STIMULUS HANDOUT FOR CAP QUESTIONS

2021
MOCK MCQ
EXAM

CAP Question 1 (20 marks)

The association between lithium in drinking water and neuropsychiatric outcomes: A systematic review and meta-analysis from across 2678 regions containing 113 million people

Brenton Eyre-Watt, Eesharnan Mahendran, Shuichi Suetani, Joseph Firth, Steve Kisely, Dan Siskind – ANZJP 2020, Vol. 55(2) 139-152

Abstract
Background: Lithium in drinking water may have significant mental health benefits. We investigated the evidence on the association between lithium concentrations in drinking water and their neuropsychiatric outcomes.

Methods: We conducted a systematic review and meta-analysis and searched Pubmed, Embase, Web of Science, PsycINFO and CINAHL up to 19 January 2020, for peer-reviewed research examining the association between lithium concentrations in drinking water and neuropsychiatric outcomes. We used a pairwise analysis and a random effects model to meta-analyse suicide rates and psychiatric hospital admissions. We assessed for publication bias using Egger's test and Duval and Tweedie's Trim and Fill analysis.

Results: Twenty-seven studies including 113 million subjects were included in this systematic review. Meta-analysis of 14 studies including 94 million people found higher lithium concentrations were associated with reduced suicide rates ($r = -0.191$, 95% confidence interval = [−0.287, −0.090], $p < 0.001$) and meta-analysis of two studies including 5 million people found higher lithium concentrations were associated with fewer hospital admissions ($r = -0.413$, 95% confidence interval = [−0.689, −0.031], $p = 0.035$). We found significant heterogeneity between studies ($Q = 67.4$, $p < 0.001$, $I2 = 80.7\%$) and the presence of publication bias (Egger's test; t value = 2.90, $p = 0.013$). Other included studies did not provide sufficient data to analyse other neuropsychiatric outcomes quantitatively.

Conclusion: Higher lithium concentrations in drinking water may be associated with reduced suicide rates and inpatient psychiatric admissions. The relationship with other neuropsychiatric outcomes and complications remains unclear. Further research is required before any public health recommendations can be made.

Methods Excerpt:
We used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guideline (Moher et al., 2009). We searched Pubmed, Embase, Web of Science, PsycINFO and CINAHL until 19 January 2020, for studies investigating lithium in drinking water and neuropsychiatric outcomes. We also used SCOPUS to check the references and citations of included studies and relevant reviews. Our search terms focused on lithium, drinking water and the neuropsychiatric outcomes of interest (Supplementary Table 1). These included suicide, psychiatric hospital admissions, bipolar disorder, dementia, schizophrenia, major depressive disorder, psychotic experiences and depressive and anxiety symptoms.

The inclusion criteria for our review included (1) an observational design (cohort, cross-sectional, case–control or longitudinal), (2) published in a peer-reviewed journal and represented original research and (3) an investigation of lithium concentrations in drinking water and its relationship with the chosen neuropsychiatric outcomes. We had no language restrictions.

Two authors (E.M. and B.E-W.) independently screened titles and abstracts for eligible studies, followed by a fulltext review for studies that met the inclusion criteria. Any disputes were settled through discussion with another author (S.S.). Two authors (E.M. and B.E-W.) independently extracted the following data from the included studies: authors, publication year, study region, study design, years investigated, sample size, region number, lithium concentration, neuropsychiatric outcomes, neuropsychiatric outcome assessment tools and all relevant results.

Authors of eligible studies were contacted for additional information if further clarification was needed.

Figure 1

Figure 1. PRISMA flowchart for the association between lithium in drinking water and neuropsychiatric outcomes: a systematic review and meta-analysis from across 2678 regions containing 113 million people.

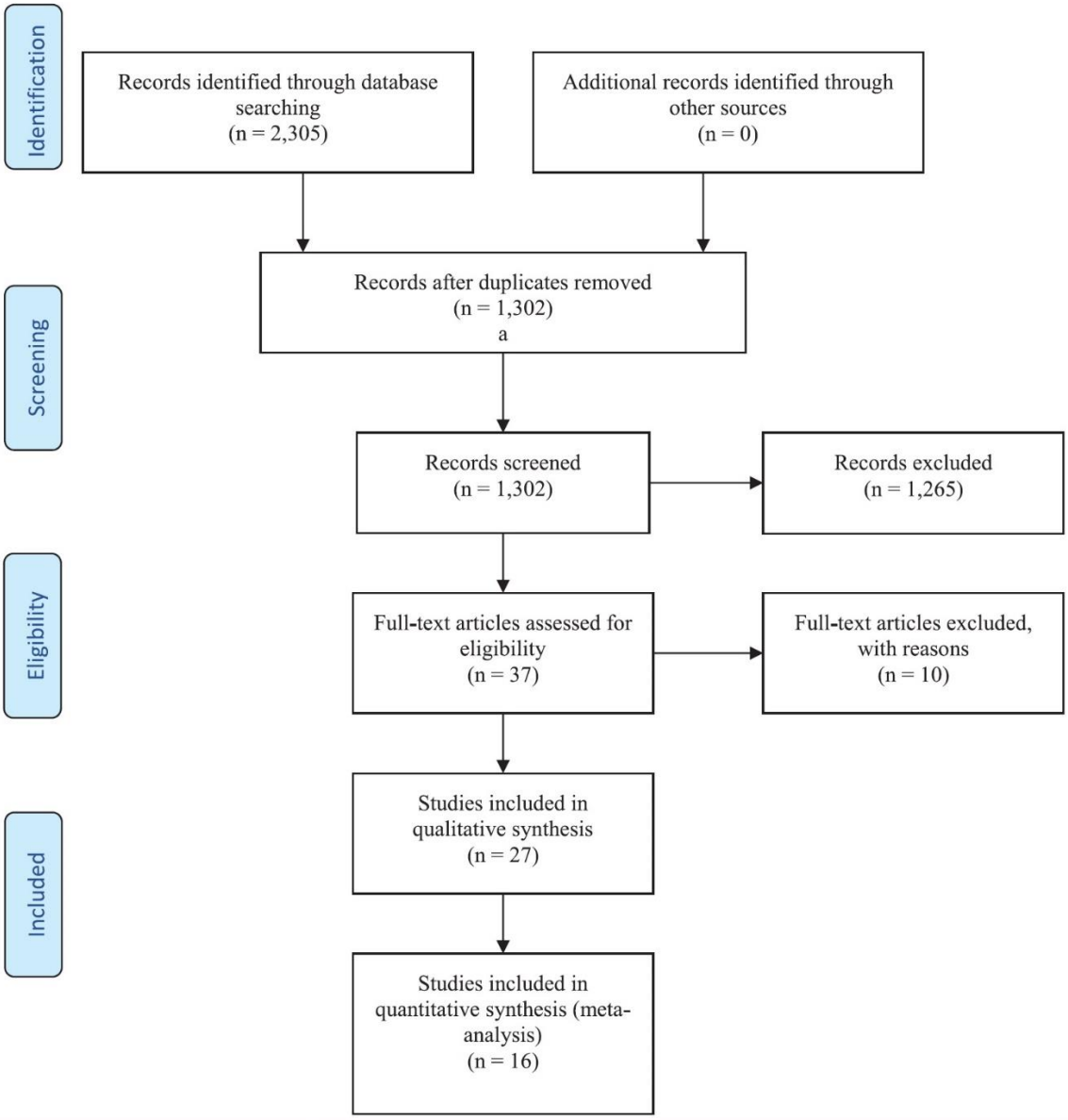
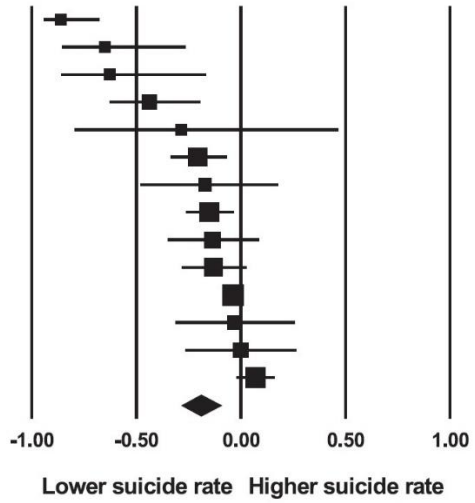


Figure 2

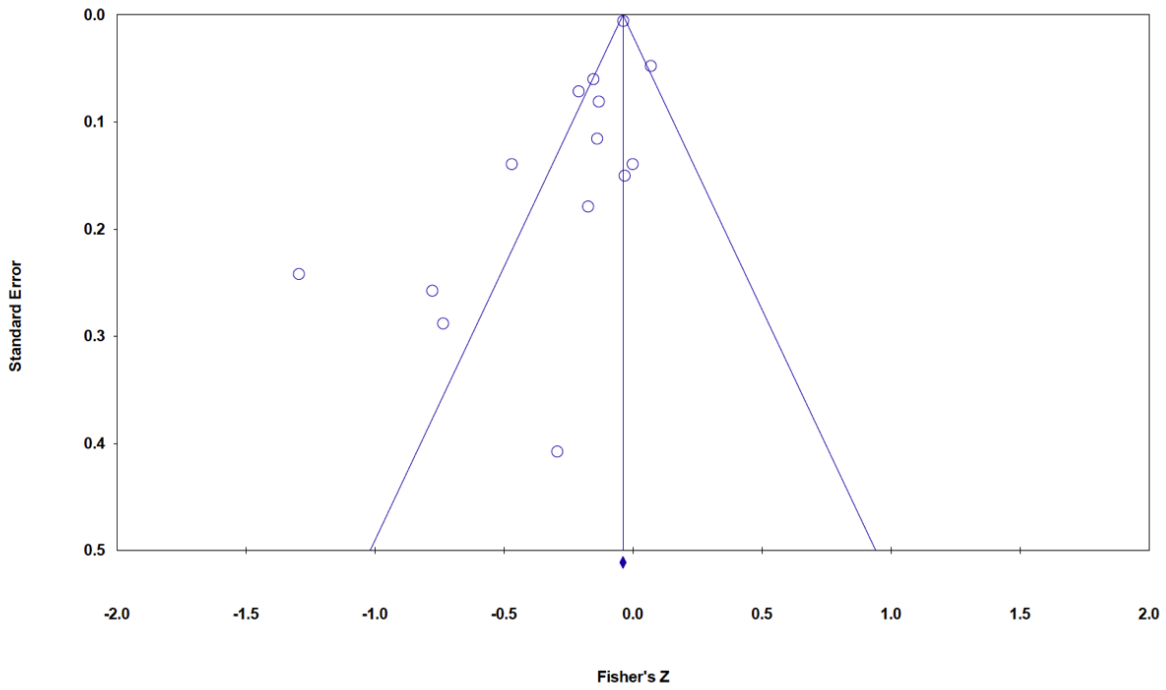
Graphical display of the meta-analysis between lithium in drinking water and suicide rates in the most adjusted models for the association between lithium in drinking water and neuropsychiatric outcomes: a systematic review and meta-analysis from across 2678 regions containing 113 million people.

Study name	Subgroup within study	Correlation	Lower limit	Upper limit	Z-Value	p-Value
Schrauzer 1990	.	-0.860	-0.943	-0.673	-5.328	0.000
Ohgami 2009	.	-0.650	-0.857	-0.263	-3.003	0.003
Palmer 2018	.	-0.625	-0.861	-0.166	-2.540	0.011
Liaugaudaite 2019	.	-0.436	-0.630	-0.190	-3.337	0.001
Liaugaudaite 2017	.	-0.283	-0.797	0.469	-0.713	0.476
Kapusta 2011	Combined	-0.205	-0.336	-0.066	-2.882	0.004
Giotakos 2013	.	-0.170	-0.481	0.178	-0.956	0.339
Ishii 2015	.	-0.150	-0.264	-0.032	-2.488	0.013
Sugawara 2013	Combined	-0.136	-0.349	0.091	-1.173	0.241
Shiotsuki 2016	.	-0.129	-0.282	0.030	-1.589	0.112
Blumi 2013	.	-0.035	-0.048	-0.023	-5.511	0.000
Kabacs 2011	.	-0.030	-0.314	0.259	-0.199	0.842
Oliveira 2019	.	0.001	-0.267	0.269	0.007	0.994
Pompili 2015	Combined	0.072	-0.023	0.165	1.482	0.138
		-0.191	-0.287	-0.090	-3.687	0.000



Meta Analysis of correlation between lithium level and suicide rate

Figure 3



CAP Question 2 (20 marks)

Generic versus disorder-specific cognitive behavior therapy for social anxiety disorder in youth: [using internet delivery]

Susan H. Spence[a], Caroline L. Donovan[b], Sonja March[c], Justin A. Kenardy[d], Cate S. Hearn[b]
a) Australian Institute of Suicide Research and Prevention (AISRAP) and School of Applied Psychology, Griffith University, Mount Gravatt Campus, Mount Gravatt, QLD, 4122, Australia
b) School of Applied Psychology and the Menzies Health Institute Queensland, Griffith University, Mount Gravatt Campus, QLD, 4122, Australia
c) School of Psychology and Counselling & Institute for Resilient Regions, University of Southern Queensland, Springfield, QLD, Australia, 4300
d) School of Psychology, The University of Queensland, Brisbane, QLD, Australia

Abstract

The study examined whether the efficacy of cognitive behavioral treatment for Social Anxiety Disorder (SAD) for children and adolescents is increased if intervention addresses specific cognitive and behavioral factors linked to the development and maintenance of SAD in young people, over and above the traditional generic CBT approach.

Participants were 125 youth, aged 8 to 17 years, with a primary diagnosis of SAD, who were randomly assigned to generic CBT (CBT-GEN), social anxiety specific CBT (CBT-SAD) or a wait list control (WLC). Intervention was delivered using a therapist-supported online program.

After 12 weeks, participants who received treatment (CBT-SAD or CBT-GEN) showed significantly greater reduction in social anxiety and post-event processing, and greater improvement in global functioning than the WLC but there was no significant difference between CBT-SAD and CBT-GEN on any outcome variable at 12-weeks or 6-month follow-up. Despite significant reductions in anxiety, the majority in both treatment conditions continued to meet diagnostic criteria for SAD at 6-month follow up. Decreases in social anxiety were associated with decreases in post-event processing.

Future research should continue to investigate disorder-specific interventions for SAD in young people, drawing on evidence regarding causal or maintaining factors, in order to enhance treatment outcomes for this debilitating condition.

Excerpt from Method:

Participants were 125 youth (75 females, 50 males) aged between 8 and 17 years (M ¼ 11.28, SD ¼ 2.68) who met DSM-5 (American Psychiatric Association, 2013) criteria for a primary diagnosis of SAD on the Anxiety Disorder Interview Schedule for Children (ADIS-C/P; Albano & Silverman, 1996). Details about demographic characteristics are provided in Table 1. The demographic profile of the sample was broadly representative of the Australian census population in terms of country of origin and indigenous status, but of higher average income.

Selection criteria included being aged 8 to 17 years; minimum reading age of 8 years; speaking English fluently; having access to a computer and the internet; and meeting DSM-5 criteria for a primary diagnosis of SAD at a clinical severity rating (CSR) of 4 or more (on a scale from 0 to 8) according to the ADIS-C/P. Comorbidity with other anxiety disorders, depression and externalising disorders was permissible if the CSR was lower than that of the SAD diagnosis.

Exclusion criteria included diagnosis of a pervasive developmental disorder, presence of an intellectual or learning disability, diagnosis of dysthymia or depression at a CSR of 5 or higher, other acute psychiatric disorders (such as psychosis or suicide ideation), and receipt of other current treatment for anxiety.

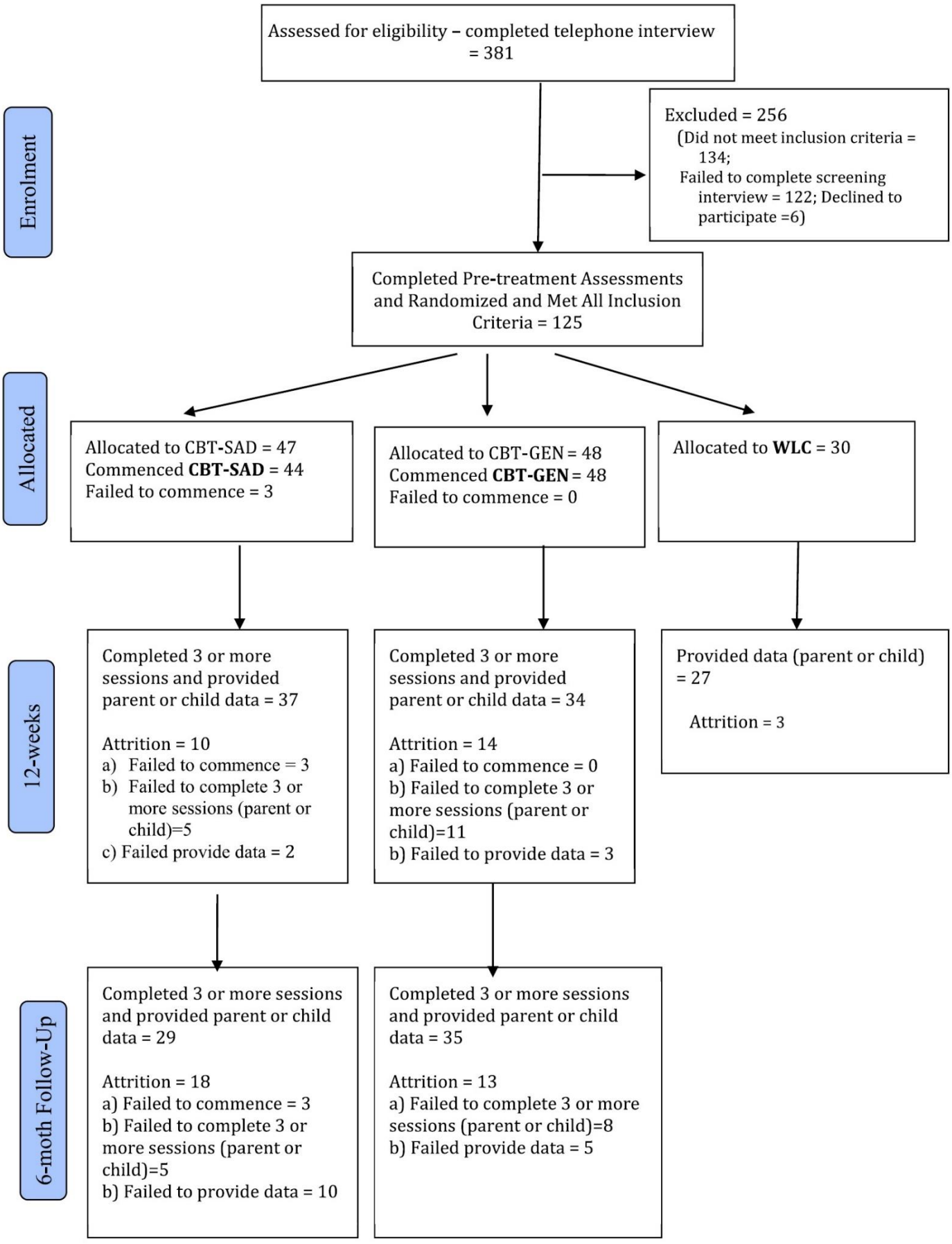


Fig. 1. Flow diagram showing the progression of participants through the study.

In the present study, Cronbach alphas were 0.85 for the SSQ-C and 0.91 for the SSQ-P at baseline.

In this study:

Primary outcome measures - Diagnostic Status, Clinical Severity, Global Functioning.

Secondary outcome measures - Clinical improvement, Social anxiety symptoms, Anxiety symptoms, Satisfaction with the program, Social skills, Post-event processing.

In this study:

All therapists were psychologists who had received a minimum of two days training with the BRAVE-ONLINE materials. In addition, therapists were provided with weekly supervision from an experienced clinical psychologist. During supervision, the therapist's online responses were reviewed in order to maintain a high standard of integrity and to ensure that each therapist was adhering to all guidelines for participant contact (e.g., length and content of session responses, adhering to templates).

Table 2
Diagnostic outcome measures at each assessment point.

	CBT-SAD	CBT-GEN	WLC
Percent free of primary anxiety diagnosis			
12-week assessment			
ITT sample	6/47 (12.8%)	7/48 (14.6%)	1/30 (3.3%)
Retained sample	6/35 (17.1%)	7/34 (20.6%)	1/27 (3.7%)
6-month follow-up			
ITT sample	14/47 (29.8%)	17/48 (35.4%)	
Retained sample	14/27 (51.9%)	16/34 (47.1%)	
Percent free of *any* anxiety diagnosis			
12-week assessment			
ITT sample	2/47 (4.3%)	7/48 (14.6%)	0/30 (0%)
Retained sample	2/35 (5.7%)	7/34 (20.6%)	0/27 (0%)
6-month follow-up			
ITT sample	10/47 (21.3%)	16/48 (33.3%)	
Retained sample	10/27 (37.0%)	15/34 (44.1%)	

Note. Retained sample included participants with data available at the 12-week assessment time point.

Table 5
Mixed Model Effects Comparing (i) Treatment vs WLC and (ii) CBT-SAD vs CBT-GEN From Baseline to 12-week Assessment for CSR, CGAS and SPAI-C/P for ITT Analysis.

	CSR			CGAS			SPAI-C			SPAI-P		
	B (SE)	*t* (CIs)	*d*	*B* (SE)	*t* (CIs)	*d*	*B* (SE)	*t* (CIs)	*d*	*B* (SE)	*t* (CIs)	*d*
(i) Treatment vs WLC												
Intercept at Pre-												
WLC	6.73	22.72***		46.53	31.34***		26.63	11.90		37.55	18.77***	
	(0.30)	(6.15, 7.32)		(1.48)	(43.60, 49.46)		(2.24)	(22.21, 31.05)		(2.00)	(33.61, 41.50)	
WLC vs Treatment	0.15	0.44		−0.66	−0.39		1.82	0.71		−1.22	−0.53	
	(0.34)	(−0.52, 0.82)		(1.70)	(−4.01, 2.70)		(2.57)	(0.71, 0.48)		(2.29)	(−5.74, 3.30)	
Slope Pre, to 12 wks												
WLC	−0.78	−2.30	0.48	4.88	3.18**	0.60	−2.96	−1.46	0.24	−2.66	−1.32	0.24
	(0.34)	(−1.45, −0.11)		(1.53)	(1.84, 7.89)		(2.02)	(-6.98, 1.06)		(2.01)	(−6.65, 1.34)	
WLC vs Treatment	−1.48	−3.77***	0.91	6.27	3.54***	0.77	−5.01	−2.13*	0.41	−6.89	−2.92**	0.64
	(0.39)	(−2.26, −0.70)		(1.77)	(2.76, 9.78)		(2.35)	(−9.68, −0.34)		(2.36)	(−11.58, −2.20)	
Random Effects												
Residual variance	1.61			32.46			50.96			53.11		
Intercept variance	1.02			33.69			99.35			64.09		
(ii) CBT-GEN vs CBT-SAD	*B* (SE)	*T* (CIs)	*d*	*B* (SE)	*t* (CIs)	*d*	*B* (SE)	*t* (CIs)	*d*	*B* (SE)	*t* (CIs)	*d*
Intercept at Pre-												
CBT-GEN	6.77	27.19 ***		46.69	39.43***		27.93	16.66***		34.91	22.52***	
	(0.25)	(6.27, 7.26)		(1.18)	(44.35, 49.03)		(1.67)	(24.61, 31.25)		(1.55)	(31.84, 37.97)	
CBT-GEN vs CBT-SAD	0.23	0.65		−1.64	−0.98		1.09	0.46		2.87	1.32	
	(0.35)	(−2.8, −1.65)		(1.68)	(−4.97, 1.68)		(2.37)	(−3.59, 5.77)		(2.18)	(−1.43, 7.19)	
Slope Pre to 12 wks												
CBT-GEN	−2.24	−7.60***	1.30	11.44	9.11***	1.39	−8.80	−4.80***	0.77	−10.87	−5.93***	1.03
	(0.29)	(−2.83, −1.66)		(1.26)	(8.94, 13.93)		(1.83)	(−12.44, −5.15)		(1.83)	(−14.52, −7.22)	
CBT-GEN vs CBT-SAD	−0.04	−0.08	0.02	−0.65	−0.36	0.08	1.55	0.60	0.13	2.45	0.95	0.09
	(0.42)	(−0.88, 0.81)		(1.81)	(−4.25, 2.96)		(2.58)	(−3.59, 6.71)		(2.58)	(−2.69, 7.59)	
Random Effects												
Residual variance	1.87			33.55			60.35			59.21		
Intercept variance	1.10			33.74			70.57			51.86		

Note. $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$. CSR = Clinician Severity Rating; CGAS = Children's Global Assessment Scale; SPAI-C/P = Social Phobia and Anxiety Inventory for Children, Child/Parent. Effect sizes "d" were calculated as the estimated fixed effect divided by the square root of the sum of the two variance components.