

Validity of a frustration-induction procedure

Validade de um procedimento para indução de frustração

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Abstract

Objective: To test a reliable and easily administered frustration-induction procedure for experimental research. **Method:** One hundred volunteers (81 women, mean age \pm SD 34.2 \pm 8 years) physically and psychiatrically healthy submitted to the frustration induction procedure were prevented from reaching reward level scores. Subjective aggressiveness feelings related to frustration were self-rated in a 13-item visual analogue scale before and after the procedure. **Results:** Significant increases in aggressiveness-related feelings were detected in 12 of the 13 items. This was consistent with the observed overt behavior of the subjects during the task. **Conclusions:** The frustration-induction procedure is a simple, easy to administer frustration-induction procedure that can be used in experimental studies in normal subjects.

Descriptors: Evaluations studies; Expressed emotion; Emotions; Frustration; Irritability

Resumo

Objetivo: Testar um procedimento de indução de frustração confiável e de simples aplicação para a pesquisa experimental. **Método:** Cem voluntários (81 mulheres, idade média \pm DP 34,2 \pm 8 anos), física e psiquiatricamente saudáveis, submetidos ao procedimento de indução de frustração, foram impedidos de atingir escores de recompensa. Os sentimentos de agressividade subjetivos relacionados à frustração foram autotestados em uma escala analógica visual de 13 itens antes e após o procedimento. **Resultados:** Foram detectados aumentos significativos nos sentimentos relacionados à agressividade em 12 dos 13 itens. Isto foi consistente com o comportamento manifestado pelos indivíduos e observado durante a tarefa. **Conclusões:** O procedimento de indução de frustração é simples, facilmente aplicável e que pode ser utilizado em estudos experimentais com indivíduos normais.

Descritores: Estudos de avaliação; Emoções manifestas; Emoções; Frustração; Irritabilidade

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Introduction

Experimental models of induced emotions have long been used to study their behavioral and physiological correlates and treatment efficacy. The development of reliable methods to elicit emotional states such as sadness, happiness, anxiety, anger, disgust, and fear became particularly important following the development of functional neuroimaging.

The procedures most frequently employed for the elicitation of emotions include the recall of prior experiences through narrative autobiographical scripts;¹ the exhibition of emotionally-laden films, and the exposure to standardized human faces or pictures;² the administration of demanding mathematical tasks;³ simulated public speaking tasks;⁴ and pharmacological challenge procedures. Their efficiency, validity and specificity to induce a target emotion vary according to which procedure is used.⁵

The aim of the present study is to test a simple and easily-administered frustration-induction procedure (FIP) to be used in studies with normal subjects.

Method

1. Subjects

One hundred volunteers (81 women, mean age \pm SD = 34.2 \pm 8 years) who entered in a psychopharmacological study⁶ (n = 70; 58 women, 33.2 \pm 1.2 years) or who were recruited among users of a fitness centre (n = 30; 23 women, 36.8 \pm 11.3 years) took part in this task. They were considered physically and psychiatrically healthy according to a psychiatric screening questionnaire (SRQ)⁷ followed by a structured psychiatric interview (SCID)⁸ and by physical and laboratory examinations. All subjects signed informed consent forms, and the study was approved by the Ethics Committee of the Hospital das Clínicas of the Medical School of the Universidade de São Paulo (CAPPesq 048/01).

2. Frustration-inducing procedure (FIP) development

A sequence of 4 cards from a deck of 64 numbered from 1 to 4, in 4 suits (spades, clubs, diamonds, and hearts) and with 4 colors (red, green, blue, and black) was presented to be sorted by the subjects according to a rule (color, number or suit). They were told they would win a box of chocolate, kept in front of the subjects, upon correctly sorting 10 consecutive combinations. During the test, any combination proposed by the subject was accepted as correct, except the 10th which was always considered wrong, thus precluding success.

The FIP, based on Wisconsin Card Sorting Test (WCST),⁹ was tested in a pilot study on 10 subjects and seemed to reliably induce irritability. At the end of testing, participants reported subjective feelings of mild anger, frustration, impatience, annoyance, and irritability.

3. Instruments

The Aggression Rating Scale (ARS)¹⁰ consisting of 13 bipolar visual analogue scales measuring feelings related to irritability, anger, and aggressiveness was applied before and after the procedure.

4. Statistical analysis

Subjects were tested for homogeneity regarding sex (Chi Square) and age and performance variability (ANOVA). Paired-sample t-tests were performed to compare means before and after FIP application. A significance level of 5% was adopted.

Results

There was no effect of sex, age, and site of recruitment on the subjects' performance. With the exception of "rebellious-compliant",

the rating of all items showed significant differences after the frustration-induced procedure. Subjects evaluated themselves as less peaceful, affable, calm, sociable, cool-headed, restrained, tolerant, patient, friendly, benevolent, composed and pleased than before the procedure.

Data inspection revealed that nearly 20% of the subjects presented minimal changes in the visual analogue scale scores (less than 10%), and were excluded. Figure 1 displays the results after exclusion of the non-responsive subjects.

The efficacy of the procedure was consistent with the behavior of the subjects during the test: most of them were restless, tapped their fingers, or displayed annoyed facial expression.

Discussion

Strategies to induce irritability, hostility, aggressiveness, and anger employ competitive reaction-time tasks,¹⁰ autobiographical sketches, unsolvable maze tasks,¹¹ and success-failure manipulations.¹² The frustration-inducing paradigms, in which subjects are prevented from receiving a promised reward, are easier to set up than other methods.¹³ On the other hand, the effectiveness of success-failure manipulations in inducing frustration depends on the subject realizing that he is not the one responsible for the failure, otherwise other feelings such as guilt or shame may be evoked.¹⁴

The FIP was able to induce irritability in approximately 80% of our subjects. This was patent in 12 out of 13 items of the Aggression Rating Scale. Accordingly, subjective ratings of irritability were consistent with the subjects' overt behavior.

The fact that the subjects were not aware of the objectives of the procedure (namely, to induce irritability) and did not argue that the investigator might be manipulating the task is relevant, since the effectiveness of other paradigms, such as recall of autobiographical memories and emotion induction by pictures, music or movies may be influenced by the so-called demand effect.¹⁰ This effect consists of subjects not really achieving the desired emotional state but simply trying to please the investigator reporting what they guess to be the purpose of the study.

These results are not explained by a biased selection of prone-to-irritability subjects, since a sub-sample of 70 subjects answer the personality questionnaire scored within the normal range in all factors of the Temperament and Character Inventory.¹⁵ Hence, they were not particularly impulsive or aggressive at baseline.

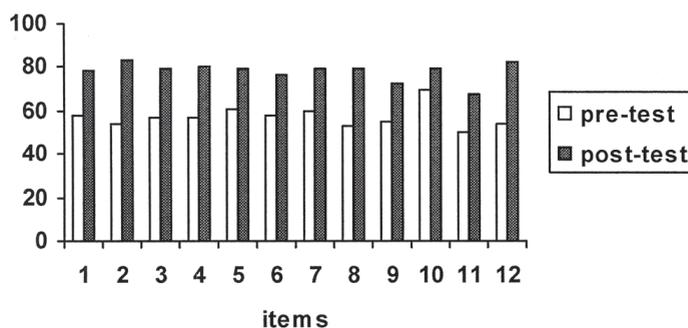


Figure 1 - Aggression Rating Scale scores of subjects showing more than 10% change after the frustration-inducing procedure (n = 78)

Items 1: peaceful-angry; 2: affable-quarrelsome; 3: calm-furious; 4: sociable-unsociable; 5: cool-headed-aggressive; 6: belligerent-restrained; 7: tolerant-resentful; 8: patient-impatient; 9: friendly-hostile; 10: benevolent-spiteful; 11: composed-annoyed; 12: pleased-disgusted.

In conclusion, the FIP proved to be a simple, reliable and expedite procedure to elicit irritability, taking less than 15 minutes to be administered. The usefulness of these results for psychopharmacological and emotion research should be confirmed in larger samples. Also, it should be tested in studies comparing different samples including patients with psychiatric disorders and healthy subjects.

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