Short Communication

Core beliefs, automatic thoughts and response expectancies in predicting public speaking anxiety

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ARTICLE INFO

ABSTRACT

The present study examined the relationships between broad core cognitions, situation-specific automatic thoughts, and response expectancies in regard to their relative contributions to public speaking anxiety. Ninety-nine socially anxious participants (mean age = 20.25) completed measures of irrational beliefs and automatic thoughts specific to public speaking. Participants were then announced the task – giving a speech in front of a virtual reality audience – and response expectancies were measured. Subjective anxiety was measured just before the speech. As predicted, response expectancies and negative automatic thoughts specific to public speaking were each found to mediate the relationship between irrational beliefs and public speaking anxiety. Multiple mediation analysis indicated that the core irrational beliefs generated specific beliefs (i.e., response expectancies that primed automatic thoughts) that acted on speech-related anxiety.

1. Introduction

Two meta-analyses (Kirsch, 1996; Kirsch, Montgomery, & Sapirstein, 1995) indicated that although cognitive-behavioral therapy (CBT) is effective on its own, the combination of CBT and hypnosis can yield even larger clinical effect sizes. Nevertheless, the relationships between cognitive mechanisms involved in CBT (e.g., irrational beliefs, automatic thoughts) and hypnosis (e.g., response expectancies) have never been investigated in the same study so far.

A distinction in cognitions targeted in various forms of CBT is between core beliefs, which are more general and not easily accessible directly (e.g., "I am a worthless person") and more specific beliefs, activated often automatically, in circumscribed situations (e.g., "They will laugh at me"). According to CBT theory (Beck, 1995; Ellis, 1994), in specific situations, core beliefs (e.g., irrational beliefs) generate, by biasing the information processing of specific activating events, more specific beliefs in the form of automatic thoughts that then generate dysfunctional feelings and behaviors. Both core and specific beliefs can be descriptions (e.g., "The room is full of people"), inferences (e.g., "They will laugh at me"), or evaluations/appraisals (e.g., "They must not laugh at me and it is awful

if they do"); however, unless appraised, descriptive and inferential beliefs do not directly generate emotions, although they might generate behaviors (David, 2003; Lazarus, 1991).

David and Szentagotai (2006) noted there is a controversy regarding which types of cognitions are more readily amenable to change first in therapy. Some authors view changing broad and pervasive cognitions such as core beliefs (especially evaluative) as more difficult in contrast with restructuring situation-specific thoughts (Beck, 1995); therefore, they suggest changing automatic thoughts first and core beliefs after. Yet others (Ellis, 1994) argue that, if possible, we should directly target core irrational beliefs, which can save time and, if successful, also lead to changes in automatic thoughts. Also, sometimes automatic thoughts (mainly the evaluative type), may be more difficult to modify than broader cognitions (e.g., it is harder to challenge the specific thought "I must be loved by my wife" than the more general one "I must be loved by others"), due to their strong emotional relevance.

Besides the cognitions traditionally addressed by CBT, a robust literature (Kirsch, 1985) illustrates the impact of response expectancies (i.e., what individuals expect regarding nonvolitional responses) on emotional outcomes. Kirsch hypothesized that response expectancies are sufficient to cause nonvolitional outcomes, not mediated by other cognitive variables, and self-confirming. However, he acknowledged the response expectancy hypothesis is no different from other hypothesized causal relations between cognition and emotional experience, such as Beck's

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theory, as response expectancies can be conceptualized as inferential automatic thoughts. The issue of "direct effect" seems to be contradictory with the idea that descriptions/inferences cannot directly generate feelings, unless they are appraised (David, 2003). Thus, the role of response expectancies in the general CBT theory needs further clarification.

All these different types of dysfunctional cognitions have been associated with various measures of distress and psychopathology (e.g., David, Schnur, & Belloiu, 2002; Hofmann & DiBartolo, 2000; Schoenberger, Kirsch, Gearan, Montgomery, & Pastyrnak, 1997; Szentagotai & Freeman, 2007). Nonetheless, there are few studies looking at the ways in which combinations of these constructs relate to distress. For example, Szentagotai and Freeman (2007) found that the impact of core irrational beliefs on depressed mood was mediated by automatic thoughts. Montgomery, David, DiLorenzo, and Schnur (2007) showed that the impact of general irrational thoughts on distress was mediated by response expectancies. However, we did not find empirical studies combining all the constructs (i.e., irrational beliefs, automatic thoughts, response expectancies) and distress in the same design, even if their interrelations were theoretically discussed (see Beck, 1995; Ellis, 1994).

The aim of the present study is to clarify the relationships among broad core cognitions, situation-specific automatic thoughts, and response expectancies in regard to their relative contributions to public speaking anxiety. The relationships between these cognitive constructs have not been investigated in the context of public speaking, nor on subjects with social anxiety.

We predict, based on previous literature, that the impact of more general cognitions such as irrational beliefs on public speaking anxiety is mediated by more circumscribed beliefs like negative automatic thoughts and response expectancies. The investigation of the relationship between the last two is exploratory. In order to reach our objectives we used an innovative technology based on virtual reality.

2. Method

2.1. Participants

Ninety-nine undergraduate students (92 females and seven males; mean age = 20.25; SD = 8.21) took part in the study in exchange for course credit. Participants were selected if they scored 30 or more on the Liebowitz Social Anxiety Scale–Self-Report (LSAS–SR; Fresco et al., 2001).

2.2. Measures

Liebowitz Social Anxiety Scale, Self-Report Version (LSAS–SR; Fresco et al., 2001; Liebowitz, 1987) measures social anxiety by assessing the fear and avoidance individuals might experience in social interaction and performance situations. A cut-off point of 30 is considered indicative of a diagnosis of social phobia. We used the self-report version of the LSAS, which was translated into Romanian. Data indicate excellent reliability (Cronbach's alpha of .93).

General Attitude and Beliefs Scale, Short Form (GABS–SF; Lindner, Kirkby, Wertheim, & Birch, 1999) is a 26-item scale designed to measure general rational and irrational beliefs (mainly evaluative). The GABS–SF was adapted and validated on a Romanian population (Trip, 2007), with good reliability (Alpha Cronbach = .81).

Self-Statements During Public Speaking (SSPS; Hofmann & DiBartolo, 2000) is a self-statements questionnaire that assesses fearful thoughts associated with public speaking. This brief 10-item questionnaire consists of two 5-item subscales, the Positive Self-Statements (SSPS-P) and the Negative Self-Statements (SSPS-N)

subscales. The SSPS was translated for the purpose of this study. Cronbach's alpha in this sample was .78 for the SSPS-P and .81 for the SSPS-N.

Visual Analogue Scale (VAS): A 10-cm VAS assessing expectations of anxiety before performing a speech was administered. Specifically, participants had to rate how anxious they expected they would feel while giving the speech.

The short form of the State version of the State-Trait Anxiety Inventory (mSTAI; Marteau & Bekker, 1992) consists of 6 items selected from the original STAI. It asks participants to rate statements regarding mood in terms of their perceived intensity. Alpha Cronbach in this sample was .81.

2.3. Procedure

After signing informed consent, participants completed the GABS–SF and SSPS. Participants were told they would have to give a 3 min speech in front of a virtual audience on a topic to be announced to them just before the speech, and were asked to rate how anxious they expected to feel while performing the speech (VAS). A list of speech topics on controversial social, economic and political issues (e.g., violent computer games should be banned) was constructed and each subject got a different topic. The VR environment (Grapp, 2004) consisted of a virtual audience arranged in a medium sized room (15–20 individuals), in which the participant took the position of the speaker at the podium in front. Subjective anxiety (mSTAI) was measured just before the speech. Finally, participants were required to deliver their speech.

2.4. Data analysis

Correlation and mediational analysis were performed. For mediational analysis, we used the bootstrapping procedure for assessing indirect effects (Preacher & Hayes, 2008). Preacher and Kelley (2011)'s kappa-square (i.e., κ^2) was reported as effect size for mediation models that were found to be significant, as well as corresponding confidence intervals.

3. Results

Correlations between the variables considered are presented in Table 1. For mediation analysis, we used bootstrapping tests with 5000 re-samples and reported a bias corrected and accelerated confidence interval (Preacher & Hayes, 2008). Mediation is considered present when the confidence interval for the estimation of the indirect effect does not contain 0. Since this was primarily an exploratory study, we alternatively tested all possible mediation models using speech-related anxiety as the outcome.

The results (see Fig. 1) indicated that response expectancies acted as a mediator in the relationship between general irrational beliefs and speech-related anxiety, indirect effect = .02, SE = .01, 95% CI (bias corrected and accelerated) = .008 to .053; κ^2 = .09, 95% CI (bias corrected) = .02 to .19. The relationship between general irrational beliefs and anxiety was also found to be mediated by negative automatic thoughts specific to public speaking, indirect effect = .04, SE = .01, 95% CI (bias corrected and accelerated) = .021 to .088; κ^2 value was .17, 95% CI (bias corrected) = .07 to .29. There was no evidence of mediation in the alternative models. We also tested two multiple mediation models in which mediators influence each other, based on the results of the simple mediations: (1) with response expectancies as mediator 1 and negative automatic thoughts specific to public speaking as mediator 2; (2) with automatic thoughts specific to public speaking as mediator 1 and response expectancies as mediator 2. We used general irrational beliefs as predictor and speech-related anxiety as outcome.