

Feasibility of Delivering a Cognitive Behavioural Therapy-Based Resilience Curriculum to Young Mothers by Public Health Nurses

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1 INTRODUCTION

- Young mothers have higher rates of post-partum depression¹, anxiety disorders, PTSD, and externalizing problems^{2,3}. They struggle with infant-mother attachment⁴ and their offspring have more mental health difficulties^{5,6}. Yet, they can be difficult to engage in care.
- Given high rates of comorbid psychiatric problems among young mothers, transdiagnostic psychotherapies⁷ targeting broad factors common to multiple mental disorders may be a promising approach to build resilience in this group and has not been tested in young mothers.
- Delivery of a transdiagnostic CBT-based therapy delivered by public health nurses (PHNs) in a school-based setting may present a unique opportunity to reduce barriers to treatment and build resilience in young mothers

Objective: 1) to examine the feasibility and acceptability of a public health nurse-delivered transdiagnostic CBT-based resilience curriculum for young mothers in a supported school setting, and 2) to determine preliminary estimates of the program's effects.

2 METHODS

Sample

- 56 mothers (≤21 years) recruited from a supported high school program in Hamilton, ON

Study design

- Pre-test/post-test design with no control group
- Measures of maternal depression, anxiety, emotion regulation, and offspring behaviour were collected immediately before and after the completion of the intervention
 - Beck Depression Inventory-II (BDI-II); Beck Anxiety Inventory (BAI); Difficulties in Emotion Regulation Scale (DERS); Infant Behaviour Questionnaire Revised Very Short Form (IBQ-R); Early Child Behaviour Questionnaire Very Short Form (ECBQ); Strengths and Difficulties Questionnaire (SDQ)

The intervention

- The *Building Resilience* program developed for this study is a 10-week CBT-based intervention designed by experienced clinicians to help participants develop practical skills to recognize, prevent, and cope with stressors
- Provided by two PHNs trained in the intervention and supported by a psychiatrist involved in the curriculum's development

Statistical analysis

- Feasibility and acceptability of intervention and study protocol reported using descriptive statistics
 - Determined by attendance of >70% of sessions and >60% completion rate of study measures.
- Preliminary estimates of the program's impact was obtained by using repeated measures ANOVAs. *Post-hoc* means comparisons tests were also utilized to compare pre- and post- intervention scores stratified by baseline depression severity.

3 RESULTS

Sample demographics

- Median personal income was \$5,000 CAD per year, with household income approximately \$15,000 CAD.
- One in seven (14%) participants were currently taking psychotropic medication(s)
- There were no differences in demographic characteristics between participants with a low BDI (N=45, 80%) *versus* high BDI (N=11, 20%) score at baseline

1. Feasibility and acceptability

- On average, participants attended 7- 8 out of 10 sessions, with 78.8% of participants having attended seven or more of the ten sessions
- Of the 80 young mothers initially recruited, 56 participants (70%) completed both pre- and post- intervention questionnaires
- Young mothers who dropped out of the study were more likely to have a part-time job ($\chi^2=4.56$, $p=0.03$), and less likely to have more than one child ($t=2.08$, $p=0.04$)

2. Preliminary estimates of the program's effects

In the complete study sample

- No statistically significant changes in mood, anxiety, or emotion regulation from pre- to post- intervention
- Mothers with infants aged 3-12 months reported a significant increase in their infant's surgency/cheerfulness following the intervention

Participant Scale Scores at Pre-and Post-Intervention by Group: Maternal Scales

Scale	HIGH BDI GROUP								LOW BDI GROUP							
	Pre-CBT			Post- CBT		Test statistic		Cohen's <i>d</i>	Pre-CBT			Post- CBT		Test statistic		Cohen's <i>d</i>
	N	Mean	SD	Mean	SD	T	p		<i>d</i>	N	Mean	SD	Mean	SD	T	
BDI	11	34.27	10.00	27.18	17.84	1.68	0.12	0.44	45	7.22	5.59	7.91	6.21	-0.92	0.36	-0.10
BAI	11	43.91	17.51	34.55	8.93	2.60	0.03	0.50	45	12.20	10.67	12.82	12.37	-0.43	0.67	-0.05
DERS-TOT	11	64.09	9.62	59.64	11.99	2.13	0.06	0.35	45	36.62	10.96	38.44	10.74	-1.82	0.08	-0.14
Bold text denotes statistically significant finding (p<0.05)																

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Participant Scale Scores at Pre-and Post-Intervention by Group: Offspring Scales

Scale	HIGH BDI GROUP								LOW BDI GROUP							
	Pre-CBT			Post- CBT			Test statistic	Cohen's <i>d</i>	Pre-CBT			Post- CBT			Test statistic	Cohen's <i>d</i>
	N	Mean	SD	Mean	SD	T			p	N	Mean	SD	Mean	SD		
IBQR-Sm	1	4.17		5.45					15	4.85	1.19	5.56	0.66	-2.60	0.02	-0.56
IBQR-NA	1	5.25		4.17					15	3.60	1.55	4.19	1.27	-1.98	0.07	-0.33
IBQR-EC	1	5.64		5.73					15	5.35	0.90	5.80	0.88	-1.84	0.09	-0.41
ECBQ-S	6	5.65	0.66	5.81	0.55	-0.85	0.43	-0.20	19	5.44	0.63	5.43	0.82	0.07	0.95	0.02
ECBQ-NA	6	3.50	0.65	3.54	0.53	-0.13	0.90	-0.06	19	3.23	0.72	3.31	0.76	-0.73	0.47	-0.09
ECBQ-EC	6	4.62	0.91	4.43	0.69	0.76	0.48	0.18	19	4.60	0.61	4.52	0.72	0.70	0.50	0.10
SDQ-TOT	4	13.00	5.60	11.75	4.35	0.95	0.41	0.20	11	15.09	6.47	17.27	7.31	-1.82	0.10	-0.26

Bold text denotes statistically significant finding (p<0.05)

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After group stratification into high and low-BDI groups

- Significant time x group interactions on the BDI ($F=9.40$, $p<0.01$), BAI ($F=8.62$, $p<0.01$) and DERS ($F=7.59$, $p<0.01$) were noted, whereby high BDI participants had greater decreases in all three scale scores than low BDI participants
- In those with a high BDI at baseline, BAI scores decreased by 9 points after treatment ($t=2.60$, $p=0.03$, $d=0.50$)
- Although not statistically significant, high BDI participants' BDI scores decreased by over 7 points ($t=1.68$, $p=0.12$, $d=0.44$) and DERS scores also decreased ($t=2.13$, $p=0.06$, $d=0.35$)

4 DISCUSSION

- Attendance and participation in study measures supported the feasibility and acceptability of the curriculum and study protocol
- While there were no measurable differences in outcomes among participants in the complete sample in the short term, participation was associated with increases in positive affect in infants, in keeping with limited research of the effect of interventions for young mothers on perceptions of infant temperament⁸
- Among the sub-sample of young mothers with elevated baseline BDI scores, significantly lower rates of anxiety symptoms were observed post-intervention. Larger decreases in scores of depressive symptoms and emotion regulation were also observed among high BDI mothers, but these were not statistically significant.
 - These findings are similar to literature suggesting that CBT-based interventions may be more effective when targeted to those with more difficulties at baseline, rather than universally applied
- A larger full-scale randomized control trial, possibly also using structured diagnostic interviews, is required to determine whether it can be effective as a universal intervention, or if it is better-suited for more unwell individuals
- Limitations include the absence of a control group in our exploratory pre-test/post-test design, low baseline depression scores in our sample possibly influencing our ability to detect changes post-intervention, a small sample size, and reliance on self-report measures of symptoms

5 CONCLUSIONS

Overall, our results suggest that it is feasible for public health nurses to deliver our curriculum to young mothers, and lends support to schools as a credible setting in which young mothers can be engaged in interventions aimed at improving their mental health, as it reduces barriers and capitalizes on women's desire to complete their education.

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