

**Table 1.**  
**Characteristics of the Included Studies**

Study	Methods	Participants	Interventions	Outcomes	Notes
<b>Aydin and Yildirim<sup>49</sup></b>	Open-label: uncontrolled, both participants and assessors were unblinded	265; age: 3–18 y; sex distribution not reported	1.5, 1.6, and 1.8 mA, 30-min tDCS stimulation over anodal left DLPFC (F3), and cathodal right supraorbital area: 20 sessions	Change in SRS, ABC; raw scores were unavailable	Assessments were conducted at pre- and post-intervention time points; no follow-up; stable medication regimen for at least 3 mo before the start of the study
<b>Amatachaya et al<sup>28</sup></b>	RCT (crossover), double-blinded, sham-controlled	20; age: 5–8 y; M = 20	1 mA of tDCS stimulation for 20 min over anodal left DLPFC and cathodal right supraorbital region: 5 tDCS sessions	Change in ATEC and CARS scores	Assessments completed at pre- and post-intervention; no follow-up; concomitant medications: pyritinol (n = 1), Ritalin (n = 1), or risperidone (n = 5)
<b>Amatachaya et al<sup>29</sup></b>	Double-blinded, sham-controlled, RCT (crossover study)	20; age: 5–8 y; M = 20	Change in ATEC scores	Assessment completed at pre- and post-intervention; no follow-up	Concomitant medications: pyritinol (n = 1), Ritalin (n = 1) or risperidone (n = 5)
<b>Amiri et al<sup>39</sup></b>	RCT, single-blinded	20; age: 8–11 y; M = 20	Experimental group: 12 tDCS sessions of 20 min over left DLPFC (4 sessions/wk); control group: cognitive occupational therapy, 12 sessions of 60 min (2 sessions/wk)	Stroop test, Behavior Rating Inventory of Executive Function	Assessments completed at pre- and post-treatment; 1-mo follow-up; no concomitant psychiatric medications during past 6 mo
<b>Auvichayapat et al<sup>45</sup></b>	Nonrandomized, uncontrolled, open-label	10; age: 5–8 y; M = 10	1 mA anodal left DLPFC for 20 min: 5 sessions	Change in ATEC and CARS	Assessments at pre- and post-intervention; 7- and 14-day follow-up; no concomitant medications used
<b>Auvichayapat et al<sup>30</sup></b>	RCT	36; age: mean (SD) = 77.67 (17.38) mo; M = 36	1 mA, 20-min stimulation over anodal left DLPFC; (1) 5-tDCS group: 5 sessions of active tDCS followed by 15 sessions of sham tDCS, (2) 20-tDCS group: 20 sessions of active tDCS, and (3) control group: 20 sessions of sham tDCS	Change in CARS	Baseline, days 5, 14, and 20, and months 1, 2, 4, 6, 8, 10, and 12 post-intervention; concomitant neuropsychiatric medications: risperidone (n = 2); methylphenidate, clonazepam, and risperidone (n = 1)
<b>Chen et al<sup>51</sup></b>	RCT	28; age: 6–12 y; M = 16, F = 12	Bifrontal tDCS stimulation at 1.5 mA for 15 min concurrent with the computerized go/no-go training task: 8 sessions	Stroop test	Assessments completed at pre- and post-intervention; no follow-up; no concomitant medications used
<b>Costanzo et al<sup>52</sup></b>	Case report	1; age: 14 y; F = 1; ASD with catatonia and mild intellectual disability	Anodal left/cathodal right DLPFC 1 mA for 20 min: 28 sessions	Kanner catatonia score	Stable dose of neuropsychiatric medication
<b>D'Urso et al<sup>44</sup></b>	Open-label (pilot study); partial crossover	7; age: 9–13 y; M = 6, F = 1	Anodal left DLPFC and cathodal right cerebellar lobe tDCS at 1 mA for 20 min: 20 sessions	Change in ABC	Assessments completed at pre- and 1-week post-intervention; no follow-up; sertraline (n = 1), haloperidol (n = 1), risperidone (n = 1)
<b>Gómez et al<sup>50</sup></b>	RCT (partial crossover), single-blinded	24; mean age: 12.2 y; M = 14, F = 10	20 sessions: cathodal left DLPFC 1 mA for 20 min for children aged <11 y; rTMS of a maximum of 1,500 pulses at 1 Hz frequency/session was delivered over DLPFC to patients aged 11–13 y	Change in ATEC, ABC scores	Assessments completed at pre- and post-intervention, 1-, 3-, and 6-mo follow-up; no change in drug therapy during the study
<b>Hadoush et al<sup>27</sup></b>	RCT (pilot study)	50; age: 4–14 y; M = 41, F = 9	1 mA of bilateral anodal tDCS stimulation over the left and right prefrontal and motor areas for 20 min: 10 sessions (5 sessions/wk for 2 wk)	Change in ATEC scores	Pre- and post-intervention assessments; no follow-up; no concomitant medications used

(continued)

Table 1 (continued).

Study	Methods	Participants	Interventions	Outcomes	Notes
Hupfeld and Ketcham <sup>41</sup>	Open-label feasibility study	3; age: 4–8 y; M = 3	2 participants: anodal left DLPFC; 1 participant: left SMA and left supraorbital; right supraorbital cathodal placement in combination with motor/language training for all 3 participants: 0.4 mA tDCS for an 85-min session every 3 mo for at least 18 mo (minimum: 6 sessions)	Change in simple reaction time and choice reaction time	No concomitant medications used
Kang et al <sup>46</sup>	RCT (pilot study)	Experimental: N = 13, mean $\pm$ SD age: 6.52 $\pm$ 1.76 y, M = 11; control: N = 13, age = 6.38 $\pm$ 1.83 y, M = 11	1 mA, 20-min tDCS sessions, anodal left DLPFC (F3) and the cathodal right supraorbital area: 10 sessions	ABC	Assessment completed at pre- and post-intervention; no follow-up; no concomitant medications used
Kang et al <sup>47</sup>	RCT, unblinded, no sham-controlled	24; mean $\pm$ SD age: 5.5 $\pm$ 1.2 y; M = 20 and F = 4	1 mA, 20 min tDCS sessions; anode left DLPFC (F3) and cathodal right supraorbital area vs cathodal left DLPFC and anodal right supraorbital area: 20 sessions	Change in SRS and ABC	Pre- and post-intervention; no follow-up; no concomitant medications used
Kang et al <sup>48</sup>	RCT, single-blinded (single-blind subject)	Experimental: N = 24, mean $\pm$ SD age: 5.84 $\pm$ 1.85 y; control: N = 24, age: 5.44 $\pm$ 2.17 y; sex distribution not reported	1 mA, 20-min tDCS sessions; with anodal electrode over the left DLPFC (F3), and the cathodal electrode over the right supraorbital area: 20 sessions	ABC, effects of brain functional connectivity in children with ASD	Assessments completed at pre- and post-intervention; no follow-up; no concomitant medications used
Mahmoodifar and Sotoodeh <sup>42</sup>	RCT	18; age: 6–14 y; sex distribution not reported	1.5 mA anodal tDCS over the left M1 for 20 min: 10 sessions	Movement Assessment Battery for Children	Assessments completed at pre- and post-intervention; no follow-up; no change in the dose of prescribed medication during the study
Nazari et al <sup>31</sup>	RCT	12; age: 6–12 y; M = 9, F = 3; 3 excluded from analysis	2 mA anodal left DLPFC for 15 mins: 10 sessions	ERT, ATEC	Assessments completed at pre- and post-intervention; no follow-up; no concomitant medication use reported
De Oliveira et al <sup>37</sup>	RCT (crossover)	12; age: 6–12 y; M = 9, F = 3	1 mA anodal left DLPFC for 20 min during cognitive training: 10 sessions	Change in ToM, ERT	Assessment completed at pre- and post-intervention and at 3-mo follow-up; no concomitant medications used
Prillinger et al <sup>38</sup>	RCT, double-blinded, sham-controlled	22; age: 12–18 y; M = 22, F = 0; 1 dropped out	2 mA anodal left DLPFC tDCS stimulation together with cognition training for 20 min: 10 sessions	Emotional recognition task	Assessments completed at pre- and post-intervention; no follow-up; no concomitant medications used
Prillinger et al <sup>32</sup>	RCT	22; age: 12–18 y; M = 22, F = 0	2 mA anodal left DLPFC tDCS stimulation together with cognitive training for 20 min: 10 sessions	Change in Emotional Recognition Task and Social Responsiveness Scale scores	Assessments completed at pre- and post-intervention; no follow-up; no concomitant medications used
Qiu et al <sup>24</sup>	RCT, parallel, single-blinded	42; age: 2–6 y; M = 30, F = 10; 1 dropped out	1 mA anodal tDCS over left DLPFC: 15 sessions	Change in ABC, CARS	Assessments completed at pre-intervention and 2 wk post-intervention; no follow-up; no concomitant medications in the last 3 mo

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**Table 1 (continued).**

Study	Methods	Participants	Interventions	Outcomes	Notes
<b>Robinson-Agramonte et al<sup>26</sup></b>	Open-label	16; age: 6–13; M = 13, F = 3	Children younger than 11 years (n = 11) received cathodic tDCS over the left DLPFC (cathode F3; anode right upper arm), 1 mA intensity for 20 min. Children 11 years and older (n = 5) received 1 Hz rTMS over F3: 20 sessions	Change in ATEC, ABC scores, CGI-S scores	Assessments completed at pre- and 1-wk post-intervention; no follow-up; no concomitant medications
<b>Salehinejad et al<sup>25</sup></b>	RCT (cross-over)	16; age: 8–12 y; M = 8, F = 8; 2 dropped out	1 mA, 20 min tDCS stimulation at (a) anodal vmPFC tDCS, (b) anodal right TPJ tDCS, and (c) sham tDCS: 3 sessions	Change in ToM scores	Assessment completed during and post-stimulation; no follow-up; no use of concomitant neuropsychiatric medications
<b>Schneider and Hopp<sup>40</sup></b>	Open-label	10; age: 6–21 y; M = 8, F = 0	2 mA of tDCS stimulation over anodal left DLPFC for 30 min: 1 session	Bilingual Aphasia Test	Assessments completed at pre- and post-intervention; no follow-up; no concomitant medication used
<b>Sun et al<sup>25</sup></b>	RCT; single-blinded (subject blinded to intervention), sham-controlled	40; age: 4–12 y; M = 33 and F = 7; 1 dropped out; 2 withdrawn	1.5 mA, 20 min anodal left DLPFC/cathodal right supraorbital area tDCS sessions with both groups receiving conventional rehabilitation: 12 sessions	Change in ABC scores, evaluation of improvement in mismatch negativity	Assessments completed at pre- and post-treatment; no follow-up; rehabilitation therapies included behavioral intervention strategies, sensory integration therapy, and speech therapy; no concomitant drug therapy
<b>Toscano et al<sup>43</sup></b>	RCT	20; age: 9–14 y; M = 16, F = 4; 4 dropped out	Anodal left DLPFC and cathodal right cerebellar lobe tDCS at 1 mA for 20 min: 20 sessions	Change in ATEC and ABC scores	The article is a conference abstract; full information on methodology and results is not available
<b>Wang et al<sup>33</sup></b>	RCT	51 (analyzed: 45); age: 4–12 y; M = 37, F = 8; 4 excluded from analysis	2 mA, tDCS for 20 min with Cz central anode active stimulation group; (2) F3, left DLPFC central anode group; and Cz central anode sham stimulation group: 14 sessions	Change in SRS scores	Assessments completed at pre- and post-intervention with 1-, 2- and 3-mo follow-up; no concomitant medications used
<b>Wang et al<sup>34</sup></b>	RCT; sham-controlled, double-blinded	82; age: 4–12 y; M = 56, F = 26; analyzed: 72	2 mA, tDCS for 20 min with Cz central anode active stimulation group and Cz central anode sham stimulation group: 14 sessions	SRS, ATEC scores	Assessments completed at pre- and post-intervention, 1-, 2-, and 3-mo follow-up; no serious adverse events reported
<b>Wilson et al<sup>53</sup></b>	Case report	1; age: 18 y; M	1.5 mA anodal right TPJ tDCS session for 30 min: 8 sessions	Change in ATEC scores	Assessments completed at pre- and post-intervention, 1-, 2-, and 12-mo follow-up; no concomitant medications used
<b>Zemestani et al<sup>36</sup></b>	RCT; parallel, double-blinded, sham-controlled	32 (7–12); sex distribution not reported	1.5 mA, 15 min, bilateral left anodal/right cathodal DLPFC tDCS sessions	Change in ToM, Emotional Regulation Checklist	Assessments completed at pre- and post-treatment; 1-mo follow-up; no concomitant medications were used

Abbreviations: ABC = Autism Behavior Checklist, ASD = autism spectrum disorder, ATEC = Autism Treatment Evaluation Checklist, CARS = Childhood Autism Rating Scale, DLPFC = dorsolateral prefrontal cortex, ERC = Emotion Regulation Checklist, ERT = Emotion Recognition Task, F = female, M = male, RCT = randomized controlled trial, SRS = Social Responsiveness Scale, tDCS = transcranial direct current stimulation, ToM = theory of mind, TPJ = temporoparietal junction