638.2018.1441939>
- Hahn-Markowitz, J., Manor, I., & Maeir, A. (2011). Effectiveness of cognitive-functional (Cog-Fun) intervention with children with attention deficit hyperactivity disorder: a pilot study. *The American Journal of Occupational Therapy, 65*(4), 384–392. <https://doi.org/10.5014/ajot.2011.000901>
- Hardison, J., & Llorens, L. A. (1988). Structured craft group activities for adolescent delinquent girls. *Occupational Therapy in Mental Health, 8*(3), 101–117. https://doi.org/10.1300/J004v08n03_07
- Hardaker, L., Halcomb, E. J., Griffiths, R., Bolzan, N., & Arblaster, K. (2007). The role of the occupational therapist in adolescent mental health: A critical review of the literature. *Australian e-Journal for the Advancement of Mental Health, 6*(3), 194–203. <https://doi.org/10.5172/jamh.6.3.194>
- Heilbroner, P. L. (2005). Why “sensory integration disorder” is a dubious diagnosis. <https://quackwatch.org/related/sid/>
- Individuals with Disabilities Education Act, 20 U.S.C. § 1400 (2004).
- Jensen, L., Verbrugge, A., Holmes, M., Turner, E., Palea, C., & Koussa, T. (2018). Effect of animal-assisted activities on children in a behavioral classroom: A pilot study. *American Journal of Occupational Therapy, 72*(4_Supplement_1), 7211515282. <https://doi.org/10.5014/ajot.2018.72S1-PO7026>
- Kannenberg, K., & Boyer, D. (1997). Occupational therapy evaluation and intervention in an employment program for homeless youths. *Psychiatric Services, 48*(5), 631–633. <https://doi.org/10.1176/ps.48.5.631>
- Keightley, M., Agnihotri, S., Subramaniapillai, S., Gray, J., Keresztesi, J., Colantonio, A., Polatajko, H. J., Cameron, D., & Wiseman-Hakes, C. (2018). Investigating a theatre-based intervention for Indigenous youth with fetal alcohol spectrum disorder: Exploration d’une intervention basée sur le théâtre auprès de jeunes Autochtones atteints

- du syndrome d'alcoolisme foetal. *Canadian Journal of Occupational Therapy. Revue Canadienne D'ergotherapie*, 85(2), 128–136. <https://doi.org/10.1177/0008417417719722>
- Kloczko, E., & Ikiugu, M. N. (2006). The role of occupational therapy in the treatment of adolescents with eating disorders as perceived by mental health therapists. *Occupational Therapy in Mental Health*, 22(1), 63–83. https://doi.org/10.1300/J004v22n01_05
- Knis-Matthews, L., Richard, L., Marquez, L., & Mevawala, N. (2005). Implementation of occupational therapy services for an adolescent residence program. *Occupational Therapy in Mental Health*, 21(1), 57–72. https://doi.org/10.1300/J004v21n01_04
- Koziol, L. F., Budding, D. E., & Chidekel, D. (2011). Sensory integration, sensory processing, and sensory modulation disorders: Putative functional neuroanatomic underpinnings. *Cerebellum*, 10(4), 770–792. <https://doi.org/10.1007/s12311-011-0288-8>
- Kreider, C. M., Bendixen, R. M., Huang, Y. Y., & Lim, Y. (2014). Review of occupational therapy intervention research in the practice area of children and youth 2009–2013. *The American Journal of Occupational Therapy*, 68(2), e61–e73. <https://doi.org/10.5014/ajot.2014.011114>
- Lamb, H. R., & Weinberger, L. E. (2020). Deinstitutionalization and other factors in the criminalization of persons with serious mental illness and how it is being addressed. *CNS Spectrums*, 25(2), 173–180. <https://doi.org/10.1017/S1092852919001524>
- Leew, J. (2001). Passport to Learning: A cognitive intervention for children with organizational difficulties. *Physical & Occupational Therapy in Pediatrics*, 20(2–3), 145–159. https://doi.org/10.1080/J006v20n02_09
- Levanon-Erez, N., Kampf-Sherf, O., & Maeir, A. (2019). Occupational therapy metacognitive intervention for adolescents with ADHD: Teen Cognitive-Functional (Cog-Fun) feasibility study. *British Journal of Occupational Therapy*, 82(10), 618–629. <https://doi.org/10.1177/0308022619860978>
- Lin, H. Y., Lee, P., Chang, W. D., & Hong, F. Y. (2014). Effects of weighted vests on attention, impulse control, and on-task behavior in children with attention deficit hyperactivity disorder. *The American Journal of Occupational Therapy*, 68(2), 149–158. <https://doi.org/10.5014/ajot.2014.009365>
- Lopez, M., & Swinth, Y. (2008). A group proprioceptive program's effect on physical aggression in children. *Journal of Occupational Therapy, Schools, & Early Intervention*, 1(2), 147–166. <https://doi.org/10.1080/19411240802313044>
- Mac Cobb, S., Fitzgerald, B., & Lanigan-O'Keeffe, C. (2014). The Alert program for self-management of behaviour in second level schools: Results of phase 1 of a pilot study. *Emotional and Behavioural Difficulties*, 19(4), 410–425. <https://doi.org/10.1080/13632752.2014.903593>
- Mac Cobb, S., Fitzgerald, B., Lanigan-O'Keeffe, C., Irwin, N., & Mellerick, N. (2014). Students with social, emotional, and behavioral difficulties: The Alert program trial in post-primary schools. *Journal of Occupational Therapy, Schools, & Early Intervention*, 7(2), 106–119. <https://doi.org/10.1080/19411243.2014.930606>
- Madsen, P. S., & Conte, J. R. (1980). Single subject research in occupational therapy: A case illustration. *The American Journal of Occupational Therapy*, 34(4), 263–267. <https://doi.org/10.5014/ajot.34.4.263>
- Maeir, A., Fisher, O., Bar-Ilan, R. T., Boas, N., Berger, I., & Landau, Y. E. (2014). Effectiveness of Cognitive-Functional (Cog-Fun) occupational therapy intervention for young children with attention deficit hyperactivity disorder: a controlled study. *The American Journal of Occupational Therapy*, 68(3), 260–267. <https://doi.org/10.5014/ajot.2014.011700>

- McCormick, S., Peterson-Badali, M., & Skilling, T. A. (2017). The role of mental health and specific responsivity in juvenile justice rehabilitation. *Law and Human Behavior, 41*(1), 55–67. <https://doi.org/10.1037/lhb0000228>
- McKibbin, E., & King, J. (1983). Activity group counseling for learning-disabled children with behavior problems. *The American Journal of Occupational Therapy, 37*(9), 617–623. <https://doi.org/10.5014/ajot.37.9.617>
- Melia, M. A., & Weikert, K. (1987). Evaluation and treatment of adolescents on a short-term unit. *Occupational Therapy in Mental Health, 7*(2), 51–66. https://doi.org/10.1300/J004v07n02_05
- Meho, L. I., & Yang, K. (2007). A new era in citation and bibliometric analyses: Web of Science, Scopus, and Google Scholar. *Journal of the American Society for Information Science and Technology, 58*(13), 2105–2125. <https://doi.org/10.1002/asi.20677>
- Milliken, B. E., Goodman, G., Bazyk, S., & Flinn, S. (2007). Establishing a case for occupational therapy in meeting the needs of children with grief issues in school-based settings. *Occupational Therapy in Mental Health, 23*(2), 75–100. https://doi.org/10.1300/J004v23n02_04
- Ming, H. W., Hui, Z. F., & Yuh, S. H. (2011). Comparison of universities' scientific performance using bibliometric indicators. *Malaysian Journal of Library & Information Science, 16*(2), 1–19. <https://mjlis.um.edu.my/article/view/6693>
- Mohammadi, A., Mehraban, A. H., & Damavandi, S. A. (2017). Effect of play-based occupational therapy on symptoms of hospitalized children with cancer: A single-subject study. *Asia-Pacific Journal of Oncology Nursing, 4*(2), 168–172. https://doi.org/10.4103/apjon.apjon_13_17
- Mulvey, E. P., & Schubert, C. A. (2017). Mentally ill individuals in jails and prisons. *Crime and Justice, 46*(1), 231–277. <https://doi.org/10.1086/688461>
- Nelson, R. R., & Condrin, J. L. (1987). A vocational readiness and independent living skills program for psychiatrically impaired adolescents. *Occupational Therapy in Mental Health, 7*(2), 23–38. https://doi.org/10.1300/J004v07n02_03
- Nyarko, K. A., Grosse, S. D., Danielson, M. L., Holbrook, J. R., Visser, S. N., & Shapira, S. K. (2017). Treated prevalence of attention-deficit/hyperactivity disorder increased from 2009 to 2015 among school-aged children and adolescents in the United States. *Journal of Child and Adolescent Psychopharmacology, 27*(8), 731–734. <https://doi.org/10.1089/cap.2016.0196>
- Olson, L. (2006). One parent-child activity group. *Occupational Therapy in Mental Health, 22*(3/4), 33–47. https://doi.org/10.1300/J004v22n03_04
- Olson, L., Heaney, C., & Soppas-Hoffman, B. (1989). Parent-child activity group treatment in preventive psychiatry. *Occupational Therapy in Health Care, 6*(1), 29–43. https://doi.org/10.1080/J003v06n01_04
- Paul, S. (1996). Mental health: An endangered occupational therapy specialty? *The American Journal of Occupational Therapy, 50*(1), 65–68. <https://doi.org/10.5014/ajot.50.1.65>
- Pfeiffer, B., Henry, A., Miller, S., & Witherell, S. (2008). Effectiveness of Disc 'O' Sit cushions on attention to task in second-grade students with attention difficulties. *The American Journal of Occupational Therapy, 62*(3), 274–281. <https://doi.org/10.5014/ajot.62.3.274>
- Piergrossi, J. C. (2009). Occupational therapy and the mental health of children. *World Federation of Occupational Therapists Bulletin, 60*(1), 56–58. <https://doi.org/10.1179/otb.2009.60.1.009>

- Portney, L. G., & Watkins, M. P. (2015). *Foundations of clinical research: Applications to practice* (3rd ed.). FA Davis.
- Precin, P., Timque, J., & Walsh, A. (2010). A role for occupational therapy in foster care. *Occupational Therapy in Mental Health, 26*(2), 151–175. <https://doi.org/10.1080/01642121003736085>
- Regev, D., & Reiter, S. (2011). Occupational, speech and emotional therapy with students attending booster classes. *International Journal of Adolescent Medicine and Health, 23*(3), 245–250. <https://doi.org/10.1515/ijamh.2011.051>
- Reynolds, S. (2008). A systematic consultative approach to behavior management in Head Start. *Journal of Occupational Therapy, Schools, & Early Intervention, 1*(2), 78–94. <https://doi.org/10.1080/19411240802312871>
- Rosenberg, L., Maier, A., Yochman, A., Dahan, I., & Hirsch, I. (2015). Effectiveness of a Cognitive–functional group intervention among preschoolers with attention deficit hyperactivity disorder: A pilot study. *American Journal of Occupational Therapy, 69*(3), 6903220040. <https://doi.org/10.5014/ajot.2015.014795>
- Rowe, J., Yuen, H. K., & Dure, L. S. (2013). Comprehensive behavioral intervention to improve occupational performance in children with Tourette disorder. *The American Journal of Occupational Therapy, 67*(2), 194–200. <https://doi.org/10.5014/ajot.2013.007062>
- Ryan, K., Lane, S. J., & Powers, D. (2017). A multidisciplinary model for treating complex trauma in early childhood. *International Journal of Play Therapy, 26*(2), 111–123. <https://doi.org/10.1037/pla0000044>
- Schilling, D. L., Washington, K., Billingsley, F. F., & Deitz, J. (2003). Classroom seating for children with attention deficit hyperactivity disorder: Therapy balls versus chairs. *The American Journal of Occupational Therapy, 57*(5), 534–541. <https://doi.org/10.5014/ajot.57.5.534>
- Schultz, S. (1992). School-based occupational therapy for students with behavioral disorders. *Occupational Therapy in Health Care, 8*(2–3), 173–196. https://doi.org/10.1080/J003v08n02_09
- Shaffer, R. J., Jacokes, L. E., Cassily, J. F., Greenspan, S. I., Tuchman, R. F., & Stemmer, P. J. (2001). Effect of Interactive metronome training on children with ADHD. *The American Journal of Occupational Therapy, 55*(2), 155–162. <https://doi.org/10.5014/ajot.55.2.155>
- Sheppard, L., Osmond, J., & Stagnitti, K. (2013). The effectiveness of a multidisciplinary intervention to improve school readiness in children with developmental concerns: Children’s skill development and parent perspective. *Journal of Occupational Therapy, Schools, & Early Intervention, 6*(2), 94–107. <https://doi.org/10.1080/19411243.2013.811346>
- Söchting, I., & Third, B. (2011). Behavioral group treatment for obsessive-compulsive disorder in adolescence: A pilot study. *International Journal of Group Psychotherapy, 61*(1), 84–97. <https://doi.org/10.1521/ijgp.2011.61.1.84>
- Soler, N., Hardwick, C., Perkes, I. E., Dossetor, D., Bray, P., & Dale, R. C. (2019). An exploratory study into an adapted use of the Alert Program for tic disorder in children. *Australasian Psychiatry, 27*(2), 144–151. <https://doi.org/10.1177/1039856218815750>
- Srija, S. S., & Sugi, S. (2019). Effectiveness of social stories in coping with bullying among children with childhood psychiatry conditions. *Indian Journal of Occupational Therapy, 51*(2), 19. DOI: 10.4103/ijoth.ijoth_10_19
- Srija, S. S., Sugi, S., & Srinivasan, D. (2019). Efficacy of social stories in coping with bullying among children with childhood psychiatry conditions: A randomized controlled interventional study. *The Indian Journal of Occupational Therapy, 51*(2), 52. https://doi.org/10.4103/ijoth.ijoth_10_19

- Schloegl, C., & Gorraiz, J. (2010). Comparison of citation and usage indicators: The case of oncology journals. *Scientometrics*, 82(3), 567–580. <https://doi.org/10.1007/s11192-010-0172-1>
- Schultz, S. (1992). School-based occupational therapy for students with behavioral disorders. *Occupational Therapy in Health Care*, 8(2–3), 173–196. https://doi.org/10.1080/J003v08n02_09
- Sholle-Martin, S., & Alessi, N. E. (1990). Formulating a role for occupational therapy in child psychiatry: A clinical application. *The American Journal of Occupational Therapy*, 44(10), 871–882. <https://doi.org/10.5014/ajot.44.10.871>
- Substance Abuse and Mental Health Services Administration. (2021). *Back to school during COVID-19*. <https://www.samhsa.gov/coronavirus/back-to-school>
- Taylor, S. S., Bingham, A., & Vega, S. A. (2019). Comparing case studies: Examining stigma within the family of a child with mental illness. *Educational Research: Theory and Practice*, 30(1), 51–56. <https://files.eric.ed.gov/fulltext/EJ1248641.pdf>
- Tokolahi, E., Em-Chhour, C., Barkwill, L., & Stanley, S. (2013). An occupation-based group for children with anxiety. *British Journal of Occupational Therapy*, 76(1), 31–36. <https://doi.org/10.4276/030802213X13576469254694>
- US Department of Health and Human Services, Health Resources and Services Administration, National Center for Health Workforce Analysis. (2018). *State-level projections of supply and demand for behavioral health occupations: 2016–2030*. <https://bhwhrsa.gov/sites/default/files/bhw/nchwa/projections/state-level-estimates-report-2018.pdf>
- van Niekerk, M. (2007). A career exploration programme for learners with special educational needs. *Work*, 29(1), 19–24.
- VandenBerg, N. L. (2001). The use of a weighted vest to increase on-task behavior in children with attention difficulties. *The American Journal of Occupational Therapy*, 55(6), 621–628. <https://doi.org/10.5014/ajot.55.6.621>
- Wade, G. A. (1985). Occupational therapy programming for adolescents with psychosocial dysfunctions. *Occupational Therapy in Health Care*, 2(3), 127–138. https://doi.org/10.1080/J003v02n03_12
- Wagner, B., Fitzpatrick, J., Symons, M., Jirikowic, T., Cross, D., & Latimer, J. (2017). The development of a culturally appropriate school based intervention for Australian Aboriginal children living in remote communities: A formative evaluation of the Alert Program® intervention. *Australian Occupational Therapy Journal*, 64(3), 243–252. <https://doi.org/10.1111/1440-1630.12352>
- Warner, E., Koomar, J., Lary, B., & Cook, A. (2013). Can the body change the score? Application of sensory modulation principles in the treatment of traumatized adolescents in residential settings. *Journal of Family Violence*, 28(7), 729–738. <https://doi.org/10.1007/s10896-013-9535-8>
- Weaver, L. (2016). An occupational therapist-led yoga intervention for anxious youth: Outcomes and implications for research and practice. *American Journal of Occupational Therapy*, 70(4_Supplement_1), 7011520296. <https://doi.org/10.5014/ajot.2016.70S1-PO3069>
- West, M., Melvin, G., McNamara, F., & Gordon, M. (2017). An evaluation of the use and efficacy of a sensory room within an adolescent psychiatric inpatient unit. *Australian Occupational Therapy Journal*, 64(3), 253–263. <https://doi.org/10.1111/1440-1630.12358>
- Whiting, C. C. (2018). Trauma and the role of the school-based occupational therapist. *Journal of Occupational Therapy, Schools, & Early Intervention*, 11(3), 291–301. <https://doi.org/10.1080/19411243.2018.1438327>

- Whitney, D. G., & Peterson, M. D. (2019). US national and state-level prevalence of mental health disorders and disparities of mental health care use in children. *JAMA Pediatrics*, *173*(4), 389–391. <https://doi.org/10.1001/jamapediatrics.2018.5399>
- Wilkes, S., Cordier, R., Bundy, A., Docking, K., & Munro, N. (2011). A play-based intervention for children with ADHD: A pilot study. *Australian Occupational Therapy Journal*, *58*(4), 231–240. <https://doi.org/10.1111/j.1440-1630.2011.00928.x>
- Wilkes-Gillan, S., Bundy, A., Cordier, R., & Lincoln, M. (2014a). Eighteen-month follow-up of a play-based intervention to improve the social play skills of children with attention deficit hyperactivity disorder. *Australian Occupational Therapy Journal*, *61*(5), 299–307. <https://doi.org/10.1111/1440-1630.12124>
- Wilkes-Gillan, S., Bundy, A., Cordier, R., & Lincoln, M. (2014b). Evaluation of a pilot parent-delivered play-based intervention for children with attention deficit hyperactivity disorder. *The American Journal of Occupational Therapy*, *68*(6), 700–709. <https://doi.org/10.5014/ajot.2014.012450>
- Wilkes-Gillan, S., Bundy, A., Cordier, R., Lincoln, M., & Chen, Y. W. (2016). A randomised controlled trial of a play-based intervention to improve the social play skills of children with attention deficit hyperactivity disorder (ADHD). *PLoS One*, *11*(8), e0160558. <https://doi.org/10.1371/journal.pone.0160558>
- Wilkes-Gillan, S., Cantrill, A., Cordier, R., Barnes, G., Hancock, N., & Bundy, A. (2017). The use of video-modelling as a method for improving the social play skills of children with attention deficit hyperactivity disorder (ADHD) and their playmates. *British Journal of Occupational Therapy*, *80*(4), 196–207. <https://doi.org/10.1177/0308022617692819>
- Williams, R. L., & Metz, A. E. (2014). Examining the meaning of training animals: A photovoice study with at-risk youth. *Occupational Therapy in Mental Health*, *30*(4), 337–357. <https://doi.org/10.1080/0164212X.2014.938563>
- Wong, A. S., Li-Tsang, C. W., & Siu, A. M. (2014). Effect of a social emotional learning programme for primary school students. *Hong Kong Journal of Occupational Therapy*, *24*(2), 56–63. <https://doi.org/10.1016/j.hkjot.2014.11.001>