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Multimodal Social Skills, Communication and Behavioral Intervention for Children with Autism Spectrum Disorder: Comparison of Multiple Indices for Treatment Effectiveness

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Abstract

The study aimed to investigate the treatment effectiveness of evidence - based intervention program called Multimodal Social Skills, Communication and Behavioral (MSSCB) program. 34 participants with the diagnosis of high-functioning Autism Spectrum Disorder (ASD) aged between 3 to 12 year-old were recruited (F=9, M=25;Mean age =8.03, SD=2.14) at the beginning. The study collected and analyzed the data of participants' socio-demographic characteristics as well as their psychometric outcomes measuring their cognitive, social, communication, behavioral, emotional, and other adaptive function. We used t-test and SPSS to analyze the data that were obtained at the beginning and at the time six months later on. The mean of the scores from the social domain of parents' ASD screening questionnaires declined significantly ($t=-2.15$, $p<0.05$, $\alpha = .05$). The means of the standardized scores in overall performance, communication domain, and social domains of Vinland's Adaptive Rating Scale (Interview Version) elevated significantly ($t=3.40$, 3.69, & 2.35 respectively, $P<0.01$, $\alpha = .05$). Additional significant improvements were noticed in the scores of syndrome scales of withdrawn/depressed, social problems, and aggressive behavior reported by parents and the scores of the externalized problem scale and syndrome scale of rule-breaking behavior reported by teachers (p-value ranged from 0.004 to 0.050, $\alpha = .05$). The present study implies that MSSCB program might be effective for children with high-functioning ASD detected by several psychometric measurements. Nevertheless, not all indices consistently and significantly supported benefits of the program. Further discussion and suggestions were made for the establishment and examination of an evidence-based intervention program for children with ASD

Keywords : Social skills training, Autism spectrum disorder, Evidence-based practice

Introduction

The prevalence of Autism Spectrum Disorder (ASD) has been increasing dramatically. According to the updated survey done by Autism and Developmental Disabilities Monitoring Network (Centers for Disease Control and Prevention: CDC, 2012) in the United States over 1% of school-age children are diagnosed with ASD. Similar prevalence findings were reported in Taiwan (Chien, Lin, Chou & Chou, 2011) or in China (Sun et al., 2015). Several factors may have contributed to the growing occurrence of ASD such as broadened criteria for ASD diagnosis, enhanced identification and awareness of the public and professionals, and improved access to services (Fombonne, 2005; Wilkinson, 2015; Wing & Potter, 2002).

ASD is a life-long neurodevelopmental disorder with uncertain pathogenesis (Howlin, Goode, Hutton, & Rutte, 2004). Caring for a child

with ASD can be a great burden both for the family and society. For instance, Leigh & Du (2015), estimated that the economic burden of ASD in the United States, including direct medical and non-medical, and productivity costs, will be $268 billion for 2015 and $461 billion for 2025 annually. Persistent deficits in social communication and social interaction and restricted, repetitive patterns of behavior, interests, or activities are identified as the core symptoms of ASD (American Psychiatric Association, 2013). For those individuals with ASD having average or above average cognitive skills, social deficits are one of the major difficulties (Reichow, Steiner, & Volkmar, 2013) often requiring life-long treatment (Yoo et al., 2014). Consequently, there is an urgent need to provide social skills training for clients with ASD.

Many randomised controlled trial (RCT) intervention studies that targeting social performance have been developed such as Social Adjustment Enhancement Curriculum (Solomon, Goodlin-Jones, & Anders, 2004), Program for the Education and Enrichment of Relational Skills (Laugeson, Frankel, Mogil, & Dillon, 2009), the Parent-assisted Children's Friendship Training (Frankel et al., 2010), a social skills group using peer tutors (Koenig et al., 2010) and a summer training program modified from Skillstreaming (Lopata et al., 2010). Many studies of social skill interventions for ASD adopted varied outcome measurements and demonstrated their efficacy to improve some but not all social dimensions of children with ASD (Frankel et al., 2010; Koenig et al., 2010; Laugeson et al., 2009; Laugeson et al., 2010; Solomon et al., 2010).

(Reichow, Steiner, & Volkmar, 2013) reviewed several studies of RCT and also supported the intervention benefits of social skills groups. However, significant findings were not always detected in the results of social skills training of children with ASD (Rao, Beidel, & Murray, 2008) or in each measurement of the autism intervention studies (Carter et al., 2011). Wang & Spillane (2009) used their criteria to examine social skills intervention studies for children with ASD and found only few of studies or strategies demonstrated high effectiveness. Nevertheless, almost all of intervention programs were developed in Western countries and their treatment efficacy or effectiveness was not validated cross-culturally in Asian countries. The study done by Yoo et al. (2014) was one of the few studies that tried to adapt an established evidence-based treatment cross-culturally in Korea. They modified Program for Education and Enrichment of Relational Skills (PEERS) that was developed by Laugeson et al. (2010). However, PEERS was adapted to be used in Korean and targeted adolescents with ASD instead of children with ASD.

Implementing empirically - supported intervention for children with ASD cross-culturally should take the concepts of Evidence-based practice (EBP) into consideration.EBP has been stressed due to a few reasons. First of all, the laws in the United States including the No Child Left Behind Act (NCLB, 2001) and the Individuals With Disabilities Education Act (Yell, Shriner & Katsiyannis, 2006) had pushed the adoption of effective services for clients with disabilities. In addition to the law enforcement, EBP was emphasized because it's aimed to maximize the progress and benefits of patients or clients with disabilities. Hence, EBP is also promoted in ASD field (National Autism Center: NAC, 2009 and the National Professional Development Center: NPDC, 2010). According to American Psychological Association (APA) Presidential Task Force on Evidence-Based Practice (2006), EBP was defined as "the integration of the best available research with clinical expertise in the context of clientcharacteristics, culture, and preferences".The concepts of EBP demand health professionals to provide empirically-supported services with the consideration of professional capability and client's values. Therefore, copying

and implementing research-based intervention program developed under different cultural and societal backgrounds may not well fit the concepts of EBP as well as the best benefits of clients with ASD. In order to best help clients with ASD in a local community with different culture, constructing an evidence - based intervention program should apply the intervention strategies with documented efficacy to real-world practical context with the incorporation of professional capability and client's values simultaneously. However, due to the adaptation of efficacy intervention trials, ongoing investigation of ASDchildren's response to the treatment as well as other intervention indices will be essential to establish the treatment effectiveness.

In order to provide EBP for clients with ASD in the local community in central Taiwan, we integrated empirically-validated strategies from the reviews of ASD intervention studies with professional expertise and clients' characteristics and family values to develop a scientifically -supported outpatient intervention program called Multimodal Social Skills, Communication and Behavioral Intervention (MSSCB) in 2013. The social validity of this program was published (Wang & Ma, 2014). The current study aimed to investigate and compare multiple psychometric indices for examining the treatment effectiveness of MSSCB program

Methods

Study Design

MSSCB Program

MSSCB program used in this study was developed in 2013 for facilitating the social, communication, and emotional development of children with ASD in the local community in central Taiwan. The protocol and guideline of MSSCB program were based on the integration of empirical - supported strategies through the reviews of autism intervention studies. A detailed description of the program schedule, protocol, and guideline can be found in the study by Wang & Ma (2014). The intervention targets of MSSCB focus on the core deficits of ASD including social, communication, and behavior / emotional difficulties. Children with ASD and their parents participated in group intervention sessions weekly at our treatment center. The children's session took 0.75 hour and 0.5-0.75 hour for the parents' group session. A structured and consistent agenda was set up for children's intervention groups that included a warm-up song or greeting activity, a check-in time to share and reinforce their previous week's homework as well as to remind them of group rules, adoption of tokens system to reinforce good and targeted behavior throughout the intervention activity, and check-out time to record and reinforce their performance for positive group behavior as well as the illustration of homework to the participants. Right after children's session, parents attend their own session to discuss the targeted behavior of the intervention session as well as the homework and behavior management of children's performance at home and school with the therapists. Three skillful psychologists implemented the intervention sessions and checked the treatment fidelity based on the intervention principles and protocol for MSSCB program (Wang & Ma, 2014).

Recruitment

The inclusion criteria for the participants is being diagnosed with autism spectrum disorder (Autistic disorder, Asperger's disorder, or Pervasive Developmental Disorder NOS according to DSM-IV-TR by child and adolescent psychiatrist) without cognitive disability and agreement to attend our MSSCB program between May, 2014 and January, 2015 in our child and adolescent community clinics. The parents signed the informed consent forms after they agreed to let their children receive the MSSCB intervention and participate in the study. Thirty-four children aged 3 to 12 at Time 1 (Mean=8.03, SD=2.14) were recruited. Their socio-demographic characteristics are listed in Table 1.

Table 1: Socio-Demographic Characteristics of Participants.

	Age			Full IQ		
	M	SD	(Max, Min)	M	SD	(Max, Min)
All participants	8.03	2.14	(11,3)	101.34	15.01	(133,74)
Male	8.34	1.98	(11,4)	103.04	14.05	(133,78)
Female	7.07	2.46	(10,3)	95.29	17.90	(121,74)

Psychological Measurements

Several psychometric tools measuring the cognitive, social, communication, behavioral, emotional, and other adaptive function of the participants were adopted for the study. These tools were administrated to the participants at two measurement periods: after the parents signed the study consent- the beginning point of the study (Time 1) and 6 months later post enrollment of the study (Time 2). These measurement tools, including Wechsler Intelligence Scale for Children - the Fourth Chinese Version (WISC-IV) or Wechsler Preschool and Primary Scale of Intelligence - the Fourth Chinese Version (WPPSI-IV), ASD screening questionnaires, Adaptive Behavior Assessment System - 2nd Edition (ABAS-II), Vineland Adaptive Behavior Scale (VABS), Achenbach System of Empirically Based Assessment-Child Behavior Checklist (CBCL), were administered at Time 1 and Time 2.

WPPSI-IV and WISC-IV were developed by David Wechsler to measure intellectual functioning in verbal and performance cognitive domains of children aged from 2 to 7 and 6 to 16 year-old respectively (Wechsler, 2012 & 2014). The English version of WPPSI-IV was published by Pearson Education and the Chinese version was distributed by Chinese Behavioral Science Cooperation. ASD screening questionnaires were developed by Professor Cheng-Fen Chang at Department of Special Education at National Taiwan Normal University to detect the core symptoms of children with ASD using four-point Likert Scale. The questionnaire set cut-off scores in the dimensions of overall performance, social, communication, and behavior/cognitive domains. For ASD screening questionnaires, parents and teachers completed the same form. ABAS-II was developed by Oakland & Harrison, published by Psychological Corporation, and printed to Chinese versions by Chinese Behavioral Science Cooperation. It includes parentand teacher forms to assess the overall adaptive behavior of 2-5 or 6-18 year-old children as well as their daily living performance of conceptual reasoning, social interactions, and practical functioning (Oakland & Harrison, 2011). VABS was developed by Sparrow and Harrison and included survey/interview form for parents and teacher rating form to assess the overall adaptive behaviorof 0-90 or 3-12 year-old participants as well as their communication, daily living skill, and social domains (Sparrow, Balla, & Cicchetti, 1984; Sparrow, Cicchetti, & Balla, 2005). It's published by Pearson, and the classroom version was printed to Chinese version by Chinese Behavioral Science Cooperation. For CBCL, there are parent and teacher forms for children ranging from 1.5 to 5 year-old or 6 to 12 year-old. CBCL used 3-point Likert Scale to rate children's behavioral and emotional problems covered within the empirically - based DSM-oriented and syndrome scales (Achenbach & Rescorla, 2000 & 2001). It's developed by Tomas Achenbach, published by ASEBA Research Center, and printed to Chinese version by Psychological Publishing Company in Taiwan.

The study is based on the chart review of psychological measurements that the participants had taken at Time 1 and 2. The study collected

and analyzed the data in terms of participants' socio-demographic characteristics as well as their psychometric outcomes. We used the paired t-test in SPSS to analyze the data obtained at beginning of the study and at follow-up of six months later on.

Results

The overall intelligence ability of the participants ranged between borderline to gifted levels (Full IQ: M=101.47, SD=15.01, Max=133, Min=77). There were no significant differences between the IQ scores measured at Time 1 and Time 2 (p-value ranged from 0.220 to 0.935, α = .05). The means of the scores from the social domain of parents' ASD screening questionnaires declined significantly (t=-2.15, p<0.05, α = .05). The lower score may imply parents reported fewer or less severe symptoms at the social domain related to ASD. The means of the standardized scores in overall performance of Vinland's Adaptive Rating Scale (Interview Form) as well as the scores in its communication domain and social domain elevated significantly (t=3.40, 3.69, & 2.35 respectively, P<0.01, α = .05). The higher scores may imply the general adaptive performance of the participants' progress comparing with their age-matched peers based on parents' observation, especially in terms of their communication and social related functions. Additional significant improvements were noticed in the CBCL scores of syndrome scales of withdrawn / depressed, social problems, and aggressive behavior reported by parents and the scores of the externalized problem scale and syndrome scale of rule-breaking behavior reported by teachers (p-value ranged from 0.004 to 0.050, α= .05). The above results implied the participants are less withdrawn/ depressed or show fewer social problems and aggressive behavior based on parents' observation. As well, the teachers noticed the participants show fewer or less externalized problems such as they do not break the rules as often or with the severity as they did six month earlier. However, not all psychometric indices of the participants showed significant improvement. The results are consistent with the study done by (Carter et al., 2011) that indicated not all measurements wouldsupport the effectiveness of the autism intervention outcomes. The analysis results of the primary measurements are presented in Table 2.

Table 2: Analysis Results of The Primary Measurements Between Time 1 and Time 2

Primary Measurements	M-time2	M-time1	M	SD	SE Mean	t	df	Sig. (1-tailed)
ASD Screening Questionnaires by Parents								
Overall scores	103.5	112.00	-8.500	28.826	5.884	-1.445	23	0.081
Social domain	38.67	44.54	-5.875	13.421	2.739	-2.145	23	0.021*
Communication domain	28.33	29.38	-1.042	10.952	2.236	-.466	23	0.323
Behavior domain	28.33	29.96	-1.625	11.657	2.380	-.683	23	0.251
Cognitive domain	13.55	15.36	-1.818	3.430	1.034	-1.758	10	0.055
ASD Screening Questionnaires by Teachers								
Overall scores	71.05	72.85	-1.800	37.074	8.290	-.217	19	0.415
Social domain	30.80	29.55	1.250	12.143	2.715	.460	19	0.325

Table 2: Analysis Results of The Primary Measurements Between Time 1 and Time 2 (Cont.)

Primary Measurements	M-time2	M-time1	M	SD	SE Mean	t	df	Sig. (1-tailed)
Communication domain	19.40	20.20	-.800	11.501	2.572	-.311	19	0.380
Behavior domain	16.60	19.80	-3.200	14.472	3.236	-.989	19	0.168
Adaptive Behavior Assessment System-parent form								
Overall scores	87.61	87.39	.217	13.879	2.894	.075	22	0.470
Social domain	86.33	84.29	2.042	12.578	2.568	.795	23	0.217
Adaptive Behavior Assessment System-teacher form								
Overall scores	88.22	94.00	-5.778	16.795	3.959	-1.460	17	0.081
Social domain	85.84	85.89	-.053	10.870	2.494	-.021	18	0.492
Vineland Adaptive Behavior Scales-Interview/Parent form								
Overall scores	88.32	82.36	5.955	8.220	1.753	3.398	21	0.001**
Communication domain	89.52	82.87	6.652	8.648	1.803	3.689	22	0.001**
Social domain	84.57	80.96	3.609	7.378	1.538	2.346	22	0.014*
Vineland Adaptive Behavior Scales-Teacher form								
Overall scores	98.50	100.50	-2.000	16.172	4.322	-.463	13	0.326
Communication domain	104.00	101.67	2.333	12.190	2.873	.812	17	0.214
Social domain	103.94	96.50	7.438	20.301	5.075	1.465	15	0.082
Child Behavior Checklist-Parent form								
Internalizing problem	64.92	65.08	-.154	6.427	1.783	-.086	12	0.466
Externalizing problem	60.08	61.92	-1.846	10.007	2.775	-.665	12	0.259
Total scales	64.92	67.77	-2.846	6.866	1.904	-1.495	12	0.080
Anxious/Depressed	84.31	82.50	1.813	5.764	1.441	1.258	15	0.114
Withdrawn/Depressed	84.88	94.50	-9.625	12.795	3.199	-3.009	15	0.004**
Social problems	88.81	95.00	-6.188	13.634	3.409	-1.815	15	0.045*
Thought problems	82.75	85.31	-2.563	17.652	4.413	-.581	15	0.285
Attention problems	89.06	91.94	-2.875	12.696	3.174	-.906	15	0.190
Rule-breaking behavior	75.63	79.13	-3.500	15.921	3.980	-.879	15	0.197
Aggression behavior	81.31	88.00	-6.688	10.084	2.521	-2.653	15	0.009**

Table 2: Analysis Results of The Primary Measurements Between Time 1 and Time 2 (Cont.)

Primary Masurements	M-time2	M-time1	M	SD	SE Mean	t	df	Sig. (1-tailed)
Child Behavior Checklist-teacher form								
Internalizing problem	55.86	57.93	-2.071	9.762	2.609	-.794	13	0.221
Externalizing problem	53.00	57.29	-4.286	8.792	2.350	-1.824	13	0.046*
Total scales	54.71	57.71	-3.000	8.376	2.239	-1.340	13	0.102
Anxious/Depressed	75.37	77.47	-2.105	18.672	4.284	-.491	18	0.315
Withdrawn/Depressed	77.00	77.37	-.368	16.463	3.777	-.098	18	0.462
Social problems	81.84	84.68	-2.842	15.604	3.580	-.794	18	0.219
Thought problems	75.37	74.84	.526	16.883	3.873	.136	18	0.447
Attention problems	74.74	73.63	1.105	17.987	4.127	.268	18	0.396
Rule-breaking behavior	66.21	73.53	-7.316	18.337	4.207	-1.739	18	0.050*
Aggression behavior	78.42	80.42	-2.000	16.912	3.880	-.515	18	0.306

Note. *p<.05 **p<.01.

Discussion

This study examined the treatment effectiveness of an evidence-based intervention program called MSSCB for children with ASD in the rural area of central Taiwan. Some indices measured reported by parents and teachers implied children with ASD might make progress after receiving the intervention continuously for six months. However, not all measurements supported the benefits of the MSSCB intervention.

In our study, only some of the scores measuring children's adaptive functions and few of the scores measuring their behavior/emotional problems showed significant progress. There may be a few reasons for these results. Above all, due to the specific focus of MSSCB on social, communication, and behavior/emotional problems of children with ASD as well as it only being delivered 1.25 to 1.5 hour weekly, it is reasonable to assume the benefits of MSSCB will not apply to all aspects of adaptive behavior or behavioral/emotional problems. Similarly, the results of numerous other social skill interventions also demonstrated their efficacy in some specific social behavior instead of global or other adaptive functions (Frankel et al., 2010 ; Koenig et al., 2010 ; Laugeson et al., 2009 ; Lopata et al., 2010 ; Solomon et al., 2004). In our study, the substantial changes of adaptive scores were collected through the interviews with parents in contrast to the other ones that were collected through written surveys or teachers. Parents are assumed to be more sensitive to the adaptive change or progress of their children (Keen, Rodger, Doussin, & Braithwaite, 2007) as such a VABS Interview Form that is based on the parents' observation and interview with parents is more likely to reflect children's' changes in certain adaptive functions. In contrast, the other adaptive measurement including both parent and teacher forms of ABAS did not consistently demonstrate significant findings. We would assume either individual interviews help facilitate adults to detect positive changes in the children or there

can be validity or reliability issues between VABS and ABAS. However, further investigation of these inconsistent results is necessary. Furthermore, the positive gains shown in parent and teacher forms of CBCL may reflect the focus of MSSCB on social and behavior/emotional goals as well as the priority of MSSCB within the management of children's problematic behavior that may interfere with group participation. Thus, parents were more likely to notice that their children were less withdrawn/depressed or showed fewer social problems and aggressive behavior and teachers were more likely to recognize that these students did not break the rules as often or with the severity as they did previously. It could be inferred that parents might be able to spot children's social or behavior/emotional issues more carefully, and teachers are more sensitive to children's rule-breaking behavior because this type of behavior interrupted significantly with classroom teaching. Further investigation is required to examine this hypothesis.

Limitation

In terms of the limitations and future suggestions, inclusion of control groups in the future study is urgently suggested to examine treatment effectiveness for MSSCB. Without comparison with a control group, we cannot establish a direct link between children's progress and MSSCB intervention. We cannot rule out if their progress from Time 1 to Time 2 comes from natural growth or other variables. Besides, social challenges can interfere with the life of children with ASD even more as they age (Kasari & Rotheram-Fuller, 2007; White, Keonig, & Scahill, 2007), this may make the intervention benefits less noticeable using pretest - posttest design. The core deficits of children with ASD especially in social domain may aggravate their delay from the developmental pathway of typical peers. As a result, the improvement of the scores of the intervention group from Time 1 to Time 2 may not be detectable without comparing the scores between the intervention group and the control group. With the control group, we can discover the developmental path of children with ASD. We are more likely to detect the actual effect of the difference of social, communication, or emotional/behavioral performance of children with ASD between the ones who do and do not receive intervention. In so much as social skills training and the progress of children with ASD generally take longer time, ethical issue may arise whereas keeping young children on waiting list for 6 months or longer may impede their best progress.

One of the other limitations of the current study is that it relies solely on psychological measurements of children's cognitive, adaptive, or syndrome scales. These scores may not reflect the intervention efforts. Most of the scale scores were not related faithfully to the intervention goals set in MSSCB program. For instance, VABS is more likely to reflect the global progress of the children that is most likely resulting from intensive early intervention and may not be sensitive to the intervention change of social behavior (MacDonald, Parry - Cruwys, Dupere, & Ahearn, 2014). Therefore, choosing proper outcomes measurement targeted by the study will be critical (Carter et al., 2011). Many studies of social skills training of children with ASD include specific measurements of outcome variables depending on the unique goals set up in the treatment sessions for them (Frankel et al., 2010; Koenig et al., 2010 ; Laugeson et al., 2009 ; Lopata et al., 2010 ; Solomon et al., 2004). Consequently, intervention studies may choose different outcome variables based on their intervention targets (Solomon et al., 2004; Carter et al., 2011). Additionally, supplement of parents', teachers' and peers' surveys to monitor the intervention benefits that generalize to real world settings will be important for detecting the treatment outcomes.

Finally, intervention fidelity of MSSCB program should be stressed in future study. Intervention fidelity helps ensure that the intervention implementation follows the treatment protocol and guidelines. It is also an important index for research quality (Smith et al., 2007; Wang & Parrila, 2008). Supervision and turnover-rate management of interventionists as well as the utilization of protocol and guideline checklist are suggested in the future study to enforce the intervention fidelity. Although not all indices consistently and significantly supported benefits of the MSSCB program, the preliminary outcome study implies that MSSCB program might be effective for children with high-functioning ASD detected by several psychometric measurements. However, there should be more effort placed to improve the research quality and continue examining the treatment effectiveness of MSSCB program in order to help progress and establish of cross-culturally EBP program to maximize the improvement of children with ASD at rural areas under different cultures.

References

American Psychiatric Association, & American Psychiatric Publishing. (2014). D*iagnostic and statistical manual of mental disorders: DSM-5.* Washington: American Psychiatric Publishing.

Achenbach, T. M., & Rescorla, L. A. (2000). *Manual for the ASEBA preschool forms and profiles.* Burlington, VT: University of Vermont, Research center for children, youth, & families.

Carter, A. S., Messinger, D. S., Stone, W. L., Celimli, S., Nahmias, A. S., & Yoder, P. (2011). A randomized controlled trial of Hanen's 'More Than Words' in toddlers with early autism symptoms. *Journal of Child Psychology and Psychiatry, 52*(7), 741-752.

Centers for Disease Control and Prevention. (2012, March 30). Prevalence of Autism Spectrum Disorders — Autism and Developmental Disabilities Monitoring Network, 14 Sites, United States, 2008. Retrieved from https://www.cdc.gov/mmwr/preview/mmwrhtml/ss6103a1.htm.

Chien, I.C., Lin, C.H., Chou, Y.J., & Chou, P. (2011). Prevalence and Incidence of Autism Spectrum Disorders Among National Health Insurance Enrollees in Taiwan from 1996 to 2005. *Journal of Child Neurology. 26*(7), 830-834.

Fombonne, E. (2005). The changing epidemiology of autism. Journal of Applied Research in Intellectual Disabilities, 18(4), 281-294.

Force, A. T. (2006). APA Presidential Task Force on Evidence Based Practice. *American Psychologist, 61*, 271-285.

Frankel, F., Myatt, R., Sugar, C., Whitham, C., Gorospe, C. M., & Laugeson, E. (2010). A randomized controlled study of parent -assisted children's friendship training with children having autism spectrum disorders. *Journal of autism and developmental disorders, 40*(7), 827-842.

Green, G., Ricciardi, J. N., & Boyd, B. A. (2009). The National Standards Project–addressing the need for evidence-based practice guidelines

for autism spectrum disorders. *National Autism Center. Massachusettes. National Standards Report.*

Howlin, P., Goode, S., Hutton, J., & Rutter, M. (2004). Adult outcome for children with autism. *Journal of Child Psychology and Psychiatry, 45*(2), 212-229.

Kasari, C. (2002). Assessing change in early intervention programs for children with autism. *Journal of autism and developmental disorders, 32*(5), 447-461.

Kasari, C., & Rotheram-Fuller, E. (2007). Peer relationships of children with autism: Challenges and interventions. *Clinical manual for the treatment of autism, 11*, 235-257.

Keen, D., Rodger, S., Doussin, K., & Braithwaite, M. (2007). A pilot study of the effects of a social-pragmatic intervention on the communication and symbolic play of children with autism. *Autism, 11*(1), 63-71.

Koenig, K., White, S. W., Pachler, M., Lau, M., Lewis, M., Klin, A., & Scahill, L. (2010). Promoting social skill development in children with pervasive developmental disorders: a feasibility and efficacy study. *Journal of autism and developmental disorders, 40*(10), 1209-1218.

Laugeson, E. A., Frankel, F., Mogil, C., & Dillon, A. R. (2009). Parent-assisted social skills training to improve friendships in teens with autism spectrum disorders. *Journal of autism and developmental disorders, 39*(4), 596-606.

Leigh, J. P., & Du, J. (2015). Brief report: Forecasting the economic burden of autism in 2015 and 2025 in the United States. *Journal of autism and developmental disorders, 45*(12), 4135-4139.

Lopata, C., Thomeer, M. L., Volker, M. A., Toomey, J. A., Nida, R. E., Lee, G. K., ... & Rodgers, J. D. (2010). RCT of a manualized social treatment for high-functioning autism spectrum disorders. *Journal of autism and developmental disorders, 40*(11), 1297-1310.

MacDonald, R., Parry-Cruwys, D., Dupere, S., & Ahearn, W. (2014). Assessing progress and outcome of early intensive behavioral intervention for toddlers with autism. *Research in developmental disabilities, 35*(12), 3632-3644.

National Autism Center. (2009). *The National Standards Project—Addressing the need for evidence-based practice guidelines for autism spectrum disorders.* Randolph, MA: Retrieved from http://autismpdc.fpg.unc.edu/evidence-based-practices

Rao, P. A., Beidel, D. C., & Murray, M. J. (2008). Social skills interventions for children with Asperger's syndrome or high-functioning autism: A review and recommendations. *Journal of autism and developmental disorders, 38*(2), 353-361.

Reichow, B., Steiner, A. M., & Volkmar, F. (2013). Cochrane review: social skills groups for people aged 6 to 21 with autism spectrum disorders (ASD). *Evidence-Based Child Health: A Cochrane Review Journal, 8*(2), 266-315.

Smith, T., Scahill, L., Dawson, G., Guthrie, D., Lord, C., Odom, S., & Wagner, A. (2007). Designing research studies on psychosocial interventions in autism. *Journal of autism and developmental disorders,37*(2), 354-366.

Solomon, M., Goodlin-Jones, B. L., & Anders, T. F. (2004). A social adjustment enhancement intervention for high functioning autism, Asperger's syndrome, and pervasive developmental disorder NOS. *Journal of autism and developmental disorders,34*(6), 649-668.

Sparrow, S. S., Balla, D. A., & Cicchetti, D. V. (1984). Vineland adaptive behavior scales: Survey forms manual. *Circle Pines*, MN: American Guidance Service.

Sparrow, S. S., Cicchetti, D. V., & Balla, D. A. (2005). Vineland adaptive behavior scales (2nd ed.). *Circle Pines*, MN: American Guidance Service.

Sun, X., Allison, C., Matthews, F. E., Zhang, Z., Auyeung, B., Baron-Cohen, S., & Brayne, C.

(2015). Exploring the underdiagnosis and prevalence of autism spectrum conditions in Beijing. *Autism Research, 8*(3), 250-260.

Wang, S. Y., & Ma, C. Y. (2014). Development and Implementation of Evidence-based Interventions for Social Skills Interventions of Children with Autism Spectrum Disorder in Central Taiwan. *International Journal of Child Devlelopment and Mental Health, 2*(2), 36-52.

Wang, S. Y., & Parrila, R. (2008). Quality Indicators for Single-Case Research on Social Skill Interventions for Children with Autistic Spectrum Disorder. D*evelopmental Disabilities Bulletin, 36*, 81-105.

Wang, P., & Spillane, A. (2009). Evidence-based social skills interventions for children with autism: A meta-analysis. *Education and Training in Developmental Disabilities, 44*(3), 318-342.

Wechsler, D., & Psychological Corporation. (2012). *WPPSI-IV: Wechsler preschool and primary scale of intelligence - fourth edition. Bloomington,* MN: Pearson, Psychological Corporation.

Wechsler, D., Pearson Education, Inc, & Psychological Corporation. (2014). WISC-V: *Technical and interpretive manual*. San Antonio, TX: NCS Pearson, Inc.

White, S. W., Keonig, K., & Scahill, L. (2007). Social skills development in children with autism spectrum disorders: A review of the intervention research. *Journal of autism and developmental disorders, 37*(10), 1858-1868.

Wilkinson, L. A. (2015). *Autism Spectrum Disorder in Children and Adolescents: Evidence- Based Assessment and Intervention in Schools.* Washington: American Psychological Association.

Wing, L., & Potter, D. (2002). The epidemiology of autistic spectrum disorders: is the prevalence rising?. *Developmental Disabilities Research Reviews, 8*(3), 151-161.

Yell, M. L., Shriner, J. G., & Katsiyannis, A. (2006). Individuals with disabilities education improvement act of 2004 and IDEA regulations of 2006: Implications for educators, administrators, and teacher trainers. *Focus on exceptional children, 39*(1), 1.

Yoo, H. J., Bahn, G., Cho, I. H., Kim, E. K., Kim, J. H., Min, J. W., ... & Cho, S. (2014). A Randomized Controlled Trial of the Korean Version of the PEERS® Parent-Assisted Social Skills Training Program for Teens With ASD. *Autism Research, 7*(1), 145-161.