

13 Subjective Experience of Emotion in Schizophrenia

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... [I]t has appeared both from crude observation and from detailed study of the facial expression that the alleged indifference, apathy, and emotional disharmony of the schizophrenic is more a matter of impression than correct evaluation of the inner experience of such a patient. It has followed that the study of such inner affective experiences by positive objective means seems urgently indicated if the nature of the schizophrenic processes is to be elucidated. Harry Stack Sullivan 1927.

The notion that schizophrenia patients' subjective experience of emotion might not match their facial expressions is not new. Indeed, early theorists, including Sullivan and Bleuler, among others, commented on an apparent discrepancy between what schizophrenia patients reported feeling and what they outwardly expressed to others. Moreover, family members have noted that their ill relatives often report experiencing strong emotions. For example, Bouricius (1989) presented samples of her son's diary writings, which articulated the experience of clear and complex emotions. Nonetheless, psychological research into the emotional features of schizophrenia has lagged behind the astute observations of the early theorists and family members.

In this chapter, we will concentrate on one aspect of the subjective experience of schizophrenia, namely the subjective experience of emotion. In our view, which is shared by a number of psychological researchers, emotions are complex, multichannel systems that have developed through the course of human evolutionary history to help us deal with problems, challenges, and other events and stimuli in our environment. An emotional response consists of at least three components, including a behavioral or expressive component, a subjective or experiential component, and a physiological component. A number of researchers, particularly in psychology, have demonstrated that the coordinated engagement of these emotion components subserves both intra- and interpersonal functions in nondisordered individuals. For example, emotions motivate goal-directed behavior (for example, Nesse 1990; Frijda 1994), and they influence

attention toward relevant events in the environment (for example, Frijda 1994; Levenson 1994). However, emotions also serve a number of social or interpersonal functions, including the ways in which emotions are embedded within ongoing social interactions (for example, Averill 1982; Campos, Campos, and Barrett 1989; Lutz and Abu-Lughod 1990). For example, emotional expressions promote social communication by providing information about the social environment and by evoking emotions in others with whom we interact (Keltner and Kring 1998). As we will articulate, the various emotion components are not often coordinated in schizophrenia, and thus a number of the important functions that emotions subserve are not fully realized (Keltner and Kring 1998; Kring and Bachorowski 1999). Indeed, the very nature of these emotion disturbances in schizophrenia contributes to the difficulty inherent in understanding the experience of schizophrenia. Moreover, the interpersonal consequences of emotion disturbances in schizophrenia may constitute a great impediment to intersubjectivity.

We will first review findings on the subjective experience of emotion in schizophrenia, focusing on historical writings and theories, the description and measurement of emotion-related symptomatology, and more recent psychological research on the nature of emotion disturbance in schizophrenia. In the course of the review, we will distinguish studies that examine schizophrenia patients' feelings in response to emotional situations and stimuli from studies that examine patients' feelings about their illness. In addition, we will argue that these emotion disturbances contribute to difficulties in interpersonal interactions and relationships. Next, we will highlight important gaps in our knowledge about the subjective experience of emotion in schizophrenia with an eye toward directions for additional research. Finally, we will discuss the implications of the findings on emotion in schizophrenia for the assessment and treatment of the disorder.

Historical Perspectives and Emotional Symptoms of Schizophrenia

As noted previously, early theorists wrote extensively about emotional disturbances in schizophrenia. For example, Bleuler wrote:

Occasionally, a patient will maintain that he has a marked and powerful affect, whereas the observer can note none or another type of affect than that which the patient professes to feel. (Bleuler 1950:51)

Here we see the suggestion that there may be a dissociation between what patients seemed to *experience* emotionally compared to what they

display outwardly. In contrast to this description of "powerful feeling," both Bleuler (1950) and Kraepelin (1971) also wrote that patients often appeared to be emotionally indifferent or that they experienced little pleasurable emotion, a deficit state better known as anhedonia. Interestingly, Rado (1956) hypothesized that schizophrenia patients' anhedonia contributed to an increase in the experience of negative emotions, since hedonic experience may serve to buffer against the experience of negative emotions.

Despite these rich clinical descriptions of the emotional features of schizophrenia, systematic research on these features was not conducted until fairly recently. The attenuated expressivity and hedonic deficit described by these early theorists are most often referred to today as the symptoms of flat affect and anhedonia. Contemporary research on the emotional features of schizophrenia in general and these two symptoms in particular has been greatly aided by the development of reliable symptom rating scales. These include the Scale for the Assessment of Negative Symptoms (SANS); (see Andreasen [1982]) and the Schedule for the Deficit Syndrome (SDS); (see Kirkpatrick, Buchanan, McKinney, Alphas, and Carpenter [1989]). For a review, see Earnst and Kring 1997). According to clinical rating scales such as these, flat affect is typically defined by diminished outward expression of emotion. Patients with this symptom may speak in a monotone voice, have poor eye contact, use few gestures, and display a blank and unchanging facial expression. Anhedonia, on the other hand, is defined as an inability to experience pleasure. Patients with this symptom may report experiencing little or no pleasure in response to purportedly pleasurable events, such as eating, sexual activity, or engaging in social interaction. Although perhaps obvious, it is nonetheless important to note that ratings of flat affect are made based upon an interviewer's *observation* of the patient's behavior. By contrast, ratings of anhedonia are based upon the patient's report of their *subjective* states.

Both flat affect and anhedonia are fairly common symptoms of schizophrenia. By one analysis, flat affect is observed in as many as two-thirds of patients with schizophrenia (WHO 1973), although there is also evidence that prevalence of flat affect is likely to vary by culture, and that there are unresolved methodological problems with the assessment of flat affect across cultures (Jenkins 1994). Moreover, flat affect may be relatively chronic (Knight, Roff, Barnett, and Moss 1979); stable across time (Pfohl and Winokur 1982; Kring and Earnst 1999; but see Keefe, Lobel, Mohs, Silverman, Harvey, Davidson, Losonczy, and Davis 1991); related to a poor prognosis (Carpenter, Bartko, Strauss, and Hawk 1978; Knight and Roff 1985; Fenton and McGlashan 1991); and more common in schizophrenia than in depression (Andreasen 1979).

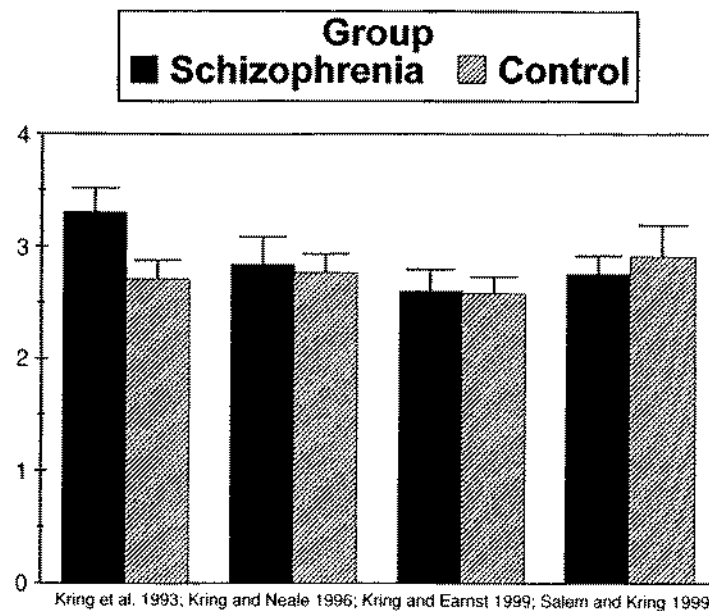
Anhedonia appears to be as prevalent as flat affect in schizophrenia. For example, of a sample of 187 schizophrenia patients, 76 percent showed at least some hedonic deficit and 23 percent showed severe anhedonia (Fenton and McGlashan 1991). Anhedonia appears to be related to poorer premorbid functioning (Katsanis, Iacono, Beiser, and Lacey 1992; Rey, Bailer, Brauer, Handel, Lauberstein, and Stein 1994); is stable across time and clinical state (Keefe et al. 1991; Lewine 1991; Blanchard, Mueser, and Bellack 1998); and although anhedonia seems to be present throughout the course of the disorder, it appears to be more severe in chronic schizophrenia (Harrow, Grinker, Holzman, Kayton 1977; Keefe et al. 1991).

Psychological Research on Emotion in Schizophrenia

Perhaps one of the more well-replicated findings in the literature on emotion in schizophrenia is that schizophrenia patients are less expressive (both facially and vocally) than nonpatients in response to a variety of contexts and stimuli, including emotionally evocative films (Berenbaum and Oltmanns 1992; Kring, Kerr, Smith, and Neale 1993; Mattes, Schneider, Heimann, and Birbaumer 1995; Kring and Earnst 2003; Kring and Neale 1996), cartoons (Dworkin, Clark, Amador, and Gorman 1996), and social interactions (Borod, Alpert, Brozgold, Martin, Welkowitz, Diller, Peselow, Angrist, and Lieberman 1989; Krause, Steimer, Sanger-Alt, and Wagner 1989; Martin, Borod, Alpert, Brozgold, and Welkowitz 1990; Kring, Alpert, Neale, and Harvey 1994; Mattes et al. 1995). Moreover, schizophrenia patients' pattern of facial and vocal expression have been distinguished from other patient groups with symptoms that bear resemblance to flat affect, including depression, Parkinson's Disease, and patients with right hemisphere brain damage (Levin, Hall, Knight, and Alpert 1985; Borod et al. 1989; Martin et al. 1990; Berenbaum and Oltmanns 1992). Using a variety of measures of emotional expression, these findings corroborate clinical ratings of flat affect.

However, what makes these findings all the more interesting, is that despite their diminished expressive behavior, schizophrenia patients reported experiencing similar, and in some cases, greater amounts of emotion compared to nonpatients. In our own work, we have found the same basic pattern in four different studies. Namely, schizophrenia patients report experiencing about the same amount of positive emotion in response to positive film clips, and they report experiencing more negative emotion in response to both positive and negative film clips. This pattern is illustrated in Figure 13.1. These data support Bleuler's early observation that schizophrenia patients' outward display of emotion does

Positive Emotion



Negative Emotion

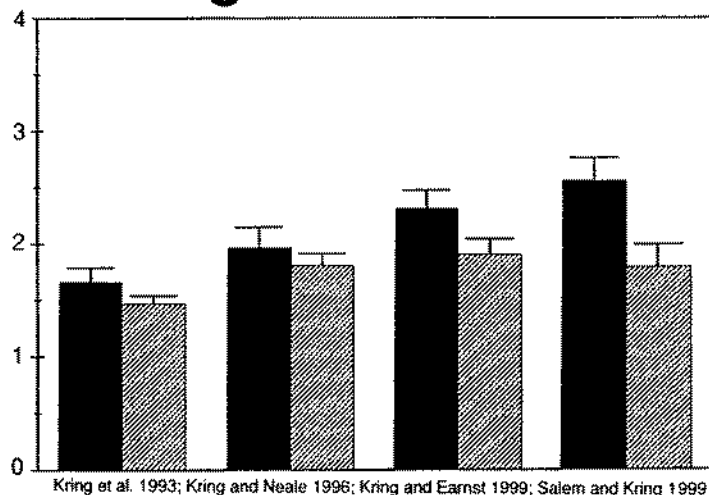


Figure 13.1.

not provide an accurate representation of their subjective experience of emotion.

It is important to point out that we and others have found this same pattern both when patients were on medication (Berenbaum and Oltmanns 1992), and when they were off medication (Kring et al. 1993; Kring and Neale 1996; Kring and Earnst 2003). Moreover, we have found that emotional responding (both facial expression and subjective experience) is remarkably stable across time and medication status (Kring and Earnst 1999). Although we and others have found that patients' reports of subjective emotional experience are not different from nonpatients using a wide variety of self-report measures of emotion, it has nonetheless been suggested that schizophrenia patients cannot report how they actually feel but instead are reporting based on how they think the investigators might want them to respond (that is, response bias). However, additional evidence of emotional responding renders the possibility of response bias less plausible. Recall that our view of emotion posits at least three emotion components: expression, subjective experience, and physiology. Adding a physiological measure of emotion to their assessment of emotional responding, Kring and Neale (1996) found that schizophrenia patients exhibited greater skin conductance responding than nonpatients in response to emotionally evocative films, even though they displayed very few observable facial expressions. This finding is consistent with now classic research by Venables who demonstrated that schizophrenia patients with flat affect exhibited greater skin conductance responding than patients without flat affect (Venables and Wing 1962).

Further evidence that schizophrenia patients respond emotionally to evocative stimuli comes from studies that have included a more sensitive measure of facial expression. Although patients displayed fewer observable facial expressions in response to emotional stimuli, a number of studies have shown that patients display very subtle, microexpressive displays in a manner consistent with the valence of the stimuli (Mattes et al. 1995; Earnst, Kring, Kadar, Salem, Shepard, and Loosen 1996; Kring, Kerr, and Earnst 1999; Kring and Earnst 2003). For example, we have shown that schizophrenia patients exhibit more zygomatic (cheek) muscle activity, which is typically associated with positive emotion, than corrugator (brow) muscle activity, which is typically associated with negative emotion, in response to positive stimuli. By contrast, patients exhibit more corrugator activity than zygomatic activity in response to negative stimuli (Kring and Earnst 1999; Kring and Earnst 2003). These findings of more subtle facial muscle activity in response to emotional stimuli bolster the conclusion that schizophrenia patients are responding emotionally.

Although schizophrenia patients may exhibit subtle facial expressions, these displays are not observable to others, and this relative inexpression

has a number of interpersonal consequences. For example, spouses of schizophrenia patients with negative symptoms, including flat affect, reported greater marital dissatisfaction (Hooley, Richters, Weintraub, and Neale 1987). Healthy individuals reported experiencing more fear and sadness and were themselves less expressive when they interacted with a schizophrenia patient than when they interacted with another healthy individual (Krause, Steiner-Krause, and Hufnagel 1992). Using symptom rating scales to measure diminished expressivity, Bellack, Morrison, Wixtead, and Mueser (1990) found that patients who were least expressive had poorer interpersonal relationships and poorer adjustment at home and in other social domains. Without the benefit of overt signs of emotion, others may misinterpret the ongoing emotional state of a patient with schizophrenia. Moreover, there is some evidence indicating that schizophrenia patients may not be aware of how unexpressive they are (Kring 1991). Thus, patients may not understand others' reactions in ongoing interactions, and they may not take alternate measures to make their internal emotional state known.

One initially puzzling finding from our studies of emotional responding in schizophrenia was that patients' reports of positive emotion were not dampened, which might be expected given the prevalence of anhedonia in schizophrenia. Before reconciling this finding with other findings on anhedonia, it is first necessary to briefly review the relevant literature on anhedonia in schizophrenia.

Anhedonia in Schizophrenia

In addition to clinical rating scales, perhaps the most widely used measures of anhedonia are scales that were developed by Chapman and colleagues (Chapman, Chapman, and Raulin 1976) based on the theories of Meehl (1962, 1973) and Rado (1956). Chapman and colleagues developed the Scales for Physical and Social Anhedonia to measure stable individual differences in the capacity to experience sensual and social-interpersonal pleasure, respectively. The Scale for Physical Anhedonia consists of sixty-one true/false items describing various purportedly pleasurable experiences involving eating, touching, feeling, sex, movement, smell, and sound, with higher scores indicating greater anhedonia. The Scale for Social Anhedonia, on the other hand, purportedly taps the nonphysical pleasures of being with other people: socializing, talking, competing, and interacting with people in other ways.

As part of the development and validation of these scales, Chapman et al. (1976) found that schizophrenia patients (all medicated, all male) scored higher than nonpatient controls on both the Physical Anhedonia (PAS) and the Social Anhedonia (SAS) scales. Other studies have since

replicated the finding that schizophrenia patients score higher than nonpatients on one or both of these scales (Clementz, Grove, Katsanis, and Iacono 1991; Grove, Lebow, Clementz, Cerri, Medus, and Iacono 1991; Berenbaum and Oltmanns 1992; Blanchard, Bellack, and Mueser 1994; Schlenker, Cohen, and Hopmann 1995; Blanchard, Mueser, and Bellack 1998).

Only a small number of studies have examined the relationship between clinical rating scale measures of anhedonia and the Chapman scales. Lewine (1991) found that the PAS was significantly related to the SANS ratings of anhedonia while patients were both on and off medication. By contrast, Blanchard et al. (1994) found that interviewer ratings of SANS anhedonia-asociality were not significantly correlated with either the PAS or SAS. Blanchard and colleagues argued that the failure to find a significant correlation between these two measures was due largely to a difference in the time period on which the measures were based. That is, the SANS measure of anhedonia referred to the time spent in the hospital, where patients were exposed to limited sources of pleasure, whereas the Chapman scales presumably tapped a larger domain of experience.

Although many schizophrenia patients are more anhedonic than nonpatients, it remains unclear whether schizophrenia patients differ from other psychiatric patients. Blanchard et al. (1994) found that schizophrenia patients scored higher than bipolar patients on both scales. However, other studies have failed to find differences between schizophrenia patients and other psychiatric groups on these scales. Schuck, Leventhal, Rothstein, and Irizarry (1984) found that schizophrenia patients' scores on the PAS did not significantly differ from psychiatric controls' scores. Similarly, schizophrenia patients with blunted affect did not differ from depressed patients on either the PAS or the SAS (Berenbaum and Oltmanns 1992). The failure to find group differences on these scales could simply reflect the fact that not all schizophrenia patients have anhedonia. Indeed, in their initial study, Chapman et al. (1976) observed a bimodal distribution of scores on the PAS indicating that some patients' scores were very similar to nonpatients, whereas other patients had significantly higher scores. More recently, Kirkpatrick and Buchanan (1989) found that schizophrenia patients who met the criteria for the deficit syndrome (stable, enduring negative symptoms not attributable to secondary sources such as depression or medication side effects) scored higher on both scales than patients who did not meet the deficit syndrome criteria. Taken together, these findings further support the contention that anhedonia is not universal among schizophrenia patients.

More recently, researchers have examined the relationship between anhedonia measures (Chapman scales or clinical rating scale measures) and

reports of subjective emotional experience in response to emotional stimuli. For example, Schneider, Gur, Gur, and Shtasel (1995) found that schizophrenia patients reported experiencing less happiness following a happy mood induction, although their reports of experienced emotion were not significantly correlated with clinical ratings of anhedonia. Two studies that have examined the relationship between responses to emotionally evocative films and anhedonia found different results. Blanchard et al. (1994) found that schizophrenia patients' PAS scores were negatively correlated with their reports of positive emotion after both positive and negative emotion-eliciting film clips. That is, the higher the patients scored on the anhedonia measure, the less positive emotion they reported feeling after viewing emotionally evocative stimuli. By contrast, Berenbaum and Oltmanns (1992) found that blunted schizophrenia patients did *not* differ from nonpatients in their reported emotional experience to emotional film clips even though they scored higher on both the PAS and SAS. Blanchard et al. (1994) argued that sample differences (inpatients versus outpatients) and measurement differences (standardized measures versus single adjective ratings) were likely responsible for the different findings across the two studies.

Do Schizophrenia Patients Experience Less Positive Emotion?

An apparent discrepancy emerges in the studies reviewed thus far. With few exceptions, studies that present emotionally evocative stimuli to schizophrenia patients find that patients report experiencing the same amount of positive emotion as nonpatients. Yet, other studies find that schizophrenia patients score higher on clinical rating scales of anhedonia and the Chapman scales, indicating that they would likely experience less positive emotion, particularly pleasure, than nonpatients. How can these findings be reconciled? This pattern of finding suggests to us that the nature of hedonic deficit in schizophrenia may be more circumscribed. Specifically, we have argued (Kring 1999; Germans and Kring 2000) that while schizophrenia patients may not report a pleasure deficit when positive stimuli are presented to them, they may manifest an impaired ability to anticipate the hedonic value of forthcoming pleasurable experiences. Hedonic experience can be considered as comprising appetitive (anticipatory) and consummatory components (for example, Klein 1987). In other words, the pleasure one derives from the imagining or expectancy of a rewarding or pleasurable experience (appetitive pleasure) leads to the pursuit and engagement in the pleasurable activity, which results in consummatory pleasure. The research previously described suggests that

when presented with emotional material, patients can and do experience positive emotion. However, when asked more generally about whether they find circumstances pleasurable, they are likely to report experiencing less positive emotion.

Other evidence supports this claim. For example, Myin-Germeys, Delespaul, and DeVries (2000) had schizophrenia patients complete self-reports of emotional experience at random, daily time intervals over a two-week period, and found that they reported experiencing less positive emotion and more negative emotion than nonpatient controls. Myin-Germeys et al. concluded that the hedonic deficit evident in these patients' self-reports might be linked to the decreased frequency with which these patients participated in pleasurable activities and social interactions, perhaps because they could not anticipate that such activities would be pleasurable. Evidence from studies of nonpatients indicates that social activities are linked with positive emotion, whereas sedentary activities are emotionally neutral (Clark and Watson 1988; McIntyre, Watson, Clark, and Cross 1991). Interestingly, Delespaul (1995) found that when asked to report their daily activities, schizophrenia patients described themselves as "doing nothing" (versus engaging in hobbies, sports, social activities, or watching television) five times more frequently than nonpatient controls. Thus, on a daily basis, schizophrenia patients may not report experiencing pleasure, particularly pleasure linked with social interaction, because they are not participating in pleasurable activities. Although these findings support the notion that anhedonia is linked to a failure to engage in pleasurable activities, it is difficult to determine whether patients' diminished engagement in rewarding pastimes is a cause or a consequence of hedonic deficit.

Schizophrenia Patients' Emotions about their Illness

Although there are relatively few systematic studies into the nature of emotion disturbance in schizophrenia, there are even fewer examinations of patients' reports of their feelings *about* their illness. This is unfortunate, because as Strauss and others (for example, Strauss 1989, 1994; Corin 1990) have more clearly and eloquently articulated, we cannot begin to fully appreciate the nature of schizophrenia, nor adequately conceptualize treatments, without a meaningful consideration of the patients' feelings about their illness.

Cutting and Dunne (1989) asked schizophrenia patients about any changes in their emotions following the time when the patient experienced a change in "the way things were" (Cutting and Dunne 1989:218) using an open-ended, narrative approach. In their original sample, 75 percent

of the patients reported a change in their emotions. In a second sample, they asked more specific questions about particular emotions, including depression, fear, elation, anxiety, and numbness. Schizophrenia and depressed patients didn't differ in their reports of these emotions; all reported experiencing negative emotions following their initial episode. It is nonetheless interesting to note that nearly all (19/20) of the schizophrenia patients reported experiencing fear, and over two-thirds of the patients reported experiencing depression and anxiety. A quarter of the sample reported experiencing numbness, and just 4/20 patients reported elation. Thus, these findings indicate that the onset of schizophrenia is accompanied by several negative emotions.

From an anthropological perspective, Corin (1990) asked patients about their interpersonal interactions, social roles, and family dynamics. Patients who had a better outcome (operationalized as fewer rehospitalizations) had a stronger social support network of family and friends that offered emotional support. Yet, these patients often sought to distance themselves from others, perhaps as Corin argued, to protect themselves from stressors potentially associated with relapse. Indeed, the tendency to limit one's social contacts may serve as a form of emotion regulation. Social interactions are replete with emotions, both positive and negative; patients may thus seek to regulate their emotional experience, in part, by limiting and choosing their social interactions (see Strauss [1989] for a similar argument). It is interesting to note that although the patients with fewer rehospitalizations in Corin's study were more actively detached from social interactions and social roles, they did not report experiencing this as negative. By contrast, patients who had a poorer outcome reported feelings of rejection, loneliness, and isolation, and these feelings were congruent with their relatively fewer social roles and contacts. Related to this finding, Gerstein, Bates, and Reindl (1987) found that outpatient schizophrenia patients reported as much loneliness as self-identified lonely, but not psychiatrically ill, individuals. Moreover, the schizophrenia patients in this study reported experiencing more isolation and dejection than did the lonely nonpatient controls. In a study that examined mental illness, including schizophrenia across two different cultures, Jenkins (1997) found that among those patients who did not describe their lives in terms of mental illness, 66.7 percent of Euro-American schizophrenia patients and 57.1 percent of Latino schizophrenia patients described their experience in affective terms (typically related to distress), suggesting that the emotional features are indeed salient when patients describe their illness.

Often, consideration of patients' emotions about the illness are studied in the context of insight or awareness of illness (for example, McEvoy,

Schooler, Friedman, Steingard, and Allen 1993; Amador, Flaum, Andreasen, Strauss, Yale, Clark, and Gorman 1994; Selten, Gernaat, Nolen, Wiersma, and van den Bosch 1998). In a study by Selten and colleagues (Selten et al. 1998), schizophrenia patients' reports of their subjective experience of symptoms, including flat affect and anhedonia, were compared with psychiatrists' ratings of these symptoms. If a patient failed to report a symptom that a psychiatrist rated as present, it was labeled a "false negative." Although the authors noted that the psychiatrist rating was not necessarily "perfectly valid" (Selten et al. 1998:352), this type of mismatch between psychiatrist and patient report was nonetheless considered a "less realistic" (Selten et al. 1998:353) assessment on the part of the patient. Deciding about the accuracy of two discrepant reports is never an easy task. But might it not be the case that a patient's failure to concur with a psychiatrist's rating reflects something other than lack of insight or limited self-awareness? For example, as previously noted, patients' reports of how they generally feel often do not match their reports of how they feel in an emotional situation. Thus, asking a patient whether or not they generally experience pleasure (or even to describe what kinds of things they find pleasurable) might lead to a different response compared to asking a patient if he or she derived pleasure following the consumption of a favorite meal. This is not to say that patients' failure to report a symptom is unimportant or that clinical rating scales are uninformative. Rather, our point is to suggest that the context in which questions about symptoms are asked can lead to different responses. Moreover and perhaps more importantly, the tendency to consider a mismatch between patient and psychiatrist reports as inaccurate on the part of the patient seems to convey the message that the patient's subjective report is therefore not meaningful.

In summary, studies that have sought to ask what patients feel about their illness generally find that patients feel distressed, lonely, rejected, isolated, fearful, and anxious. In short, patients feel a number of negative emotions and few positive emotions. These findings bear striking resemblance to the findings reviewed here: Both in emotional situations and in daily life, schizophrenia patients report experiencing more negative emotions than nonpatients.

Unresolved Issues

To briefly summarize, a number of studies have empirically supported the early writings of Bleuler and others: Schizophrenia patients often report experiencing strong emotions yet do not display them outwardly. Further consideration of the subjective experience of emotion in schizophrenia

suggests that patients may experience more negative emotion than nonpatients, both in response to emotionally evocative material and in daily life. Moreover, schizophrenia patients may experience less positive emotion than nonpatients, particularly in daily life, and this may be related to patients' limited ability to anticipate that available activities will provide them pleasure. However, patients may more actively choose to avoid social interactions in order to regulate emotion (both positive and negative). Corin (1990) found that patients did not experience having more limited social contact negatively; however, it is unclear whether they viewed this more limited social environment as positive.

Despite this progress in our understanding of emotional features in schizophrenia, a number of unanswered questions remain. For example, it remains unclear if this pattern of emotional responding (that is, limited expression despite strong experience of emotion) is equally prevalent among women with schizophrenia. Almost none of the studies above included women patients in their sample. Studies that did include women did not look for gender differences. Yet we know that there are substantial differences in emotional expression between nonpatient men and women (see, for example, Brody and Hall 1993; Kring and Gordon 1998). In a study of adult schizophrenia patients' childhood movies, Walker, Grimes, Davis, and Smith (1993) found that preschizophrenia girls displayed fewer expressions of joy from infancy to adolescence compared to their healthy siblings, but more negative expressions in adolescence. Although the literature on emotion in nonpatients suggests fewer differences in the subjective experience of emotion between men and women, it is nonetheless important to examine gender in studies of emotion and schizophrenia, particularly given that there are a number of gender differences in schizophrenia (for a review, see Salem and Kring 1998).

It also remains unclear whether this pattern of emotional responding in schizophrenia is found across cultures. For example, Ramirez, Johnson, and Opler (1992) found that Puerto Rican schizophrenia patients manifested fewer negative symptoms, including flat affect and anhedonia than Anglo-American patients. Dassori, Miller, and Saldana (1995) found that Mexican-American schizophrenia patients exhibited more withdrawal than Anglo-American patients, but these groups did not differ on other measures of negative symptoms. Thus, negative symptoms may not be as prevalent in other cultures. Perhaps more importantly, however, the meaning of these symptoms across cultures may vary dramatically. Jenkins (1988) found that various manifestations of mental illness (including schizophrenia, but also including depression and anxiety) were characterized as *nervios* rather than (or in addition to) mental illness by Mexican-American families. When these family members were given the

opportunity to describe what *nervios* was like, their descriptions were categorized in emotional terms: easily angered, anxious, and sad or depressed. This finding suggests that emotional features of schizophrenia may be among the more salient characteristics of the disorder among Mexican-Americans (yet these features are not necessarily considered part of a mental illness).

Conclusions, Clinical Implications, and Future Directions

Recent advances in psychological research have led to more systematic examinations of emotional responding in schizophrenia. Moreover, the adoption of paradigms and methods from the emotion research literature has allowed us to more precisely study schizophrenia patients' pattern of emotional responding. We now know that although schizophrenia patients display few outwardly observable expressions of emotion, they nonetheless report experiencing a wide range of both positive and negative emotions. In addition, patients' emotional responding is stable across time and does not appear to be strongly affected by more traditional neuroleptic medications (Kring and Earnst 1999). What remains to be seen, however, is whether some of the newer, "atypical" medications might impact emotional responding, particularly flat affect. Recent research on the atypical neuroleptics such as clozapine suggests that these agents may be more effective in treating negative symptoms including flat affect (for example, Kane, Honigfeld, Singer, and Meltzer 1988; Meltzer 1991; Miller, Perry, Cadoret, and Andreasen 1994; Umbricht and Kane 1995).

The findings previously reviewed also have important implications for the assessment of emotional features in schizophrenia. In particular, laboratory-based measures of emotional responding can provide important information that is not easily accessed with clinical rating scales. For example, ratings of flat affect might be misinterpreted to mean that a schizophrenia patient is without feeling. Indeed, studies that rely solely on clinical rating scales that typically assess only one component of emotion may fail to adequately capture the essence of the emotional disturbance in schizophrenia, which appears to be the lack of coordinated engagement of emotion response components. Although the experimental control offered by a laboratory manipulation of emotion answers important questions, its generalizability is limited. However, results from these laboratory studies can then suggest a number of hypotheses that can then be tested in a more ecologically valid (but less-well-controlled) setting. For example, examining emotional response tendencies in contexts such as social interaction with family members is a direction that deserves

further empirical attention. In addition, psychologists would do well to adapt methods, such as ethnographies and narrative analyses used by other disciplines, including anthropology, linguistics, and sociology in order to more adequately capture the subjective experience of emotion in daily life among schizophrenia patients (Corin 1990; Kleinman 1995). A combination of laboratory and field methods would be an ideal marriage in order to study, for example, the social consequences of diminished emotional expression and inability to describe one's feelings to others (Keltner and Kring 1998). In addition, narrative analyses would provide informative information on the contexts in which patients are likely to experience diminished pleasure and positive emotion. Such a methodological approach can also provide important information about the meaning of emotional symptoms both within and across cultures (Jenkins 1997) as well as a more complete account of a patient's description of their own subjective emotional experience.

NOTE

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