



Psychological distress and perfectionism in recent suicide attempters: The role of behavioural inhibition and activation

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ABSTRACT

The present study explored the role of approach and avoidance motivation in a sample of recent suicide attempters. Specifically, it tested the hypotheses that perfectionism mediates the association between these different motivation systems and psychological distress (suicidal thinking & hopelessness). Patients ($n = 125$) admitted overnight following a suicide attempt completed self-report measures of motivation (BIS/BAS), socially prescribed perfectionism, depression/anxiety, hopelessness and suicidal thinking. The results showed that socially prescribed perfectionism mediated the relationship between behavioural inhibition (BIS) and suicidal thinking. In addition, in support of the updated Reinforcement Sensitivity Theory we found a moderating relationship between BIS and BAS-Drive in the prediction of hopelessness. The clinical and theoretical implications are discussed.

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1. Introduction

Suicide is a major cause of premature mortality, and therefore represents a social and health issue of prime importance. Increasing our understanding of such a significant public health issue is important, but the process has been hampered by the complex and often multi-faceted nature of suicide. Theoretical approaches to suicide have highlighted a number of vulnerability factors for suicide; however, a shared idea is that unbearable psychological pain is the common stimulus in suicidal behaviour (e.g., Baumeister, 1990; O'Connor, 2011). That is, suicidal behaviour is reactive in as far as it represents an attempt to escape unbearable pain and negative self-awareness in which hopelessness is a frequent feeling (e.g., O'Connor, Fraser, Whyte, MacHale, & Masterton, 2008). Perfectionism, which is seen to be a stable personality trait, has been hypothesised to play a significant contributory role in increasing perceptions of psychological pain (e.g., Flamenbaum & Holden, 2007), and has consistently been linked to suicide (see O'Connor, 2007 for a review of the suicide and perfectionism relationship).

1.1. Perfectionism and suicidal thinking

Interest in perfectionism has grown with the evidence that it plays an important role not only in the development, but also in the maintenance, of a variety of psychological and health prob-

lems. However, to allow research in this area to move forward and be incorporated successfully into a treatment setting, clarification on three distinct, but related issues is necessary. Firstly, a continued debate about the nature of perfectionism in terms of how many dimensions it contains has led to the development of a number of different models, most of which emphasise a multidimensional approach to the construct whereby both intra-personal and interpersonal factors should be included (e.g., Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt & Flett, 1991). Secondly, with the emergence of these multi-dimensional models, research has started to highlight inconsistencies in the previously hypothesised purely maladaptive function of the trait, and indeed, some studies have emphasised an adaptive role for some perfectionism dimensions (e.g., O'Connor & O'Connor, 2003). Finally, as an extension to the last two points, there is therefore a growing need for research which attempts to explain the mechanisms that underpin the relationship between the perfectionism dimensions and psychological distress. This study attempts to investigate the final goal by examining the motivational background of multidimensional perfectionism.

Perfectionism is often conceptualised as the chronic setting and striving for unrealistically high goals, and focussing on flaws in achieving these goals. One multi-dimensional approach to perfectionism was proposed by Hewitt and Flett (1991)¹, who argued that

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¹ There are a number of other measures of perfectionism (e.g., the Multidimensional Perfectionism Scale, Frost et al., 1990); however, in the interest of brevity, we have limited our discussion to studies employing the Hewitt & Flett measure.

perfectionism is made up of three distinct dimensions, one intra-personal (self-oriented perfectionism) and two inter-personal dimensions (other-oriented and socially prescribed perfectionism). Self-oriented perfectionism concerns the specific standards we set for ourselves. Socially prescribed perfectionism is associated with a fear of failure, and is related to the excessive standards we believe significant others expect of us, and other-oriented perfectionism concerns the high standards we expect of others.

Overall, research findings have consistently shown that socially prescribed perfectionism is strongly associated with distress and suicidal thinking (O'Connor, Rasmussen, & Hawton, 2009; Rasmussen, O'Connor, & Brodie, 2008). In contrast, the research looking at other perfectionism dimensions is much less consistent. In a recent systematic review of the literature (O'Connor, 2007) it was suggested that self-oriented perfectionism may contain both maladaptive and adaptive constituents, and the extent to which this dimension is associated with negative or positive outcomes may depend on other characteristics of the individual. For example, it is generally acknowledged that perfectionism is an achievement-based construct which is strongly influenced by sensitivity to reward and punishment, and therefore, it is possible that the motivational issues may explain these differences. However, to date, little research has investigated the motivational background to trait perfectionism.

1.2. Understanding the motivational basis of perfectionism

A considerable body of research has demonstrated that innate motivational systems govern appetitive and aversive behaviours (e.g., Brenner, Beauchaine, & Sylvers, 2005). Much of this research is based around the Reinforcement Sensitivity Theory (RST) proposed by Gray (1982) which suggests that we possess a behavioural activation or approach system (BAS) which controls our appetitive behaviours in response to signs of reward, and a behavioural inhibition system (BIS) which oversees risk assessment and defensive avoidance behaviours in response to competing motivational goals in the face of punishment and failure. More recently the RST has been revised to account for past discrepancies (rRST; e.g., Corr, 2001; Corr, 2008; Jackson, 2003), and now suggests that three major motivational systems exist: BAS, BIS (underlies anxiety) and the fight-freeze system (FFFS; underlies fear). In addition, the model posits that BIS and BAS may interact in situations of conflict. More specifically, according to Gray and McNaughton (2000) the main purpose of BIS is to resolve conflict by either escaping the situation or by activating the BAS system (thereby approaching the conflict).

In relation to perfectionism more specifically, Slade and Owens (1998) proposed a dual model of perfectionism which suggests that positive perfectionism is underpinned by the pursuit of excellence (i.e. approach) whereas negative perfectionism is underpinned by attempts to avoid failure (i.e. inhibition or escape). Consequently, the authors argued that the emotional consequences of these behaviours will also be different. This idea is supported by a study by O'Connor and Forgan (2007) which investigated the relationship between the behavioural inhibition and activation systems and perfectionism in the prediction of suicidality in a student sample, and found a clear relationship between suicidality and behavioural inhibition. More specifically, they found that higher levels of behavioural inhibition, that is, sensitivity to signals of punishment, were positively related to suicidal thinking. This finding confirms the importance of performance related motivations in social perfectionism: The habitual need to please others and to avoid punishment impairs constructive thinking and is the result of a motivational deficit and irrational beliefs (Mills & Blankstein, 2000). This is consistent with theoretical work in the motivational literature (rRST; Corr, 2004) and in the suicide literature (Integrated Motivational-Volitional Model (IMVM); O'Connor, 2011).

1.3. The present study

We recruited patients who had been admitted to hospital following a suicide attempt, and measured their psychological well-being, perfectionism and motivational style. We focussed specifically on socially prescribed perfectionism as a recent systematic review of the suicide and perfectionism literature (O'Connor, 2007) which showed that, out of the three perfectionism dimensions, only socially prescribed perfectionism was consistently associated with suicide risk. We were particularly interested in self-reported threat and reward sensitivities (i.e., BIS/BAS) in this population as these motivational systems may control the intensity with which individuals respond behaviourally and affectively, and thus, may be implicated in suicide behaviour. With this in mind, the purposes of this study were threefold: (a) to examine the relationship between BIS/BAS and suicidal ideation/hopelessness (i.e. distress), (b) to test the relationship between BIS/BAS and perfectionism and (c) to test for mediating relationships between BIS/BAS and perfectionism in the prediction of distress. This relationship is of particular theoretical interest given that sensitivity to defeat and punishment is hypothesised to be implicated in increased risk of suicidal behaviour (O'Connor, 2011). Finally, on the basis of the revised RST (rRST) we were also interested in whether BIS and BAS interacted in suicide attempters as it can be argued that they are currently immersed in a conflict situation (death vs. living). We did not hypothesise any distinction between BIS and the fight-flight-freeze system (FFFS) as suggested in the rRST, as the Carver and White (1994) measure of BIS/BAS included in the current study was developed on the basis of the original RST (Gray, 1982).

In relation to behavioural inhibition (BIS), and based on previous research, we hypothesised that BIS, but not the BAS sub-dimensions, would be significantly associated with distress (Hypothesis 1). In addition, given that socially prescribed perfectionism is characterised as a predominantly maladaptive personality trait which is associated with a fear of failure, we hypothesised that it would be positively associated with BIS motives (Hypothesis 2). We also hypothesised that BIS's effect on distress would be mediated via socially prescribed perfectionism (Hypothesis 3). In relation to the potential interaction between the BIS/BAS systems, and based on recent research showing that during approach avoidance conflicts BAS-Drive moderates the relationship between BIS and conflict response (Berkman, Lieberman, & Gable, 2009), we tentatively hypothesised that BAS-Drive would also interact with BIS in the distress experienced by suicide attempters (Hypothesis 4).

2. Materials and method

2.1. Participants

All patients (16 years or older) who had been admitted to a Central Scotland hospital overnight following a suicidal episode were considered for inclusion in the study. Accordingly, this did not represent a consecutive sample as it reflects the practical limitations of recruiting via general hospitals. There were 95 females (59%) and 66 men (41%) with an overall mean age of 33.7 years (SD = 13.46, range = 16–69 years). Past research has consistently shown that approximately 90% of suicide attempt admissions to hospital are cases of overdoses (e.g., Hawton, Fagg, Simkin, & Mills, 1994); this finding was replicated in the current study as 148 of the patients (92%) were admitted following an overdose.

2.2. Suicidal history

Fifty patients reported never having self-harmed before (32%), 38 had self-harmed once previously (24%), while 71 patients

(44%) had self-harmed at least twice in the past. One patient did not provide information about self-harm history. This is consistent with past literature showing that between 40–50% of all self-harm admissions are repeat episodes (e.g., Platt, Hawton, Kreitman, Fagg, & Foster, 1988).

2.3. Measures

2.3.1. Suicidal intent

Research has shown that the suicidal intent of a self-harm episode is a better predictor of further repeat self-harm and completed suicide than is the seriousness of the attempt. As a result we included a measure of suicidal intent, and only individuals who reported that they had intended to end their life with the behaviour were included in the analysis presented in this paper. Suicidal intent was established through the ‘attitude towards dying/living’ question from Beck’s Suicide Intent Scale (Beck, Schuyler, & Herman, 1974). Of the initial sample, 125 patients (78%) answered ‘yes’ to the question, whilst the remaining 36 answered ‘no’ or were ambivalent.

2.3.2. Suicidal thinking (SPS-suicide ideation subscale; Cull & Gill, 1988)

Suicidal thinking was measured via 8 items that tap into suicidal cognitions, negative affect, and presence of a suicide plan. The scale has been found to be reliable and valid and Cronbach’s alpha for the current sample was .86.

2.3.3. Hopelessness (BHS; Beck, Weissman, Lester, & Trexler, 1974)

Hopelessness is characterised by expectations that negative consequences will be encountered in the future, and a feeling of having no control over future events. The hopelessness scale was included on the basis that hopelessness has repeatedly been found to be associated with both frequency and severity of suicidal ideation, and suicidal intent (Dyer & Kreitman, 1984). Indeed, hopelessness is generally believed to be an even stronger predictor of suicidal behaviour than depression, and the best predictor of completed suicide. This scale has received satisfactory reliability and validity estimates in several studies. Cronbach’s $\alpha = 0.90$.

2.3.4. Anxiety/depression (HADS; Zigmond & Snaith, 1983)

The Hospital Anxiety and Depression Scale (HADS) is a reliable and valid measure of affect, and Cronbach’s alpha for the present study was .75 and .78 for anxiety and depression, respectively.

2.3.5. Socially Prescribed Perfectionism (MPS-H; Hewitt & Flett, 1991)

The social prescribed dimension of the MPS-H was included in the study. Research on the MPS has confirmed this dimension to be reliable and valid in both clinical and non-clinical populations. Cronbach’s alpha was .80 for socially prescribed perfectionism.

2.3.6. Behavioural Inhibition/Activation Systems (BIS/BAS; Carver & White, 1994)

This scale concerns the measurement of motivational sensitivities based on Gray’s (1982) conceptualisation of a punishment driven (BIS) and a reward driven (BAS) motivational system. The scale is designed to provide four separate scores: BIS, BAS-Reward, BAS-Drive, and BAS-Fun. Due to low reliability alphas ($\alpha < .50$) for BIS and two of the behavioural activations subscales (BAS-Fun and BAS-Reward), we subjected all of the BIS/BAS items to a Principal Components Analysis (PCA) with an Oblique Rotation. Six factors with Eigen-values greater than 1 emerged from the data. Using a cut off value of 0.40 for item loadings, there were five items that did not load onto the factors in the expected manner (“Even if something bad is about to happen to me, I rarely experience fear or nervousness” and “I have very few fears compared to my

friends” did not load onto the same factor as did the other BIS items; “When I’m doing well at something I love to keep at it” and “When good things happen to me, it affects me strongly” did not load on the same factor as the other BAS-Reward items; and “I often act on the spur of the moment” did not load the same factor as the other BAS-Fun items). A second PCA (Oblique Rotation) was therefore conducted with these items removed. This produced the expected four-factor solution, with the items used to measure one theoretical construct (e.g., BIS) loading onto the same factor and not other factors. We therefore calculated factor scores for each of these four factors. These factor scores were used in the subsequent data analysis as our measures of BIS, BAS-Drive, BAS-Fun and BAS-Reward.

2.4. Procedure

2.4.1. Pre-interview

Ethical permission to carry out the study was obtained from the NHS, and from the University of Stirling, Department of Psychology Ethical Board. Participants were approached either in the acute receiving ward or in the A&E, once they had been assessed by the Psychiatric Liaison Team, and were invited to take part in the study.

2.4.2. Interview

Following a brief introduction, participants were informed that the interview did not form part of the psychiatric assessment, and that participation was voluntary, confidential, and refusal to participate would not affect their treatment protocol.

3. Results

We included two measures of distress (hopelessness and suicidal ideation) as these have both been shown to be significant predictors of suicidal behaviour and eventual completed suicide. Only significant findings are reported below.

3.1. Descriptive statistics

Zero-order correlations, means and standard deviations are presented in Table 1. Suicidal thinking (and hopelessness were both positively correlated with BIS. Hopelessness, on the other hand was negatively correlated with the three BAS sub-dimensions, whilst suicidal thinking was negatively correlated with BAS-Drive and BAS-Fun. Socially prescribed perfectionism was positively correlated with suicidal thinking. Socially prescribed perfectionism was positively correlated with the BIS subscale, but was not correlated with any of the BAS subscales. It is worth noting that the means and SD’s are comparable to other studies based on suicidal samples (e.g., Rasmussen, O’Connor, & Brodie, 2008), but that, as expected, they are higher than what is found in non-clinical populations (e.g., O’Connor, O’Connor & Marshall, 2007).

3.2. Testing socially prescribed perfectionism as a mediator of the BIS and psychological distress relations

To establish mediation we followed the procedure outlined by Baron and Kenny (1986). In the first step of each regression we included self-harming history to control for past self-harming behaviour as well as depression and anxiety². We included BIS as the independent variable, socially prescribed perfectionism as the mediator and suicidal ideation as the dependent variable and found that

² Following reviewers’ comments we re-ran the analyses controlling for age and gender and did not find any significant differences in the results.

Table 1
Pearson correlations, means and standard deviations for all variables.

	1	2	3	4	5	6	7	8	9
1. Suicidal thinking	–								
2. Hopelessness	.64***	–							
3. Depression	.51***	.59***	–						
4. Anxiety	.48***	.42***	.47***	–					
5. Social	.31***	.16	.08	.31***	–				
6. BIS	.31***	.33***	.16	.49***	.37***	–			
7. BAS-Drive	–.22*	–.36***	–.27**	–.12	.02	–.02	–		
8. BAS-Fun	–.19*	–.40***	–.37***	–.09	.06	–.01	.27**	–	
9. BAS-Reward	–.13	–.22***	–.23*	.01	.11	–.17	–.21*	–.17	–
Mean	20.00	14.16	12.14	14.25	65.15				
SD	6.17	5.10	4.98	4.53	14.57				

Note: Means and standard deviations not presented for the BIS/BAS subscales due to them being factor scores.

*** $p < .001$.

** $p < .01$.

* $p < .05$.

all four conditions were met: BIS predicted socially prescribed perfectionism ($b = .37$), $t(98) = 3.90$, $p < .001$, and BIS predicted suicidal thinking ($b = .24$), $t(104) = 2.75$, $p < .01$. Third, the strength of the association between BIS and suicidal thinking was reduced to non-significance when socially prescribed perfectionism was controlled ($b = .11$), $t(97) = 1.17$, *ns* (see Fig. 1). A Sobel test confirmed that full mediation had occurred ($z = 2.36$, $p < .05$).

3.3. Testing BAS as a moderator of the BIS and psychological distress relations

Again, we conducted a series of hierarchical regression analyses to determine whether BAS moderated the relationship between BIS and distress when self-harm history, depression and anxiety had been controlled for. These analyses highlighted one instance where BAS-Drive interacted with BIS to predict suicidal ideation ($b = -.157$, $t(122) = -2.072$, $p < .05$ (see Fig. 2).

4. Discussion

The main goal of this study was to examine the roles of self-reported threat and reward sensitivities (BIS/BAS) in a sample of suicide attempters on the basis that these motivational systems have been suggested to be related to a variety of negative emotional outcomes (Leen-Felder, Zvolensky, Feldner, & Leluez, 2004), and hence, may be implicated in suicidal thinking. To address this proposition we tested four hypotheses concerning the relationship between BIS/BAS, perfectionism and distress. In addition, this study makes a contribution to the RST literature in that a potential relationship between BIS/BAS was examined within a clinical population.

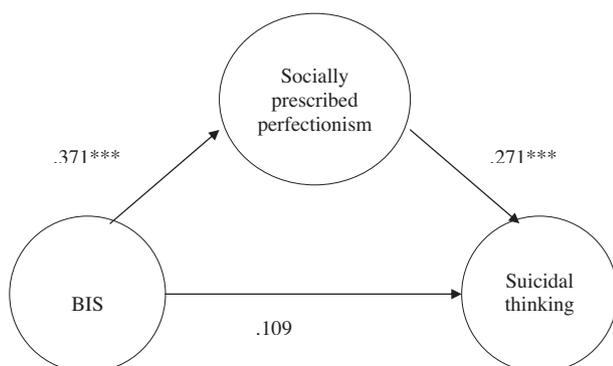


Fig. 1. Socially prescribed perfectionism as a mediator of the BIS-suicidal thinking relationship.

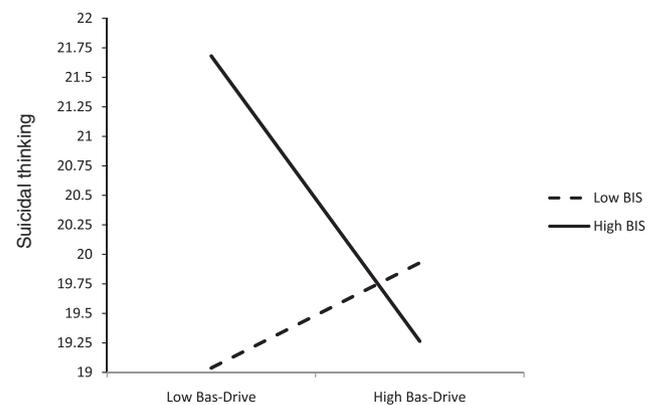


Fig. 2. BAS-Drive as a moderator of the BIS and hopelessness relationship.

4.1. The relationship between BIS/BAS and distress (Hypothesis 1)

In relation to the BIS-distress relationship, the present study indicates that BIS was positively correlated with suicidal thinking and hopelessness. This is comparable to the outcomes of a study by O'Connor and Forgan (2007) which found a similar relationship in a student population. The BIS-negative emotional reactivity link is in line with research suggesting that BIS activation causes behavioural inhibition and is responsible for the experience of feelings of anxiety, frustration and sadness (Gray, 1990). The negative relationship between BAS and hopelessness, however, has not been reported previously. Nonetheless, this finding is not unexpected as BAS sensitivity facilitates goal-motivated behaviour in the face of cues of incentive, and is, thus, instrumental in the control of positive affect such as happiness and hope (e.g., Carver & White, 1994).

4.2. The relationship between BIS/BAS and perfectionism (Hypothesis 2)

In support of O'Connor and Forgan (2007) and Randles, Flett, Nash, McGregor, and Hewitt (2010) we found a positive association between BIS and socially prescribed perfectionism. Again, this finding is consistent with past research.

4.3. The mediating effect of perfectionism on the BIS/BAS and psychological distress relationship (Hypothesis 3)

We tested the idea that BIS would relate to socially prescribed perfectionism and that this pathway would mediate the BIS-

suicidal thinking link in suicide attempt patients. The results showed that after entering socially prescribed perfectionism into our model, the direct effect between BIS and suicidal ideation was no longer significant. Thus, this outcome is consistent with the position that socially prescribed perfectionism mediates the relationship between BIS and suicidal thinking. O'Connor and Forgan (2007) contended that such a finding is consistent with developmental studies which have demonstrated that BIS primarily affects emotional affectivity indirectly through other factors. These findings are of importance, despite being cross-sectional and indirect, as they strengthen the speculation that perfectionism may have a physiological motivational basis.

Generally speaking these findings provide support for the differential roles of the two motivational systems in the development of psychological distress and suicide thinking, and they are consistent with both the RST and the rRST. Furthermore, they highlight the importance of considering perfectionism in terms of the motivational foundation of an individual. Meyer, Johnson, and Carver (1999) argued that it is possible that there are individual differences in the degree of responsiveness of the BIS/BAS sensitivities exhibited by individuals, and that excessive sensitivity to these systems may be implicated in increased risk of various psychopathologies. Consequently, it is possible that perfectionism may be one such individual differences factor.

4.4. The moderating effect of BAS on the BIS and psychological distress relationship (Hypothesis 4)

We tested the potential interaction between the two motivation systems in the predicting of distress. We found that when high levels of BIS were combined with low levels of BAS-Drive, suicidal thinking was significantly increased. This is consistent with the joint subsystems hypothesis (Corr, 2001) which suggests that, for human beings most personal and social situations are likely to involve a combination of appetitive and aversive stimuli, and consequently it is sagacious to conclude that it is likely that underlying motivational systems might interact. The current findings does provide tentative support for the idea that the BIS could be seen to act as a conflict detection system (rather than merely being a punishment system), and when combined with BAS-Drive, which is related to the pursuit of appetitive goals, patients are less likely to report pessimism for the future. This suggestion is different to the original model RST model (Gray, 1982) which contends that the BIS and BAS systems exert separate and independent effects.

4.5. Implications and limitations

That said any interpretation of these findings must be cautious for a number of reasons. Firstly, the current measure of BIS/BAS was developed on the basis of the original RST rather than the rRST. Indeed, it has been suggested that with the revised model it is also necessary to revise existing BIS measurements as they may fail to capture the notion of conflict (Smillie, Pickering, & Jackson, 2006). It is worth pointing out that although our factor analysis did not find support for Heym, Ferguson, and Lawrence's (2008) proposal that Carver and White's BIS measure could be subdivided into a 4 item BIS and a 3 measure FFFS scale, the two items from the BIS which the current analysis suggested should be removed from the measure, are items which Heym et al. (2008) argue measure FFFS rather than BIS. It is therefore evident that much more research is required to clarify and improve current psychometric measures of behavioural motivation systems.

Although the present study was the first to test the motivation-perfectionism relationship in suicide attempters, a number of limitations are worthy of comment. Firstly, the reliance on self-report measures should be acknowledged: Research on motivation has

highlighted that the psychometric, compared to biological, measurement of BIS/BAS is complex, and there is little consensus concerning the best measure available (Corr, 2001). In addition, reliance on self-report issues runs the risk of shared method variance; however, as none of the correlations were above .70, this satisfies the established criterion for discriminant validity (Tabachnik & Fidell, 2001) and we are therefore confident that the results are not simply a product of shared method variance. Secondly, the study suffers from the standard limitations of correlational research, and the lack of a prospective component or experimental manipulation, limits any discussion of causality.

Despite the limitations highlighted above, this research has a number of implications. First, the data supports the growing research literature which highlights differential roles for each of the perfectionism dimensions in the prediction of psychological distress. In particular, our research highlights the detrimental effect of socially prescribed perfectionism, and clinical interventions should consequently pay specific attention to the sensitivity to punishment experienced by socially prescribed perfectionists. In addition, this study provides support for the rRST in a suicidal population: the measure of BIS included in the study could, at least tentatively, be seen to reflect the BIS proposed in the rRST which is hypothesised to inhibit behaviour and increase arousal. This is also consistent with the Integrated Motivational-Volitional Model of Suicidal Behaviour (O'Connor, 2011) which suggests that individual differences in sensitivity to stressful and defeating circumstances increase the risk of suicidal behaviour (e.g., O'Connor, Rasmussen, & Hawton, 2010). In the current study, it is thus possible to argue that those perfectionists characterised by strong BIS activation will feel trapped in their current situation and will attempt to resolve that conflict through suicide. However, as this was a cross-sectional study, further research is necessary to establish whether these relationships are predictive of suicidal thinking and behaviour over time. More research should also be devoted to exploring the contribution of the BIS to the types of life events suicide attempters experience and specifically how these events are processes and encoded.

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