





Advancing Strength-based intervention: The Utility of Self-Knowledge Base on Self-Regulation of Stressfulness and Daily Challenges in Autism

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Rationale and Aim

While Autobiographical Memory (AM) supports self-regulation (SR) in many groups^{1,2,3}, its impact on autistic individuals remains underexplored. Autistic people often face heightened stress, negative emotions, and everyday challenges due to processing differences and sensory sensitivities^{4,5,6}.

This research introduces a novel intervention, iREBOOT, to help autistic participants recall positive coping experiences and test whether assisted memory recall can reduce stress and task difficulty. Two main hypotheses were examined.

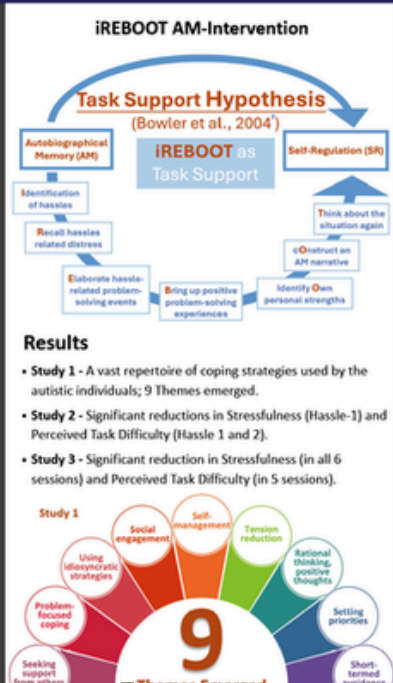
- Hypothesis 1** the iREBOOT AM-intervention procedure reduces stressfulness.
- Hypothesis 2** the iREBOOT AM-intervention procedure reduces perceived task difficulty.

Methodology

- Participants:** 58 autistic individuals (54 males), ages 13–23 (M_{age}=18.56, SD_{age}=2.67), in Hong Kong.
- Ethics:** Approved by Melbourne University (HREC: 1647130.1).
- Measures:** Demographics, Autism Quotient, Emotion Regulation Difficulties, RUSHS-Adapted Worksheets, Day Reflection Scale.

Study 1: Qualitative analysis of narratives elicited by an AM intervention worksheet (N=58).

Study 2 & 3: Quantitative analysis of iREBOOT's effect on reducing stress and perceived task difficulty through semi-structured interviews (N=58) and six-week WhatsApp based interventions (N=54) in daily life environments.



Study 2

ANCOVA Summary for Pre-to-Post Difference Scores with Age and Baseline Rating as Covariates

Measure	Source	df	F	p	partial η^2
Hassle 1 - Stressfulness	Corrected Model	2, 55	2.97	.0002	.10
	Age	1, 55	2.23	.141	.04
	Baseline stress	1, 55	3.89	.054	.07
Hassle 1 - Perceived Task Difficulty	Corrected Model	2, 55	5.12	.0009	.16
	Age	1, 55	0.02	.904	.00
	Baseline difficulty	1, 55	9.73	.003	.15
Hassle 2 - Stressfulness	Corrected Model	2, 55	3.35	.042	.11
	Age	1, 55	1.60	.211	.03
	Baseline stress	1, 55	5.07	.028	.08
Hassle 2 - Perceived Task Difficulty	Corrected Model	2, 55	10.29	<.001	.27
	Age	1, 55	0.86	.358	.02
	Baseline difficulty	1, 55	20.05	<.001	.27

Study 3

Results of Wilcoxon Signed-Rank Test Comparing Pre- and Post-AM Intervention Reported Stressfulness and Perceived Task Difficulty over 6 Separate Messaging Sessions across 6 Weeks

Measure	N	Median (IQR)	pre-intervention	post-intervention	Z	p	r
WhatsApp Session 1	Reported stressfulness	54	5 (3, 6)	4 (3, 5)	13 (6) 13	<.001	.49
	Perceived task difficulty	54	5 (3, 6)	4 (3, 5)	9 (6) 13	<.001	.34
WhatsApp Session 2	Reported stressfulness	54	4 (3 (3, 7), 4)	4 (3, 4)	10 (6) 13	<.001	.34
	Perceived task difficulty	54	5 (3 (3, 7), 4)	4 (3, 4)	9 (6) 16	<.001	.42
WhatsApp Session 3	Reported stressfulness	54	4 (3 (3, 4), 4)	4 (3, 5)	12 (7) 15	<.001	.38
	Perceived task difficulty	54	5 (3, 4)	4 (3, 4)	9 (6) 17	<.001	.37
WhatsApp Session 4	Reported stressfulness	54	5 (3, 4)	4 (3 (3, 5), 2)	10 (6) 16	<.001	.40
	Perceived task difficulty	54	5 (3, 5 (3, 2)	4 (3, 5 (3, 2)	9 (6) 15	<.001	.34
WhatsApp Session 5	Reported stressfulness	54	4 (3 (3, 4), 4)	4 (3, 5)	11 (6) 17	<.001	.35
	Perceived task difficulty	54	4 (3, 4)	4 (3 (3, 5), 5)	10 (6) 16	<.001	.34
WhatsApp Session 6	Reported stressfulness	54	4 (3, 4)	4 (3, 5)	8 (7) 23	<.001	.31
	Perceived task difficulty	54	4 (3, 4)	4 (3, 5)	8 (7) 23	<.001	.38

Note: IQR = inter-quartile range, Z = standardized test statistic, p = asymptotic significance (two-tailed), r = effect size
+ p < .05
++ p < .001
+ Number of cases with positive difference (+), negative difference (-), and no difference (0) between pre- and post-intervention scores.

Discussion and Conclusion

Findings support the need for cueing autistic individuals to access positive AM, aligning with the Task Support Hypothesis. Tailored prompting and digital tools can scaffold retrieval of personal strengths, with potential for AI and big data integration to enhance outcomes.

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