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Abstract
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Emotion psychology can contribute to psychiatric work on affect disorders: a review

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While psychiatry and psychology can be considered sister disciplines, the all too frequent family feuds have prevented an extensive exchange of theoretical and methodological approaches. This lack of close contact has been to the detriment of both disciplines. Psychiatry, particularly work on the etiology of mental disease, may profit from psychological theorizing and experimentation on normal functioning. Psychology, on the other hand, can gain important insights from the study of disturbed processes and the availability of natural experiments and controlled intervention programmes. In particular, theoretical, experimental and clinical work on the antecedents, manifestation, and control of emotional states, including their pathological forms, would benefit from closer collaboration between psychiatrists and psychologists.

Potential contributions from emotion psychology

Two approaches to the psychological study of emotion may provide important leads for psychiatric work on affect disturbance. First, the functional approach to conceptualizing emotion, which assumes phylogenetic continuity and was first described by Darwin, has gained increasing acceptance in psychology. This approach allows a description of affect disorders more closely based on an assessment of the functionality or dysfunctionality of behaviour. Another angle of interest is the important role of motor expression as an external manifestation of internal affective arousal. The notion that emotional expression can serve as an important sign of underlying emotional states and disorders is the major tenet of this paper.

Second, a major advance in emotion psychology is the recognition of the important role cognitive information processing plays as the precursor of emotional arousal and as the major determinant of the differentiation of emotional states. Lazarus and colleagues were among the first to emphasize the role of subjective evaluation of events and situations and propose a 'transaction model' which takes into account the coping potential of the individual. This notion has been of much interest to psychiatric work on coping with life events. Consequently, contrary to the widely accepted 'general impact model of stress', as postulated by Selye, recent theorizing argues for the need to distinguish different types of emotional stress as produced by different cognitive evaluation patterns.

An information processing approach to affect disorder classification

The remainder of this paper will describe how a combined use of the functional and information processing approaches to emotion may contribute to both theory development and diagnostic procedures for identifying affect disorders in psychiatry. It is hypothesized that different subjective evaluations of events and situations will produce different emotional states, characterized by highly differentiated physiological symptoms, feeling patterns, and facial and vocal expression patterns. Therefore, faulty evaluations of events may lead to emotional disorder and the nature of this disorder can be diagnosed on the basis of vocal and facial expressions. In particular, this paper will concentrate on the vocal channel of expressive communication.

In proposing a component process model of emotion, Scherer has postulated a sequence of five 'stimulus evaluation checks' (SECs) as the eliciting and differentiating mechanisms in emotion arousal. An individual is assumed to evaluate situations and events in terms of (1) their novelty, (2) their intrinsic pleasantness, (3) their conduciveness to satisfying major needs and goals, (4) the individual's coping potential (control, power, adjustment capacity), and (5) the self and norm compatibility of the event encountered. The emotional state generated by this sequence of SECs will depend on the pattern of outcomes of the respective checks. For example, anger will be generated by an event that hinders need satisfaction or goal achievement but which seems surmountable given the perceived coping potential of the individual. In contrast, fear is the response to a sudden event which is also endangering needs or goals but where the coping potential of the organism is low or insufficient.

This model allows us to conceptualize affective disorders as the result of inappropriate affect states being produced by inappropriate subjective evaluations of situations. The abnormality or inappropriateness of a behaviour or affect is defined in terms of the social normative judgement concerning these features. Thus, one would talk of inappropriate affect in the form of neurotic anxiety if most people considered the object of fear to be neutral or benevolent rather than frightening. Consequently, the abnormal affect has probably been produced by an inappropriate evaluation strategy where either the relevance of an object or event for satisfying one's needs or reaching one's goals has been grossly misjudged, or where the coping potential of the organism has been underestimated.

A theoretical proposal concerning different types of affect disorders as consequences of inappropriate evaluation strategies, based on the component process model of the author, is shown in Table 1. Nosological classifications of affect disorders in psychiatry should
Acoustic voice parameters are assumed to be direct indicators of a speaker's affect state, and can be obtained using modern digital signal analysis. Progress in the development of appropriate hardware and software has made it feasible to run a complete voice analysis diagnostic program on especially equipped personal computers. An advantage of this method of assessing internal state over more traditional methods, such as physiological recording, is that appropriate measures can be obtained unobtrusively during a normal interview - provided the patient talks and thus provides voice samples. Compared to the verbal assessment of emotional state, this method has the advantage of not being sensitive to defensive reactions or other types of distorting factors.

Evidence showing that affect disorders induce vocal change

Much of what has been outlined above is still in the stage of hypothetical prediction. However, judging from the available experimental data, it appears that voice quality provides an important diagnostic indicator for psychiatric work. There is evidence that emotional states are indeed reflected in the voice and that normal judges can recognize these speaker states with better than chance accuracy. Furthermore, a number of studies have shown that stress produces reliable changes in vocal parameters, particularly fundamental frequency or pitch of the voice.

There are a number of studies with psychiatric patients that have attempted to demonstrate the usefulness of vocal indicators. In most of these studies, significantFilter changes in voice are associated with changes in affective state. While attempts to classify different groups of psychiatric patients on the basis of vocal indicators remain unsatisfactory, due mostly to the use of inappropriate nosological categories, there is evidence that voice analysis can be used to trace changes in patient affect state over therapy. With both American depressive and schizophrenic patients and German depressive patients, a number of vocal indicators, in particular fundamental frequency, spectral energy distribution, and pause length, changed with patient mood state over different therapy periods. There is also preliminary evidence that vocal analysis can be used as an indicator for the effects of psychoactive drugs. In one study, different antidepressant drugs, as compared to a placebo, significantly affected vocal fundamental frequency. These encouraging results illustrate the potential contribution psychology can make to psychiatry by using hypothesis-generating theoretical models, and new methodological tools (such as computer-based analyses of motor expression) for the study of affect disorder.

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