Behavioural and Cognitive Psychotherapy (2020), **48**, 370–375
doi:10.1017/S1352465819000663

BABCP
www.babcp.com

BRIEF CLINICAL REPORT

Acceptability of a brief training programme targeting attention and interpretation biases for threat in youth with a history of maltreatment

Jennifer Y.F. Lau[1,‡*], Narayan Prasad Sharma[2,‡], Eleanor Bennett[1], Sandesh Dhakal[2], Ayesha Vaswani[1], Rakesh Pandey[3], Shanta Niraula[2,§] and Veena Kumari[1,4,§]

[1]Psychology Department, Institute of Psychiatry, Psychology and Neuroscience, King's College London, De Crespigny Park, London SE5 8AF, UK, [2]Central Department of Psychology, Tribhuvan University, Kathmandu, Nepal, [3]Department of Psychology, Banaras Hindu University, Varanasi-221 005, UP, India and [4]Centre for Cognitive Neuroscience, College of Health and Life Sciences, Brunel University London, Uxbridge UB8 3PH, UK
*Corresponding author. Email: jennifer.lau@kcl.ac.uk

(Received 28 August 2018; revised 13 September 2019; accepted 16 September 2019; first published online 11 November 2019)

Abstract

Background: Tendencies to attend to threatening cues in the environment and to interpret ambiguous situations with negative/hostile intent maintain and may even precipitate internalizing and externalizing problems in young people with a history of maltreatment. Challenging maladaptive information-processing styles using cognitive bias modification (CBM) training may reduce symptoms.

Aims: To investigate the acceptability of CBM training in nine young people attending alternate education provision units in the UK, and 10 young people living in out-of-home care institutions in Nepal with a history of maltreatment.

Method: CBM training consisted of five sessions of training over a 2-week period; each training session consisted of one module targeting attention biases and one module targeting interpretation biases for threat. A feedback form administered after training measured acceptability. Pre- and post-intervention measures of internalizing and externalizing symptoms were also taken.

Results: Most young people (89%) found the training helpful and 84% found the training materials realistic. There were reductions in many symptom domains, but with individual variation. Although limited by the lack of a control condition, we established generalizability of acceptability across participants from two cultural settings.

Conclusions: Replication of these findings in larger feasibility randomized controlled trials with measures of attention and interpretation bias before and after intervention, are needed to assess the potential of CBM in reducing anxiety symptoms and its capacity to engage targeted mechanisms.

Keywords: childhood adverse events; cognitive bias modification training; feasibility; information-processing biases; prevention; victimization

Introduction

The physical, sexual and emotional abuse and neglect of children and adolescents is a significant global problem. To identify effective and accessible interventions to combat associated mental health problems as they arise in development, cognitive neuroscience research has advocated targeting 'latent vulnerability factors' mediating between adversity and symptomatic outcomes. Tendencies to selectively attend towards threat and to draw threatening, hostile interpretations

[‡]Contributed equally as first authors.
[§]Contributed equally as senior authors.

of ambiguous situations are biases at two stages of information-processing known to characterize victims of childhood maltreatment in youth (Dodge *et al.*, 1995; Shackman *et al.*, 2007). Although these information-processing biases are adaptive in dangerous, unpredictable conditions, such as growing up in adverse family environments, beyond these environments, they could contribute to persistent behavioural, emotional and social maladjustment, including clinical symptoms of internalizing and externalizing problems. Indeed, among physically abused adolescents, attention biases for angry faces correlate with anxiety symptoms (Briggs-Gowan *et al.*, 2015), while in young people exposed to violence, interpretation biases correlate with aggressive tendencies (Shahinfar *et al.*, 2000). Given the associations between biased information-processing and emotional and behavioural problems among young people who have experienced maltreatment, targeting these biases in interventions could be a beneficial preventative strategy.

Over the last decade, cognitive bias modification (CBM) training programmes that aim to train more adaptive styles of attention-orienting and control towards benign/positive information (CBM-A) and styles of interpreting ambiguous cues in a non-threatening manner (CBM-I) have been implemented in adults with a range of psychiatric conditions, and extended for use in children and young people, largely with anxiety and depression, but also aggression. No study has investigated the viability of CBM-A and CBM-I in adolescent victims of maltreatment. To address this gap, here we present pilot data on acceptability of a novel multi-session computerized training tool that targets attention and interpretation biases in young people with a history of victimization. A secondary aim was to describe overall changes in emotional, behavioural and social problems across participants. To enhance the generalizability of our findings across global contexts, parallel data collection initiatives took place in the UK and Nepal with young people who had experienced maltreatment.

Method

Sample

Nine young people (aged 14–17 years) from the UK and 10 young people (aged 13–16 years) from Nepal participated. UK participants (participants 1–9) were from two schools that provided alternative educational provision for young people unable to attend mainstream schools. The Nepalese participants (participants 11–20) were from three care homes, which provided residential facilities for rescued child labourers, street children, orphans, and those who had been separated from their family intentionally or unintentionally. To assess victimization history, employees working in alternate education provision units were asked to complete a 15-item measure, drawn from the Juvenile Victimization Questionnaire (JVQ) (Finkelhor *et al.*, 2005) screening questions for UK participants. Information reported in participant case files was used to facilitate completion of this measure. For Nepalese participants, as this was part of a larger study of maltreatment in rescued child labourers, modules from the self-report version of the JVQ assessed victimization history (Dhakal *et al.*, 2019). Data across sites were used to generate analogous variables on the likelihood that the participant had experienced physical abuse, verbal (emotional) abuse, neglect (including guardian substance abuse, unsafe home environment), sexual exploitation, witnessed domestic violence, and exposure to conventional crime.

Procedure, training and measures

Ethical approval for data collection from the UK was sought from the Research Ethics Committee at King's College London, and internally approved by safeguarding leads within the management structure of the educational unit. Permission for data collection in Nepal was granted by the Research Division Office of the Rector Tribhuwan University, and by the Central Child Welfare Board (CCWB) under the Ministry of Women, Children and Social Welfare. Ethical

https://doi.org/10.1017/S1352465819000663 Published online by Cambridge University Press

approval was sought from and given by the Nepal Health Research Council. Across both sites, informed consent was first sought from all parents and legal guardians, and from young people themselves. As most standardized measures were not available in Nepalese, we followed a rigorous process of translation and back-translation, with appropriate cultural adaptation. Permission was sought from the publishers/authors, and where appropriate, some were involved in this process.

All participants were assessed across 7 days within a 2-week period that included pre-intervention, training and post-intervention assessments. Participants were tested on different days, and therefore had their own study schedules. On day 1, participants completed two subtests (Matrix Reasoning and Block Design) of the Wechsler Abbreviated Scale of Intelligence – Second Edition (WASI-II) to create a composite Perceptual Reasoning Index (PRI) of non-verbal reasoning ability; the Youth Inventory-4R to assess potential emotional and behavioural symptoms in adolescents, according to DSM-IV classification; the Strengths and Difficulties Questionnaire (SDQ) to assess 'total difficulties'; and the General Anxiety and Social Anxiety subscales of the Screen for Child Anxiety Related Disorders (SCARED)–Child Version Short Form to assess training-relevant anxiety subtypes. Training for all participants was scheduled across days 2–6, with each 20-minute session including one module of CBM-I training and one module of CBM-A training (Lisk *et al.*, 2018). Each daily session consisted of a visual search attention training task and the ambiguous scenarios interpretation task used in earlier studies. In the attention training task, participants were instructed to repeatedly identify the only positive (smiling) face in a 4×4 matrix consisting of 15 other negative faces (5 fearful, 5 sad, and 5 angry). On each trial of the interpretation training task, participants read a text-based ambiguous situation that ended with a word fragment. Correct completion disambiguates the scenario in a positive/benign direction. This is then reinforced by the correct completion of a comprehension question. Training scenarios were co-produced with social work and educational professionals working with young people with histories of adversity. Although the intended number of training sessions was 5 days, two UK participants completed only two sessions due to unexpected changes in their academic timetable. After completion of training, on day 7 all participants completed the SDQ and the two SCARED subscales, and a self-report feedback questionnaire (Table 1). As well as items that were rated on continuous scales, there were open-ended questions for young people to provide feedback on aspects they found helpful, unhelpful, liked, disliked and general improvements.

Results

Sample description

All UK participants were male, while Nepalese participants were largely female (90%). Scores of the perceptual reasoning index probing non-verbal reasoning and problem solving ranged from 63 to 111 (percentile rank 1 to 77) for UK participants, while for Nepalese participants, the range was from 68 to 102 (percentile rank 2 to 55). Five and two participants from the UK and Nepal, respectively, met no diagnostic screening cut-offs on the YI-4R. However, as this was a pilot study, no diagnoses were used to exclude participation. Using 15 items from the JVQ, six of the nine young people from the UK were rated as likely to have experienced some form of physical abuse; eight to have experienced verbal (emotional) abuse; six, neglectful experiences; and none, for sexual abuse although there were three cases where the information provided in case files was uncertain. About one-third of the young people were thought exposed to domestic violence, and around half, more general violence with or without a weapon. For Nepal participants, all 10 young people had experienced physical abuse in their life, seven verbal (emotional) abuse, eight neglect, four sexual abuse, seven witnessed domestic violence; and nine witnessed general violence (according to the self-reported JVQ).

https://doi.org/10.1017/S1352465819000663 Published online by Cambridge University Press

Table 1. Feedback questionnaire responses for UK and Nepal participants; where participants have not given a response this is marked as: *UK participants who only completed two sessions of training

ID	Did you find the training useful?	To what extent has the training helped you with your worries or anxieties?	To what extent has the training helped your mood?	To what extent has the training helped you cope with everyday stressful situations?	Has the training helped you with any other difficulties you might have had, e.g. concentration, sleep, etc?	In an overall general sense, how satisfied are you with the training?	How satisfied are you with the number of sessions in the training?	Did you find the training fun or engaging?	How realistic did you find the situations you were presented with?	Did you feel motivated to complete each session?	If the training had been online, do you think you would have completed the sessions on your own (without a researcher)?
	1 = not at all, 2 = not really, 3 = yes generally, 4 = yes definitely	*1 = not at all, 2 = a little bit, 3 = it has helped me, 4 = it has helped a lot*				*1 = dissatisfied, 2 = indifferent, 3 = mostly satisfied, 4 = very satisfied*			*1 = not at all realistic, 2 = not very realistic, 3= quite realistic, 4 = very realistic*	*1 = no definitely not, 2 = no I don't think so, 3 = yes I think so, 4 = yes definitely*	
Overall mean	3.32	2.74	2.89	2.89	2.79	3.17	3.17	3.33	3.00	3.16	2.32
UK mean	2.89	2.00	2.33	2.00	2.22	3.00	3.00	2.75	2.44	2.78	1.89
Nepal mean	3.70	3.40	3.4	3.60	3.30	3.30	3.30	3.80	3.50	3.50	2.70
Individual UK participants											
1	3	1	2	2	3	3	3	3	3	3	1
2	3	1	2	1	2	3	4	4	1	3	1
3	4	2	2	1	2	4	3	1	1	3	3
4	3	3	3	3	3	3	3	3	3	3	3
5	3	2	2	3	3	3	3	3	3	3	2
6	2	2	3	1	2	3	3	3	3	1	1
7*	3	3	3	3	1	2	3	3	2	3	2
8*	2	2	2	—	2	—	—	—	3	3	2
9*	3	2	2	2	2	3	2	2	3	3	2
Individual Nepal participants											
11	4	4	4	4	4	3	2	4	4	4	4
12	4	3	3	4	4	4	4	4	3	4	3
13	4	3	3	3	4	3	3	4	4	3	2
14	4	4	4	4	3	4	4	4	4	4	4
15	4	4	4	3	3	4	4	4	3	4	4
16	3	3	3	3	2	3	3	4	3	3	2
17	3	2	2	3	3	2	2	3	3	3	3
18	3	3	3	4	3	3	3	3	3	3	3
19	4	4	4	4	3	3	4	4	4	4	1
20	4	4	4	4	4	4	4	4	4	3	1

Acceptability

Responses to the first 11 questions of the training questionnaire are presented in Table 1 for participants from each site. Most UK and Nepal participants completed the intended number of training sessions, and most found the training to be at least 'generally helpful', with half rating it as 'definitely' helpful. When asked which specific areas the training was helpful at targeting, over half rated the training as useful for challenging worries, stress, and low mood. However, ratings of usefulness were lower in UK participants than Nepalese participants. Most UK participants did not believe they would be motivated to complete the training on their own, whereas over half of Nepalese participants endorsed either the 'I think so' or 'definitely' option when asked the same question.

Pre- to post-intervention measures

To describe changes in emotional and behavioural problems from pre-to-post intervention, the direction and magnitude of any differences in these measures are presented. Overall, participants 1–6 (UK) who completed five sessions of training showed a decrease in total difficulties SDQ scores with a small-to-moderate effect size (Cohen's $d = 0.28$). For participants 7–9 who only completed two sessions of training, an overall increase of problem behaviours was observed but with a small effect size (Cohen's $d = 0.19$). For Nepalese participants, overall, there was a decreased total difficulties SDQ score with a small effect size (Cohen's $d = 0.22$). For general anxiety SCARED scores, overall, participants 1–6 (UK) who completed five sessions of training showed a decrease in scores with a small effect size (Cohen's $d = 0.12$). For participants 7–9 (UK) who only completed two sessions of training, an overall increase was observed with a small effect size (Cohen's $d = -0.22$). Looking at all Nepalese participants, completing training led to a slight decrease in symptoms with a small effect size (Cohen's $d = 0.09$). For social anxiety SCARED scores, overall, participants 1–6 (UK) who completed five sessions of training showed a decrease in scores with a large effect size (Cohen's $d = 0.81$). For participants 7–9 who only completed two sessions of training, no difference was observed. For Nepalese participants, completing training led to increased symptoms with a small effect size (Cohen's $d = 0.24$).

Discussion

Cognitive training programmes that modify attention patterns and interpretational style thought to mediate between maltreatment and later emotional and behavioural problems could have preventative potential for those exposed to victimization. Our data speak primarily to the acceptability of CBM-A and CBM-I training protocols and procedures in young people with a likely history of victimization across two alternate education units in the UK and three care homes in Nepal. While most participants found the training helpful, ratings were numerically lower in UK than Nepalese participants. Yet, UK participants who received five training sessions showed more consistent improvements in emotional and behavioural symptoms, with especially large effects for social anxiety, possibly because these training techniques were adapted from procedures first used in young people with social anxiety (Lisk *et al.*, 2018). Improvements of emotional and behavioural symptoms in Nepalese participants, however, were less clear: a small reduction in total difficulties at post-intervention was found but social anxiety increased. Different results across samples could indicate cultural differences or differences in gender composition across the samples. Alternatively, even within culture, heterogeneity in maltreatment history and current psychiatric disturbances could confound clear patterns of training-related change. In sum, our data provide mixed results on the efficacy of CBM but show acceptability by maltreated samples across cultures. They thus support the *potential* of applying CBM to a larger global sample of victimized young people

https://doi.org/10.1017/S1352465819000663 Published online by Cambridge University Press

using a feasibility randomized controlled trial with other aspects of feasibility as outcomes, and anxiety and other problem behaviours as measures of change.

Acknowledgements. We would like to thank all participants who completed this study and the schools and care homes who agreed to take part.

Financial support. This work was supported by the UK Medical Research Council (MR/N006194/1) and the Department of Biotechnology, India (BT/IN/DBT-MRC/DFID/20/RP/2015-16).

Conflicts of interest. The authors have no conflicts of interest with respect to this publication.

Ethics statement. The authors have abided by the Ethical Principles of Psychologists and Code of Conduct as set out by the APA.

References

Briggs-Gowan, M. J., Pollak, S. D., Grasso, D., Voss, J., Mian, N. D., Zobel, E., ... **& Pine, D. S.** (2015). Attention bias and anxiety in young children exposed to family violence. *Journal of Child Psychology and Psychiatry*, *56*, 1194–1201.

Dhakal, S., Niraula, S., Sharma, N. P., Sthapit, S., Bennett, E., Vaswani, A., ... **& Lau, J. Y.** (2019). History of abuse and neglect and their associations with mental health in rescued child labourers in Nepal. *The Australian and New Zealand Journal of Psychiatry*, [12 June 2019: 4867419853882]. doi: 10.1177/0004867419853882

Dodge, K. A., Pettit, G. S., Bates, J. E., & Valente, E. (1995). Social information-processing patterns partially mediate the effect of early physical abuse on later conduct problems. *Journal of Abnormal Psychology*, *104*, 632–643.

Finkelhor, D., Hamby, S. L., Ormrod, R., & Turner, H. (2005). The Juvenile Victimization Questionnaire: reliability, validity, and national norms. *Child Abuse and Neglect*, *29*, 383–412. doi: 10.1016/j.chiabu.2004.11.001

Lisk, S., Pile, V., Haller, S., Kumari, V. & Lau, J.Y. (2018). Multisession cognitive bias modification targeting multiple biases in adolescents with elevated social anxiety. *Cognitive Therapy and Research*, *42*, 581–597. doi: 10.1007/s10608-018-9912-y

Shackman, J. E., Shackman, A. J., & Pollak, S. D. (2007). Physical abuse amplifies attention to threat and increases anxiety in children. *Emotion*, *7*, 838–852. doi: 10.1037/1528-3542.7.4.838

Shahinfar, A., Fox, N. A., & Leavitt, L. A. (2000). Preschool children's exposure to violence: relation of behavior problems to parent and child reports. *American Journal of Orthopsychiatry*, *70*, 115–125.

Cite this article: Lau JYF, Sharma NP, Bennett E, Dhakal S, Vaswani A, Pandey R, Niraula S, and Kumari V (2020). Acceptability of a brief training programme targeting attention and interpretation biases for threat in youth with a history of maltreatment. *Behavioural and Cognitive Psychotherapy* **48**, 370–375. https://doi.org/10.1017/S1352465819000663