RUNNING HEAD: BEHAVIOURAL ACTIVATION CREDIBILITY

Does Behavioural Activation Lack Credibility Among Those Who Need It Most? A Comparison of Responses to Rationales for Behavioural Activation and Schema Therapy.

**Abstract**

**Background:** Behavioural activation (BA) is an effective front-line treatment for depression but some consumers find it unattractive or aversive, and its rationale unconvincing.

**Aims:** To investigate whether individual differences in symptoms of depression, borderline personality pathology and adverse childhood events would: 1) influence ratings of BA treatment credibility; 2) predict credibility rating differences in comparison to Schema Therapy (ST), chosen to exemplify a theoretical rationale with a significant focus on developmental history. A third aim (3) was to test whether BA credibility could be increased by providing research evidence of its efficacy.

**Methods:** In an online within-subjects experiment, 219 Australian adults completed the Credibility/Expectancy Questionnaire following written descriptions of BA and ST (presentation order randomized across participants) and after receiving information about research supporting the efficacy of BA.

**Results:** Higher childhood adversity predicted lower BA credibility ratings. Overall, ST was rated as more credible than BA, but presenting evidence of its efficacy increased BA credibility ratings to match ST. However, this pattern was moderated by individual differences: those with higher childhood adversity and more therapy experience found ST more credible than BA even after receiving evidence of support for BA.

**Conclusions:** Individuals are not equally receptive to BA. Presenting supporting research is an effective strategy for increasing credibility but additional interventions are likely to be needed for individuals with a history of childhood adversity.

**Keywords:** Behavioural activation, treatment credibility, rationale, schema therapy.

**Ethical statement**

The authors have abided by the Ethical Principles of Psychologists and Code of Conduct as published by the American Psychological Association.

The study design was reviewed and approved by the School of Psychology Human Research Ethics Subcommittee of the University of Adelaide (approval number: 16/87).

**Conflict of Interest**

XXXX have no conflict of interest with respect to this publication.

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**1. Introduction**

Depression is the largest cause of global disability (World Health Organization, 2017) and Behavioural Activation (BA) is an effective treatment for depression (Cuijpers, van Straten, & Warmerdam, 2007; Ekers et al., 2014; Mazzucchelli, Kane, & Rees, 2009). For severe depression, BA has been shown to be as effective as antidepressant medication and superior to cognitive behaviour therapy (CBT) (Dimidjian et al., 2006), and with potentially higher retention rates than pharmacotherapy (Moradveisi, Huibers, Renner, & Arntz, 2014). BA involves less training and cost than CBT, but is no less effective (Ekers et al., 2014; Richards et al., 2016). BA treatment protocols vary (Cassar et al., 2016; Jacobson, Martell, & Dimidjian, 2001; C. Martell, Addis, & Dimidjian, 2004), but all aim to increase positive reinforcement, using activity monitoring to identify contingencies supporting avoidant coping, then scheduling competing activities that contribute toward valued goals, supplemented with behaviour therapy strategies as needed (Kanter, Busch, & Rusch, 2009). Due to its simplicity, cost effectiveness and cross-cultural applicability, BA is expected to play an important role in reducing the global burden of depression (Kanter, Puspitasari, Santos, & Nagy, 2012).

*1.1. Credibility and acceptability of BA*

Acceptance of treatment rationale has been shown to be an important predictor of outcome in psychological therapies for depression (Addis & Jacobson, 2000). Despite BA’s effectiveness, its rationale is not always well received by people who could benefit most from it. Previous studies have documented negative reactions to BA among some depressed individuals (Addis & Carpenter, 1999; Addis & Jacobson, 1996). Martell, Dimidjian and Herman-Dunn’s (2010) manual anticipates and prepares the clinician for a number of objections by clients to the BA rationale, including that depression is “biological”, and that BA is impossible, too simplistic, and asks individuals to be “fake”. In our own clinic, multiple attempts to recruit clients from the wait list into BA programs and research projects have generated little interest. With emerging efforts to provide direct-to-consumer (DTC) marketing of evidence-based psychological services (Friedberg & Bayar, 2017), it is important to understand how these services are perceived by consumers and what factors influence treatment acceptability and preference.

*1.2 Factors affecting the credibility of BA*

It is well established that people hold differing beliefs about what causes depression (Khalsa, McCarthy, Sharpless, Barrett, & Barber, 2011). These beliefs are often associated with preferences for different interventions; for example, people who thought their depression was caused by biological factors were more motivated to try pharmacotherapy (Meyer & Garcia-Roberts, 2007). However, beliefs about causes are not always a good predictor of treatment preference. Tompkins, Swift, Rousmaniere, and Whipple (2017) found that preference for BA was not uniquely associated with beliefs that depression was due to lack of activity, and preference for psychodynamic therapy was not uniquely related to beliefs that depression was related to childhood events. A more consistent finding is that people who endorse a greater number of reasons contributing to their depression have been found to have more negative reactions to BA (Addis & Carpenter, 1999) and worse treatment outcomes (Addis & Jacobson, 1996). Whether some types of depression are actually multiply determined or some individuals merely perceive this to be so, it makes sense that the simplicity of the BA rationale would present a mismatch with such expectations.

Severity of depression may itself affect perceptions of BA acceptability given that it has been shown to moderate treatment preferences for other depression therapies. In a recent study, depressed clients found rationales for Interpersonal Therapy (IPT) and pharmacotherapy to be less credible than the rationale for psychodynamic therapy, whereas non-depressed clients viewed pharmacotherapy as less credible than a range of psychotherapies (Tompkins et al., 2017). The limited research into BA rationales is conflicting. Greater severity of depression was associated with greater motivation to facilitate physical activity and self-care – which are key foci in BA - in Meyer and Garcia-Roberts’ (2007) study, but did not affect perceived credibility of BA in Tompkins and colleaugues’ (2017) study. Degree of rumination, which in turn is associated with greater severity of depression (Nolen-Hoeksema, 2000), and holding positive beliefs about rumination, has been found to be associated with lower credibility ratings of a BA rationale compared to an insight-oriented (IO) therapy rationale (Ophir & Mor, 2014). Given that BA might be a particularly effective form of psychotherapy for severe depression (Webb, Beard, Kertz, Hsu, & Björgvinsson, 2016), it is important to establish whether severity of depression affects the credibility of the BA rationale.

The rationale for BA is present-focused and usually excludes exploration of the onset and development of depressive patterns. On the other hand, “unresolved childhood issues” is frequently endorsed as an aetiological reason for depression, and there is a stronger association between holding this belief and being motivated to engage in therapies that would allow a focus on this issue, than other aetiology belief-therapy preference associations (Meyer & Garcia-Roberts, 2007). In fact, Addis and Carpenter (1999) found that belief that childhood issues cause depression, was associated with positive reactions to an insight-oriented therapy rationale and negative reactions to a BA rationale. This is perhaps unsurprising, as the number of adverse childhood events (ACE) a person experiences is associated with increased severity of adult depression (Edwards, Holden, Felitti, & Anda, 2003; Ono et al., 2017). Childhood maltreatment, including physical abuse, sexual abuse, neglect, family conflict or violence increases the risk of developing recurrent and persistent depressive episodes and is associated with poorer response to treatment (Nanni, Uher, & Danese, 2012). Some authors have criticised short-term treatments like BA for not sufficiently addressing ACE as a risk factor for chronic depression (Ono et al., 2017; Renner, Arntz, Leeuw, & Huibers, 2013). Therefore, we might expect that BA would be a “tougher sell” to depressed people with high ACE.

In our clinic, we have observed that the majority of people on the waitlist with depression who have not shown interest in our BA programs have also scored high on a self-report screening questionnaire for borderline personality disorder (BPD). Although it is not uncommon for people with BPD to fail to attend, or drop out of, community-based treatment programs (Goddard, Wingrove, & Moran, 2015; McMurran, Huband, & Overton, 2010), we wondered whether something about BPD comorbidity might also lead to negative reactions to the BA rationale. Because ACEs have been implicated in BPD pathology (Herman, Perry, & Van Der Kolk, 1989; Yen et al., 2002), negative reactions to BA might simply reflect the importance of ACE to these individuals and their absence from the BA rationale. Additionally, however, depressed individuals with comorbid BPD might also see BA as failing to address emotion regulation needs, interpersonal needs, existential reasons or some other motives for treatment. The first step is to investigate whether there is any support for this clinical observation.

*1.3 Influencing credibility of BA among consumers*

In the last two decades, Australians have shifted their beliefs about the causes of depression from personal characteristics towards an understanding of its psychosocial and biological origins (Pilkington, Reavley, & Jorm, 2013), likely due in large part to mental health promotion campaigns representing depression as a common and treatable illness (Jorm, Christensen, & Griffiths, 2006). There is interest in using similar direct-to-consumer advertising (DTCA) methods to increase public engagement in evidence-based treatments (Santucci, McHugh, & Barlow, 2012). Given that BA is effective, cheap and simple, and yet may lack credibility with some consumers, it is important to explore ways to improve its credibility. DTC evidence in support of BA may increase its acceptability, and therefore treatment initiation, for consumers with a negative bias towards its action orientation. Importantly however, DTCA depression initiatives have sometimes been found to backfire. DTCA messages promoting help-seeking can be perceived by people with higher levels of depression to be an attempt to control or discount their beliefs and experiences (Lienemann & Siegel, 2016), resulting in message-opposite behaviour. Therefore, it is important to empirically evaluate how consumers perceive the acceptability and credibility of therapy rationales, before disseminating them.

*1.4. Current study*

Within a cross-sectional online survey of Australian adults, we aimed to: 1) explore the influence of depression levels, ACE and BPD pathology on the credibility of a BA treatment rationale; and 2) test whether a description of research evidence supporting BA would increase the credibility of the BA rationale. The results could provide guidance for DTCA, and enhance recruitment for BA research and treatment.

To test whether clinically-relevant individual differences influenced the perceived credibility of BA, we elected to contrast its rationale with that of another therapy that emphasized childhood origins and insight development as important to recovery. Schema Therapy (ST) was preferred over the “insight-oriented” scripts used in previous studies, because ST is a recognizable, available real-world treatment option for consumers in Australia, whereas insight-oriented therapy is not clearly available, hence the comparison may have more direct implications for Australian consumer choices. ST was originally designed to assist clients with characterological problems that did not respond well to traditional symptom and present-focused cognitive therapy (Young, Klosko, & Weishaar, 2003). In ST, clients are taught to recognize schemas: lifelong patterns (commencing in early childhood or adolescence) of perceiving, evaluating, emoting and relating to others, and to understand emotional reactions to present-day triggers that would otherwise seem disproportionate. Most schemas are thought to emerge from the interaction between temperament and adverse childhood experiences. ST has been found to be an effective treatment for BPD (Giesen-Bloo et al., 2006) and preliminary support has been found for ST as a treatment for depression (Renner, Arntz, Peeters, Lobbestael, & Huibers, 2016). The rationale for depressive symptoms provided by ST contrasts starkly with that provided by BA. If consumers with severe depression are attracted to theoretical rationales encompassing historical and personality explanations, they are likely to find ST more acceptable and credible than BA.

*1.5 Hypotheses*

We hypothesized that (H1): lower ratings of BA rationale credibility would be associated with higher severity of depression, higher BPD pathology, and more ACE. We also hypothesized that (H2): there would be no difference between the credibility ratings of BA and ST for the sample as a whole, but within the sample, people with higher levels of depression symptoms, ACE and BPD pathology would rate ST as more credible than the BA rationale, in comparison to people with lower levels of depression symptoms, ACE and BPD pathology, who would rate BA higher. Finally, we hypothesized that (H3): BA rationale credibility would increase following the presentation of supporting evidence. We explored whether this effect might be moderated by depression symptoms, ACE and BPD pathology.

**2. Method**

*2.1. Online survey*

The survey was developed, distributed and collected using the *SurveyMonkey*TM web software.The BA rationale provided by a previously published study (Ophir & Mor, 2014) was used with permission. This BA rationale was designed to represent a general “action-oriented” treatment rationale. It was based on published sources previously validated by experts (Rokke, Carter, Rehm, & Veltum, 1990; Rokke & Scogin, 1995). The ST rationale was designed for this study to match the BA rationale, with the same number of words and the key elements placed in the same order. To conceal the treatment type, the BA rationale was titled the “X Approach” and the ST rationale was titled the “Y Approach”. In the evidence summary, research evidence that favourably compared the “X Approach” to CBT and antidepressants was presented (see Supplemental Material for the rationales and evidence summary).

*2.2. Participants*

Participants were recruited via advertisements on social media and The University of Adelaide (UA) School of Psychology online research participation system and notice boards. Participants were encouraged to share an online survey link among their acquaintances (*i.e.,* snowball sampling). Three hundred and twenty-nine people volunteered but 112 (34%) failed to provide credibility ratings for all rationales. Missing data appeared to be missing completely at random (Little’s MCAR test: χ2(46) = 54.15, *p* = .19). Given that analyses conducted with multiple imputations for missing data and completer data were similar, cases missing credibility ratings for any rationale were deleted. The final sample comprised 219 Australian residents (159 female, 55 male, 3 other), proficient in English and aged over 18 years (see Table 1 for additional demographic information).

*2.3. Materials and Measures*

Treatment credibility was measured with the seven-item Credibility/Expectancy Questionnaire (CEQ; Devilly & Borkovec, 2000), which has been demonstrated to discriminate attitudes toward treatments for depression (Rokke et al., 1990). We used a previously-published 11-point scale adaptation (Grant et al., 1999; Ophir & Mor, 2014) with each item (*e.g.,* “How logical does this therapy seem to you?”) rated from 0 (“not at all”) to 10 (“extremely”). Item scores were summed (scale range: 0-70) and higher scores indicated greater credibility. Internal consistency in the current study was excellent for BA (α = .92), ST (α = .91) and BA post-evidence (α = .95).

Depression severity was measured by the 9-item Patient Health Questionnaire (PHQ-9; Spitzer, Kroenke, & Williams, 1999). The frequency of each symptom (e.g., “Little interest or pleasure in doing things”) during the past 2 weeks is rated on a 4-point scale (0 = “Not at all”, to 3 = “Nearly every day”). Items were summed to give a total score ranging from 0 to 27. The PHQ-9 has been extensively validated (Martin, Rief, Klaiberg, & Braehler, 2006). Internal consistency in this study was excellent (α = .91).

The 10-item Adverse Childhood Experiences Checklist (ACE; Felitti et al., 1998) measures the presence of childhood abuse and neglect, and exposure to household dysfunction. Participants indicate “yes” or “no” to each item. Items rated “yes” are summed to produce a total ranging from 0 to 10. A score above 3 is associated with significantly greater risk of many negative physical and mental health outcomes (Felitti et al., 1998). Internal consistency in the current study was good (α = .79).

The McLean Screening Instrument for Borderline Personality Disorder (MSI-BPD; Zanarini et al., 2003) was used to measure borderline personality pathology. The MSI-BPD is a 10-item, true-false, self-report questionnaire (e.g., “Have any of your closest relationships been troubled by a lot of arguments or repeated breakups?”) derived from the Diagnostic Interview for DSM-IV Personality Disorders. The 10 items are summed to give a total score, with scores ranging from 0 to 10. A score above 6 has been found to have good sensitivity (.81) and specificity (.85) for the diagnosis of BPD (Zanarini et al., 2003). Internal reliability in the current study was very good (α = .82).

To check whether participants had prior knowledge of either therapy described in the rationales, they were asked two questions: “Have you received a psychological treatment in the past?” and if yes, asked “please name and describe the treatment as best you can”; and “Are you aware of any psychological treatments for depression?” and if yes, asked “Yes - please name and describe the treatment as best you can”.

*2.4. Procedure*

Participants provided consent at the start of the online questionnaire, then provided demographic information and completed the ACE, PHQ-9 and MSI-BPD. Next, they described any previous psychological treatment experiences and their knowledge of existing depression treatments. Participants then read the BA and ST treatment rationales and completed the CEQ for each. To minimise order bias, the order of presentation of the BA and ST rationales was reversed for 50% of participants. Next, participants read a paragraph outlining evidence in support of BA, which included four references (Cuijpers et al., 2007; Dimidjian et al., 2006; Mazzucchelli et al., 2009; Richards et al., 2016) with BA re-labelled as “X Approach”. The BA rationale was then presented again, following presentation of its supporting evidence, and participants again completed the CEQ for the BA rationale. Finally, participants were offered details of telephone support services, an option to leave contact information if additional support was required, and the contact details of the Human Research Ethics Convenor, should participants wish to discuss concerns or make a complaint. All analyses were conducted in SPSS 24.0.

**3. Results**

*3.1 Sample characteristics*

Table 1 reports demographic characteristics of the sample. The majority were young Australian females working part-time, reporting mild-moderate current depressive symptoms. In addition, 120 (55.3%) participants indicated they had previously received psychological treatment. Three participants indicated having possibly received the treatments under investigation: one reported having received “behavioural therapy” in the past; two participants indicated that they had received ST in addition to other forms of treatment. The treatments received by the other participants were nondescript psychological therapy or counselling (36%), CBT (17%), CBT plus experiences of other therapies (16.5%), medication alone (9.5%), medication plus nondescript psychological therapy or counselling (8%), other or alternative therapies (7%) and treatment not described (4%). Given that the sample was almost equally divided into those with and without treatment experience, this was explored as a potential moderator in subsequent analyses.

One hundred and fifty-five (71.4%) participants indicated that they were aware of psychological treatments for depression and could provide at least one example. The credibility ratings of those with and without awareness of psychological treatments was compared and there were no significant differences, although there was a trend toward higher credibility ratings for BA prior to hearing supporting evidence among those who reported no awareness of psychological treatments (*t* (148.73) = -1.86, *p* = .07). Of participants aware of psychological therapies, only 4.4% had knowledge of BA or ST. The low awareness of the study rationales suggested this was unlikely to influence the results.

*3.2. Predictors of baseline BA credibility (prior to provision of evidence in support of BA)*

ACE, MSI-BPD, PHQ-9 and past treatment were entered simultaneously in a linear regression predicting BA credibility (prior to presentation of supporting evidence). The combination accounted for little variance (adjusted R2 = .02). ACE was the only significant individual predictor (*B* = -1.38 [0.69], t = -2.02, *p* = .045) indicating that participants with greater childhood adversity found BA less credible.

*3.3. Comparison of rationale credibility*

 We first tested whether there was a difference in credibility ratings due to rationale condition (BA before presenting evidence, ST, BA after supporting evidence), without adjusting for covariates or examining moderators, using a repeated measures analysis of variance (RM ANOVA), illustrated in Figure 1. There was a significant difference between rationale conditions (*F*(1.38, 297.33) = 21.41, *p* < .001, *partial* *η*2 = .09). ST (*M =* 55.5, *SE =* 1.2) was rated as significantly more credible than BA presented without supporting evidence (*M* = 46.9, *SE* = 1.3), *F*(1, 216) = 28.1, *p* < .001, *partial* *η*2 = .12. Similarly, the credibility of BA was significantly higher after presentation of supporting evidence (*M* = 54.7, *SE* = 1.4), than before (*F*(1, 216) = 86.28, *p* < .001, *partial* *η*2 = .29). There was no significant difference between credibility ratings of ST and BA after presentation of supporting evidence.

INSERT FIGURE 1 ABOUT HERE

*3.3 Moderators*

Depression, borderline pathology, childhood adversity and past treatment experience were explored as potential moderators. There were no significant interactions between rationale and depression, or borderline pathology. There was a significant interaction between childhood adversity and rationale (*F* (12.7, 291.0) = 3.13, *p* < .001, *partial* *η*2 = .12). To aid interpretation of the interaction, ACE was categorized into three levels based on research findings that experiencing 4 or more adverse childhood experiences was associated with a significant increase in risk for poor outcomes on many physical and mental health variables (Felitti et al., 1998): “no ACE”, “1 to 3 ACE” and “4+ ACE”. The 2-way repeated measures ANOVA was tested on the categorical ACE (*F* (2.8, 300.5) = 7.23, *p* < .001, *partial* *η*2 = .06) and pairwise comparisons of means examined, adjusted using Bonferroni correction. Figure 2 illustrates the interaction. For participants reporting no childhood adversity, there was no significant difference between the credibility of BA (without supporting evidence) and ST (*M* difference = -1.49, *SE* = 2.8, *p* = 1.0), and the presentation of supporting evidence further increased the credibility of BA (*M* difference = -8.8, *SE* = 1.5, *p* < .001). For those with any adverse childhood events, ST was more credible than BA prior to supporting evidence (ACE = 1-3: *M* difference = -8.3, *SE* = 2.5, *p*= .003; ACE = 4+: *M* difference = -17.3, *SE* = 3.1, *p* < .001). For those with 1-3 adverse childhood events, the provision of evidence increased the credibility of BA to be equivalent with ST (*M* difference = 0.15, *SE* = 2.6, *p* = 1.0). For those with four or more adverse childhood events, the provision of evidence increased the credibility of BA (*M* difference BA pre v post evidence = -6.3, *SE* = 1.6, p < .001) but remained less credible than ST (*M* difference = -11.0, *SE* = 3.2, *p* = .002).

INSERT FIGURE 2 ABOUT HERE

There was also a significant interaction between rationale condition and having had previous treatment (*F*(1.4, 300.7) = 12.0, *p* < .001, *partial* *η*2 = .05) depicted in Figure 3. BA was seen as equally credible prior to receiving supporting evidence by those with and without past treatment (*M* difference = -3.4, *SE*= 2.6, *p* = .20), however ST was rated as significantly more credible than BA by those who had previously received treatment (*M* difference = -13.5, *SE* = 2.1, *p* < .001) but not by those who had not received treatment (*M* difference = -2.6, *SE* = 2.4, *p*  = .82). The provision of evidence supporting BA increased its credibility in both groups (no previous treatment: *M* difference = -9.0, *SE* = 1.3, *p* < .001; previous treatment: *M* difference = -6.8, *SE* = 1.1, *p* < .001). However, ST remained more credible than BA for those with previous treatment experience (*M* difference = 6.7, *SE* = 2.3, *p* = .01), whereas BA was more credible than ST for those with no previous treatment experience (*M* difference = -6.4, *SE* = 2.5, *p* = .03).

INSERT FIGURE 3 ABOUT HERE

**4. Discussion**

Our hypotheses were partially supported. A greater number of adverse childhood experiences (ACE) was significantly associated with lower “face” credibility of the BA rationale, but severity of depression and BPD pathology was not. That ACE was associated with lower BA credibility seems consistent with other research finding greater negative reactions to BA among those endorsing childhood issues as causing depression (Addis & Carpenter, 1999) – assuming people with more ACE are more likely to see childhood events as causal. It is encouraging that our depression severity did not reduce credibility perceptions, although optimism must be tempered by the limitation that very severe self-reported depression was rare in this community sample. The initial impetus to explore associations between BPD indicators and BA credibility came from observing a clinical waitlist sample. The lack of relationship found here might reflect either differences between the study sample and the clinical waitlist, or alternatively a genuine absence of relationship between BPD and BA credibility.

Without considering individual differences, a schema therapy rationale was rated as more credible than BA which parallels other research finding higher credibility for a psychodynamic therapy rationale among depressed clients (Tompkins et al., 2017). Importantly though, the provision of evidence supporting the efficacy of BA increased the credibility of its rationale to the level of the ST rationale. There are two things worth noting about this finding. Firstly, it is encouraging that a simple, logical intervention such as providing research evidence (as recommended in Martell and colleagues (2010)) can increase BA credibility. Such a practice may be routine among clinicians, but we’re not aware of any data that supports this assumption. Furthermore, such a strategy could easily be incorporated into DTC marketing campaigns, potentially motivating people not currently accessing services to do so. Secondly, the fact that ST appeared more credible than BA on average, in the absence of information about supporting evidence, suggests a need to carefully consider how BA is described and promoted.

Differences in credibility between BA before and after supporting evidence and ST were moderated by ACE and previous treatment experience. Participants with greater ACE or treatment experience found an ST rationale more credible than BA, and although the provision of supporting evidence increased the credibility of BA, it was still seen as less credible than ST among these individuals. These results suggest that BA may be a “harder sell” to those with significant childhood adversity, and simply presenting information about its efficacy may not suffice to optimise its acceptability. Some presentations of BA such as “stop worrying about your inner child and develop your outer adult” (Addis & Martell, 2004, p.78) seem almost designed to induce reactance among depressed people with ACE, whereas others promote a version that could accommodate the impact of childhood events, such as the case conceptualisation that incorporates life events in Martell, Addis and Jacobson (2001). The present results encourage therapists’ adaptation of BA rationales to explain how activation is helpful even in depression following adverse childhood events, dispensing with arguably unnecessary and potentially reactance-inducing statements such as “does not attempt to understand the deep-rooted causes of depression”.

Finally, previous treatment experience did not affect initial BA credibility, but was associated with higher credibility ratings for ST and attenuated increases in credibility following provision of evidence. Given there was no difference in BA credibility ratings prior to receiving information about its evidence, this finding seems to reflect greater appeal of ST to those with treatment experience, rather than insufficient credibility of BA. Given the lack of awareness of ST within the sample, this might reflect ST’s novelty, or perhaps ST’s dual focus on understanding lifelong behavioural patterns and teaching people to meet their basic needs is especially compelling. Importantly, previous treatment experience did not prevent supportive research evidence from increasing BA credibility. This is important because despite low recognition of BA by name, its essential activities may well have been integrated into other forms of therapy received by participants. These results suggest people with treatment experience have not been desensitized to the benefits of evidence that supports the efficacy of a treatment.

*4.1 Limitations*

Although we identified significant moderators of rationale credibility, we did not demonstrate how they might operate. Had we included the Reasons for Depression Questionnaire (Addis & Jacobson, 1996) used in similar research, possible mechanisms might have illuminated. Finally, our conclusions must be confined to the population sampled. To maximise privacy, we did not ask participants whether they were university students – recognized as a distressed population (Cvetkovski, Reavley, & Jorm, 2012) – or studying psychology and thus potentially better informed about psychotherapies than the general population. Our recruitment method means that female students were likely over-represented. Conversely, older people, men, people from diverse cultural and linguistic backgrounds, and people with severe depression were under-represented. This sample was not specifically seeking treatment and so the results will be of most interest to service providers seeking to engage depressed people not already in treatment. Additional research is required before these results can be generalized to actively help-seeking potential consumers.

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Table 1

*Diagnostic cut offs and participant demographic characteristics*

|  |  |
| --- | --- |
| Variable (*N* = 279) | *n* (% of *N*) |
| Age |  |
|  18 to 24 | 95 (43.8%) |
|  25 to 34 | 51 (23.5%) |
|  35 to 44 | 35 (16.1%) |
|  45 to 54 | 16 (7.4%) |
|  55 to 64 | 16 (7.4%) |
|  65 to 74 | 4 (1.8%) |
| Gender |  |
|  Male | 55 (25.3%) |
|  Female | 159 (73.3%) |
|  Other | 3 (1.4%) |
| Ethnicity |  |
|  Australian | 163 (75.1%) |
|  Other Caucasian | 24 (11.1%) |
|  Asian | 15 (6.9%) |
|  African | 1 (0.5%) |
| Relationship status |  |
|  Married | 50 (23%) |
|  De facto | 56 (25.8%) |
|  Single | 105 (48.4%) |
|  Divorced/separated | 6 (2.8%) |
| Education level completed |  |
|  Primary school | 2 (0.9%) |
|  High school | 79 (36.4%) |
|  Diploma/certificate | 47 (27.1%) |
|  Bachelor degree | 49 (22.6%) |
|  Post graduate degree | 40 (18.4%) |
| Employment status |  |
|  Full-time employed  | 44 (20.3%) |
|  Part-time employed | 97 (44.7%) |
|  Not working | 33 (15.2%) |
|  Retired | 6 (2.8%) |
|  Volunteering | 6 (2.8%) |
|  Other | 31(14.3%) |
| PHQ-9 (*M* = 8.2, *SD* = 5.8, *Mdn* = 7.0, *IQR*= 8.5) |  |
| None (0 – 4) | 69 (31.8%) |
| Mild depression (5– 9) | 69 (31.8%) |
| Moderate depression (10 – 14) | 45 (20.7%) |
| Moderately severe depression (15-19) | 25 (11.7%) |
| Severe depression (20-27) | 9 (4.1%) |
| MSI-BPD (*M* = 4.0, *SD* = 2.9, *Mdn* = 4.0, *IQR* = 5.0) |  |
|  Below the diagnostic cut off (< 7)  | 166 (76.5%) |
|  Above the diagnostic cut off (≥ 7) | 51 (23.5%) |
| ACE (*M* = 2.3, *SD* = 2.3, *Mdn* = 1.0, *IQR* = 4.0) |  |
|  0  | 68 (31.3%) |
|  1-3 | 89 (41.0%) |
|  4+ | 60 (27.6%) |
|  |  |

*Note.* ACE = Adverse childhood experiences, MSI-BPD = borderline personality pathology, PHQ-9 = depression level.



Figure 1: Comparison of credibility ratings between rationale conditions: Behavioural Activation prior to receiving information about supporting evidence (BA Pre-evidence); Schema Therapy (ST); and Behavioural Activation after information about supporting evidence (BA after evidence).



Figure 2: Childhood adversity moderates the credibility of Behavioural Activation rationales before (BA Pre-evidence) and after (BA after evidence) receiving information about supporting evidence and schema therapy (ST) rationales.



Figure 3: Past treatment experience moderates the credibility of Behavioural Activation rationales before (BA Pre-evidence) and after (BA after evidence) receiving information about supporting evidence and schema therapy (ST) rationales.

**Supplemental Material**

Therapy rationales and evidence provided in support of Behavioural Activation

**A.1 Behavioural Activation rationale**

**X Approach**
The main idea behind the X Approach is that people feel the way they do because of the types of activities or behaviours they engage in.  Depression occurs when a person stops engaging in activities which have previously led to feelings of pleasure and accomplishment. This tendency to engage in less activities then leads to less happiness, inactivity, depressed mood, and fatigue.

The X Approach does not attempt to understand the deep-rooted causes of depression.  This approach suggests that the quickest and most effective way to overcome depression is to change the types of activities a person is involved in.  Clients work with their therapist to engage in more pleasurable activities and to solve specific life problems.  Each session involves a discussion of concrete changes a client can make in his or her behaviour.  This leads to homework assignments in which clients practice new types of behaviours and activities which will decrease feelings of depression.  The overall goal is to decrease the types of activities which lead to feelings of depression, and increase those behaviours which produce positive feelings.

**A.2 Schema Therapy rationale**

**Y Approach**
The main idea behind the Y Approach is that people feel the way they do because of thinking patterns established in childhood or adolescence. Depression occurs when a person believes negative thoughts about themselves or others and then copes by detaching, giving up on pursuing goals and withdrawing from other people. This results in the person feeling numb, empty, hopeless and lonely.

The Y Approach attempts to understand the difficult situations you experienced as a child or teenager. This approach suggests that the most effective way to overcome depression is to identify what you learned about yourself and the world in the past, and then to break unhelpful patterns of thinking and behaving in the present. Sessions involve recalling memories in which your needs were not met during childhood and then practising meeting these needs yourself. This leads to homework assignments in which clients learn to recognise what they need in distressing situations and then practice meeting those needs.  The overall goal is to meet the person’s needs for safety and belonging, and to reduce the symptoms of depression.

**A.3 Evidence in support of Behavioural Activation**

Please read the following information about the X Approach

 The X Approach has been tested in many large scientific studies, with the results indicating comprehensively that the X Approach is an effective treatment for depression (Cuijpers, van Straten, & Warmerdam, 2007; Mazzucchelli, Kane, & Rees, 2009; Richards et al., 2016). The most common effective treatment for depression is called Cognitive Behaviour Therapy (CBT). The X Approach has been found to be as effective as CBT, but quicker to do and simpler to understand (Richards et al., 2016). The X Approach has also been found to be as effective as antidepressant medication for severe depression, and to outperform CBT for severe depression (Dimidjian et al., 2006).

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