



Is nonverbal behavior in patients and interviewers relevant to the assessment of depression and its recovery? A study with Dutch and Brazilian patients



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ABSTRACT

Nonverbal behaviors exhibited by patients with depression in their interactions with others may reflect social maladjustment and depression maintenance. Investigations of associations between unipolar depression and both patients' and interviewers' behaviors have been scarce and restricted to European samples. This study examined whether nonverbal behavior in patients and their interviewers is associated with depression severity and recovery. Cultural differences were explored. Seventy-eight depressed outpatients (28 Brazilians, 50 Dutch) were evaluated before and after 8-week pharmacological treatment. Patients were videotaped during the Hamilton Depression Scale interview before treatment, and the Brazilians were also videotaped after treatment. Nonverbal behaviors (patients' speaking effort and interviewers' encouragement) were analyzed using a two-factor ethogram. Results revealed that speaking effort was associated with encouragement and both are not influenced by baseline depression severity. However, from before to after treatment, whereas encouragement remained unchanged, speaking effort increased among unrecovered patients. Speaking effort was associated with patients' culture: Brazilians exhibited higher speaking effort than Dutch. These findings highlight that whereas the supportive nonverbal behavior of the interviewer may be stable, the set of nonverbal behaviors composed by head movements, eye contact and gestures displayed by the patients during their speaking in clinical interviews reflects depression persistence after treatment.

1. Introduction

Negative interpersonal experiences, the loss of social support, and isolation are features that might be associated with the onset of depression, its maintenance, and its recurrence (Paykel, 1994; Segrin, 2000; Hirschfeld et al., 2000; Eberhart and Hammen, 2006; Huprich et al., 2015). According to interpersonal theories of depression (Lewinsohn, 1974; Coyne, 1999; Joiner and Timmons, 2008; Hames et al., 2013), the way that depressed people interact with others may lead to social deficits and rejection. Traditionally, these interpersonal features are assessed by questionnaires and reports during clinical interviews (Hamilton, 1967; Paykel, 1985; Beck et al., 1988; Gorman et al., 2004; Sanchez-Villegas et al., 2008). However, social behavior

involves expressions and feelings that are not under an individual's complete conscious control (Lewicki and Hill, 1987; Dijksterhuis et al., 2007; Bargh and Morsella, 2008; Gardner and Cacioppo, 2014), suggesting limitations of evaluations that are based exclusively on verbal reports. In this context, the assessment of depression using nonverbal communication could be relevant to obtaining automatic and reflexive socio-emotional information that influences interpersonal adjustment (Troisi, 1999; Perez and Riggio, 2003; Philippot et al., 2003; Geerts and Brüne, 2009).

Studies of nonverbal communication in depression have been developed through the ethological observation of patients' behavior, mainly in ward environments (Polsky and McGuire, 1980; Fossi et al., 1984; Pedersen et al., 1988). Depressed patients generally exhibit an

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increase in behaviors associated with negative affect, isolation, and interpersonal disinterest, such as nonspecific gaze. They also exhibit less behaviors associated with positive affect and social interest, such as smiling and illustrative hand gestures. Studies of outpatients confirmed the negative effect of depression on social behavior (Jones and Pansa, 1979; Fiquer et al., 2013). Nevertheless, there is a lack of information on the impact of nonverbal expressions of people who interact with these patients.

In the 1990 s, a group of Dutch researchers developed an ethogram that involves the systematic observation of the frequency and duration of both patients' and interviewers' behaviors during clinical interviews (Bouhuys and Hoofdaker, 1991; Bouhuys et al., 1991). The behaviors were grouped into the two most relevant factors: speaking effort and encouragement (Bouhuys and Albersnagel, 1992; Bouhuys and Hoofdaker, 1993; Geerts et al., 1995). Speaking effort refers to a patient's effort in communicating and receiving support, consisting of eye contact, head movements, and illustrative gestures. Encouragement refers to the supportive behavior of the interviewer, consisting of verbal backchannel and yes-nodding (Geerts, 1997; Geerts et al., 1997; Geerts and Bouhuys, 1998). A series of studies found that high levels of both speaking effort and encouragement were associated with a poor depression outcome (Bouhuys and Hoofdaker, 1993; Geerts et al., 1995, 1996). According to these authors, when patients with high speaking effort evoke excessive social support (encouragement), they may be more prone to interpersonal distress and the maintenance of depression (Bouhuys and Hoofdaker, 1991; Bouhuys, 2003). Subsequently, however, findings on the association between high encouragement/speaking effort and poor depression outcome have not been consistent (Geerts et al., 2000; Bos et al., 2002). Indeed, in a sample of remitted depressed patients, Bos et al. (2002) found that low, rather than high, speaking effort predicted the recurrence of depression.

Studies that evaluated the relationship between speaking effort and encouragement found that patients and interviewers converge their behaviors to similar levels during the interviews, considered a process of behavioral attunement (Geerts et al., 1997; Geerts and Bouhuys, 1998). Low attunement of speaking effort and encouragement during pretreatment interviews was associated with (1) poor depression outcome after treatment (Geerts et al., 1995, 1996, 2000), (2) stressful interpersonal events (Bos et al., 2007), and (3) the recurrence of depression after 2 years (Bos et al., 2006). These results refocused the direction of such studies, pointing to the attunement of encouragement and speaking effort as a relevant indicator of depression prognosis (Bouhuys, 2003).

Although promising, these results on the association between encouragement, speaking effort, and their attunement with depression prognosis were based on a behavioral methodology developed and used just by the group of Bouhuys and colleagues. Thus, no external validation confirmed these findings. Furthermore, in their last study (Geerts et al., 2009) attunement was not associated with depression, which might be due to methodological issues. It is unclear whether the diagnosis and intensity of depression play a role in this association because previous studies have predominantly combined samples of unipolar and bipolar patients and inpatients and outpatients. In all of the previous investigations, only the patients' baseline behavior was considered when predicting depression prognosis, with no evaluation of possible behavioral alterations before and after treatment. Another consideration is that the studies that were focused on evaluating encouragement, speaking effort, and their attunement were restricted to the evaluation of Dutch patients. The influence of cultural background was not investigated.

The present study included samples of Dutch and Brazilian patients with unipolar depression and analyzed the association between nonverbal behavior (speaking effort, encouragement, and their attunement) and the severity of depression during clinical interviews before and after treatment. We hypothesized that (1) speaking effort, encour-

agement, and their attunement before treatment would be associated with the baseline severity of depression and the prediction of depression recovery after treatment, (2) the response or remission of depression would be reflected by alterations in nonverbal behavior after treatment, and (3) the patients' cultural background would influence the expression of nonverbal behavior.

2. Methods

2.1. Patient sample

Seventy-eight outpatients who met the criteria for major depression according to the *Diagnostic and Statistical Manual of Mental Disorders*, 5th edition (DSM-5; American Psychiatric Association (APA) (2013)) were recruited from outpatient wards of the Academic Hospital Groningen (UMCG) in the northern region of The Netherlands ($n = 50$) and the Clinical Hospital of the Medical Faculty of the University of São Paulo (HC-FMUSP; www.clinicaltrials.gov, NCT02268487) in southeastern Brazil ($n = 28$). The exclusion criteria were age < 18 years old or > 65 years old, current psychiatric comorbidities, a history of neurological disorders, and substance abuse within the 6 months preceding the study. Patients had been drug free for at least 3 days before admission. The Ethics Committee of both hospitals approved the research. All of the participants signed informed consent agreements.

2.2. Design and procedure

Patients were screened using a semi-structured clinical interview of depression (SCID-DSM-5, American Psychiatric Association (APA) (2013)) that was conducted by trained psychiatrists. The patients were also evaluated using the Hamilton Rating Scale for Depression (HRSD; Hamilton, 1967) before (baseline assessment; T0) and after (T1) 8 weeks of treatment with sertraline (25–200 mg/day). The HRSD interview was videotaped for the later analysis of behavior of both the patients and interviewers by one Brazilian researcher (woman, 26 years old) and two Dutch researchers (women, 28 and 36 years old) at baseline. The recording after treatment was performed only with Brazilian patients ($n = 25$). The response of depression was considered a $\geq 50\%$ reduction of HRSD scores from baseline to after treatment. Remission was considered an HRSD score ≤ 8 after treatment (Blacker, 2000).

2.2.1. Nonverbal behavior assessment

We used the method that was proposed by Bouhuys's research group for behavioral registration (Bouhuys and Hoofdaker, 1993; Geerts et al., 1995). During the HRSD interview, the face and trunk of both the patient and interviewer were recorded by two cameras. The first 15 min of the recorded interviews were analyzed by two trained observers (one Dutch and one Brazilian) who were blind to treatment outcome and time of evaluation at UMCG. The observers continuously recorded both the frequency and duration of behavioral elements using an event-recording system. The different behavioral elements were registered by the observers in different runs of the videotape, four for the behavioral elements for patients (gaze, general head movements, and gestures during speaking; gaze during listening) and two for interviewers (verbal backchannel and yes nodding during listening) to compute the nonverbal involvement factors speaking effort and encouragement, respectively. Hence, the behavioral elements that constitute the speaking effort and encouragement are based on the occurrence of patients and interviewers speaking or listening (see Table 1). The behavioral elements were standardized, assigned weighted scores, for statistical analyses. The composition of speaking effort and encouragement (e.g. specific sets of behavioral elements for registration, data standardization) is based on a previous factor-analysis study by Bouhuys and colleagues (see Bouhuys et al., 1991;

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