

The Initial Prodrome in Schizophrenia: Searching for Naturalistic Core Dimensions of Experience and Behavior

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Abstract

The scientific exploration of prepsychotic detection and intervention in psychosis has just commenced. To identify developing psychosis at prodromal stages, it is important to learn how patients and families perceive initial prodromes naturalistically. We must understand better *what* we are going to detect, because the essential components of this phase, particularly the subjective experiences, remain unsettled. In a series of 19 first episode *DSM-IV* schizophrenia patients, we explore prodromal phenomena in depth and identify potential core dimensions. On the basis of our findings, we describe experiences and behaviors that appear to be essential components of initial prodromes. The subjects reported serious difficulties interpreting and talking about prodromal experiences at the time these occurred, causing delayed identification. We report detailed reasons for this, pointing out vulnerable aspects of at-risk assessments. From eight proposed groups of experiences, two are highlighted as tentative core dimensions: "disturbance of perception of self" and "extreme preoccupation by and withdrawal to overvalued ideas." Four potential dimensions of prodromal behavior are also identified: (1) quit school, university, or job, or major school truancy, (2) marked and lasting observable *shift* of interests, (3) marked and lasting social passivity, withdrawal, or isolation, and (4) marked and lasting change in global appearance or behavior. We argue that the findings, the phenomena, and their significance in prodromes are valid because they are logical and coherent in light of clinical experience as well as the empirical literature of a full century.

Keywords: First episode schizophrenia, illness onset, prodromal experiences, prodromal behaviors, self-experience, qualitative methods.

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The suggested relationship between early treatment for schizophrenia and improved prognosis (Crow et al. 1986; Johnstone et al. 1986; Helgason 1990; McEvoy et al. 1991; Wyatt 1991; Falloon 1992; Loebel et al. 1992; Lieberman et al. 1996; Wyatt et al. 1997; Haas et al. 1998; Wiersma et al. 1998) has made psychosis prevention, in terms of early intervention, an area of considerable scientific interest (Wyatt 1995; Vaglum 1996; Birchwood et al. 1997; McGorry 1998; Schultze-Lutter et al., in press). Moreover, early pharmacotherapy has been shown to favorably alter the long-term natural course (May et al. 1981; Crow et al. 1986; Wyatt 1991, 1995; Scully et al. 1997; Wyatt et al. 1997). Early treatment is also consistent with the prevailing neurodevelopmental hypothesis for schizophrenia (Weinberger 1987, 1995), which recently received compelling empirical support (Rapoport et al. 1997, 1999). However, correlations are not causality, evidence is still sparse, and we must understand better what to detect early. We need detailed knowledge about the elements of the initial prodrome. This acknowledgment is not new (Cameron 1938; Gillies 1958; Sullivan 1994), but the features predictive of psychosis have not been established, except based on (high-risk) patient samples (Gross et al. 1992; Klosterkötter et al. 1997a, 1997b; Yung et al. 1998). The prospects of defining prodrome indicators suitable for operational format and routine use are probably remote (Parnas et al. 1998).

It is also important to know more about factors promoting or delaying identification of prodromal phenomena. A few studies have suggested some determinants crucial to the timing of treatment/identification (Johnstone et al. 1986; Waddington et al. 1995; Falloon et al. 1998; Larsen et al. 1998; Møller, in press), mainly sociodemographic and clinical characteristics, but also some factors intrinsic to the illness (Møller, in press). We searched specifically for more "primary" or early-active impediments to identification, like those related to the communication of prodromal experiences.

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Reasons for Empirical Scarcity on the Initial Prodrome

The initial prodrome seems to have been particularly elusive to systematic characterization, and little empirical research has been done (Keith and Matthews 1991; Keshavan and Schooler 1992; Huber 1995; McGlashan 1996; Yung and McGorry 1996b), mainly because of conceptual confusion and difficulties in timing the onset of prodromes. Eugen Bleuler's pessimistic notions that prodromal stages are "nothing but such mild morbid symptoms, that a [early] diagnosis is impossible" (Bleuler 1924), and that "any symptom may initiate the disease" (Bleuler 1950, p. 252) have hardly encouraged such investigations. Nevertheless, prodromes have been described since the beginning of this century (Docherty et al. 1978), though their descriptions have been (1) casual rather than systematic, (2) cross-sectional with a long-term retrospection rather than consecutive in first episodes, and (3) based on medical charts or questionnaires rather than personal interviews.

The traditional prodrome concept has been extended to include early warning signs (EWS) of relapse (Docherty et al. 1978; Herz and Melville 1980; Carpenter and Heinrichs 1983; Subotnik and Nuechterlein 1988; Bustillo et al. 1995), blurring the important distinction between initial and relapse prodromes. Further, there are disputes on the relative importance of behaviors and experiences, and the specificity requirements are also unsettled (Keith and Matthews 1991; Keshavan and Schooler 1992). Consequently, the list of prodromal symptoms (not empirically derived) was eliminated in the *DSM-IV* (American Psychiatric Association [APA] 1994). The *ICD-10* (World Health Organization 1992) never included the prodrome as a diagnostic contributor.

Experience Versus Behaviors in the Initial Prodrome

The first part of prodromes seems to consist of plain experiences (Hambrecht et al. 1994; Yung and McGorry 1996a; Gross 1997; Klosterkötter et al. 1997b) and should be considered essential. Strauss and Carpenter (1981) have asserted that "detailing subjective experiences is a cornerstone of clinical inquiry, particularly valuable to hypothesis development." Overlooking subjective experiences might also mislead judgments on the emotional status in schizophrenia (Myin-Germeys et al., in press). Nevertheless, with few exceptions (Huber 1966; Yung and McGorry 1996a), prodromal experiences have remained unexplored, because research has mostly been based on preconstructed behav-

ioral symptom lists (Chapman and Chapman 1987; Gross et al. 1987; Falloon 1992; Gross et al. 1992; Häfner et al. 1992; Beiser et al. 1993; Hambrecht et al. 1994; Jackson et al. 1994, 1995, 1996; McGorry et al. 1995; Yung et al. 1996). Some important phenomenological studies have been conducted (Cameron 1938; Conrad 1958; Chapman 1966; Varsamis and Adamson 1971), though before the era of widely accepted diagnostic criteria.

Families often have to "wait" for the behavioral consequences of experiential changes, and they also have the tendency to tolerate more deviations than people outside the family would, causing further delay. Many clinicians also know that certain deviant behaviors are suggestive of incipient psychosis, but they usually get to know about these too late for prevention.

Thus, identifying incipient psychoses earlier might depend on three educative strategies: (1) teaching adolescents and young adults about at-risk subjective phenomena, promoting their earlier help seeking; (2) educating parents, teachers, and counselors about at-risk behaviors, and about not being too tolerant with these; and (3) enhancing the knowledge in first-line health services about prodromal states and what specific phenomena to ask for.

Research Questions

Several questions present themselves for research:

1. Which prodromal changes in *subjective experience* are reported by first episode *DSM-IV* schizophrenia patients?
2. What promotes or restrains the subjects' perception, interpretation, and communication of these experiences?
3. Which prodromal changes in *behavior* are reported by their families and friends (or even the patients themselves)?

To answer these questions, we had to explore and describe naturalistic initial prodromes and experiences, as well as behavior through open-ended, in-depth interviews.

Material and Methods

The regional committee on ethics in medical research gave approval to this project. All participants gave written informed consent.

Inclusion. The inclusion criteria were as follows: (1) First episode *DSM-III-R* (APA 1987) and *DSM-IV* (APA 1994) schizophrenia or schizophreniform disorder; (2) no

medical or neurological illness, brain lesion, or mental retardation; and (3) ability to speak Norwegian. Among 74 consecutive admissions (January 1994 to June 1996) to a specialized schizophrenia unit (age 18–30 years) in Oslo, Norway, 49 (66%) met these criteria. To reduce recall bias, a fourth criterion was added, that less than 2 years had passed since initiation of subjects' first adequate treatment. This criterion excluded 14 subjects (19%). Nine patients (12%) were discharged prematurely, four (5%) refused to participate, and three (4%) were mute. The remaining 19 subjects (11 male, 8 female) and the corresponding families comprise the final material.

Diagnosis. Structured Clinical Interview for *DSM-III-R*—Patient Version (SCID-P) (Spitzer et al. 1988) and the *DSM-IV* psychosis modules confirmed clinical diagnoses, within about 3 weeks from admittance, and we combined records, interview materials, and staff and family observations. Consensus diagnosis (Fenning et al. 1994; Roy et al. 1997) was also applied among senior supervisors, therapists, and the main researcher (P.M.). Diagnoses were reviewed 1 to 2.5 years later, and maintained, by current therapists and P.M. All three subjects with an initial schizophreniform disorder developed schizophrenia.

Conceptual Framework and Research Strategy. The present state of our prodrome knowledge should make it logical for research to resume exploratory methods (McGlashan 1998). Retrospective interviews were performed as soon as diagnosis was established and overt psychosis resolved (not necessarily fully), according to the therapist, within 3 to 6 weeks after admission to the special unit. Subjects and families reported separately all possible prodromal experiences and behaviors. These were inclusively defined as all that: (1) were clearly perceived subjective experiences and/or distinct behaviors, (2) were deviant from the subjects' usual pattern, (3) were well remembered, (4) made them think that something might be wrong, (5) were considered by themselves to be related to the reasons for the first admission, and (6) were not clearly psychotic.

During interviews, repeated question-and-answer cycles increasingly clarified phenomena as to relevance, encouraged the subjects' conceptualization, increased their confidence in narrating, and also provided a therapeutic observing distance to the symptoms. In fact, we saw these in-depth elaborations as parts of treatment, bridging the gap between prepsychotic and psychotic experiences. We considered it requisite for optimal assessments to collect dual information (subjects and families) in personal interviews with wide frames of time. Behavioral changes included both emergence and disappearance. The interviews typically lasted from 5 to 8 hours, all performed by P.M., a psychiatrist with more than 10 years of treatment experience with psychotic disorders.

We also *dated* (1) first prodromal feature, as defined above; (2) first clearly psychotic symptom, defined as any A criterion (cross-sectionally) for *DSM-IV* schizophrenia; and (3) the initiation of first adequate treatment, defined as a minimum of 2 weeks of adequate antipsychotic medication, dated objectively from records. The format thus combined qualitative and quantitative approaches, as well as multiple information sources about the targeted phenomena (Miller and Crabtree 1994).

Reliability of Interval Estimates. Onset of prodrome and psychosis were dated on a best estimate basis, combining information from patients, families, staff, records, and even personal diaries. We elaborated during interviews until we reached the best precision (day, week, month, or quarter of a year), finally resulting in clearcut statements from the informants. To judge this procedure, an external research psychiatrist rated seven randomly drawn patient interviews, and there was full agreement about the reached precision levels and conclusions. Moreover, the patients' and the relatives' datings generally confirmed each other well, and when they did not, priority was given according to credibility of examples as well as the richness, nuances, and consistency of statements throughout interviews, most often in favor of the patients.

Data Management and Analysis. Transcripts, records, reports, diaries, and notes were condensed according to our chosen conceptual framework and research questions in the following way: Text excerpts covering potentially relevant phenomena were put into chronological tables under three consecutive headings: prodrome, incipient psychosis, and manifest (untreated) psychosis. Experiences, behaviors, and dates of onset for each feature were correspondingly placed in three parallel columns, finally permitting display of a full data set for each subject (Huberman and Miles 1994). Phenomena were then tentatively grouped, taking into account (1) classifications proposed by the *DSM-III-R* and other reports (Varsamis and Adamson 1971; Yung and McGorry 1996b); (2) the striking predominance of some phenomena in our data; and (3) the intuitive clinical judgment (face validity) by a large group of clinicians and clinical researchers independent of this project.

Descriptive statistics were done with SPSS for Windows, release 6.1.2.

Results

Patient Sample Characteristics. At admission, mean age was 22.4 (SD = 3.1) years and mean Global Assessment of Functioning was 35 (SD = 9). Sixteen (84%) were Norwegian or Nordic, ten (53%) were living with their parents, two (11%) had been married or cohabitant, and five

(26%) had involuntary admissions. Somewhat fewer than half of the subjects had completed basic school and some additional education (9–11 years), one-third had completed only upper secondary school (12 years), and about one-fourth had some university education (> 12 years). About 60 percent had full-time employment or student/pupil status; the rest received unemployment, reemployment, or social security payments. Before admission, about 40 percent received no medication, another 40 percent received inadequately dosed medication (for < 12 months), and about one-fourth received adequate medication (for < 6 months). There were no gender differences in preadmission education or treatment, but females more frequently had full-time employment or student/pupil status.

Temporal Aspects of Prodromes. All of the subjects had experienced a prodrome according to our concept, ranging from 1 week to more than 11 years. Table 1 summarizes mean ages at onset of prodrome, psychosis, and first treatment, along with duration of prodrome and untreated psychosis.

The estimated mean prodrome duration of 127 weeks

is almost the same as found in the largest quantitative prodrome study (Häfner et al. 1993). The large standard deviation (166) makes the median of 50 weeks a better estimate. Our figures are in accordance with recent quantitative studies that have assessed the initial prodrome specifically (table 2) (Loebel et al. 1992; Beiser et al. 1993; Häfner et al. 1993; McGorry and Singh 1995; Yung and McGorry 1996a).

Subjective Obstacles to Prodrome Assessment. Distinct qualitative changes of experience were reported long before behavioral consequences created serious family concern. In fact, patients had to a very limited degree managed, or even wanted, to tell their families about these changes, illustrating what can be lost if families are the major reference. This “silent” initial part of prodromes lasted for months or years, depending on the intensity and progression rate of prodromal changes, the nature of the behavioral consequences, and the individual verbal abilities. Most subjects reported having had serious difficulty interpreting and communicating their early experiential changes, a difficulty observed during interviews

Table 1. Mean age by gender at first prodromal feature, at first psychotic symptom, and at initiation of first adequate treatment, with estimated duration of initial prodrome and untreated psychosis

	Female (<i>n</i> = 7) ¹	Male (<i>n</i> = 11)	Total (<i>n</i> = 18) ¹
Age at first prodromal feature, mean (SD)	19.9 (3.3)	18.4 (3.4)	19.0 (3.4)
Age at first psychotic symptom, mean (SD)	21.1 (3.2)	21.7 (3.2)	21.5 (3.2)
Age at first adequate treatment, mean (SD)	21.6 (3.2)	22.4 (3.1)	22.1 (3.1)
Duration of initial prodrome (DPR)			
Median (range)	39 (1–174)	70 (1–591)	50 (1–591)
Mean (SD)	62 (66)	169 (198)	127 (166)
Duration of untreated psychosis (DUP)			
Median (range)	13 (0–99)	22 (2–109)	18 (0–109)
Mean (SD)	26 (37)	36 (35)	32 (35)

Note.—SD = standard deviation.

¹ One female subject with an unclear childhood onset of psychosis was excluded from calculations.

Table 2. Duration of the initial prodrome: The present study compared with five recent studies

Main author	<i>n</i>	Diagnosis	Diagnostic criteria	Age studied, yrs	DPR, wks Median (range)	Mean (SD)
Møller & Husby, this article	18 ¹	S	DSM-IV	18–30	50 (1–591)	127 (166)
Females	7 ¹				39 (1–174)	62 (66)
Males	11				70 (1–591)	169 (198)
Loebel et al. 1992	54	S	RDC	**	** (**)	99 (157)
Beiser et al. 1993	72	S	DSM-III	15–54	53 (0–1040)	113 (143)
Häfner et al. 1993	165	S	ICD-9	12–59	** (**)	130 (**)
McGorry & Singh 1995	60	S	DSM-III-R	**	** (**)	21 (**)
Yung & McGorry 1996	13	S	DSM-III-R	16–30	52 (1–312)	90 (107)

Note.—DPR = duration of the initial prodrome; RDC = Research Diagnostic Criteria; S = schizophrenia; SD = standard deviation.

¹ One female subject with an unclear childhood onset of psychosis was excluded from calculations.

**Not reported.

even to continue. The subjects had faced immense communicative barriers: "...something was totally wrong, but impossible to express....I was tormented by something I didn't know what was....something inside me had turned inhumane." There was a wide range of reasons for these difficulties (table 3). Some subjects used very few words with poor content, despite openness, illustrated by this quote: "I simply didn't conceive the connections," whereas others gave generous reports, such as: "The enduring and pervasive feeling of being unreal is the disease itself. When I realized this condition was permanent, to perceive myself as in a movie, I understood it would eventually destroy the core of my life."

The Experiential Dimensions. The appendix displays representatives of very short, intermediate, and very long complete naturalistic prodromes. Phenomena appear in the reported temporal order, and "transition features" reflect attenuated psychosis, which in our conceptual framework belongs to the prodrome. Though a wide range of experiential deviations emerged, we reached data saturation, in that no essentially new feature was reported when 12–14 interviews were finished. In other words, we found conspicuous cross-history similarities (even several identical terms), and the reported experiences could be grouped without much effort into eight clusters, which we called tentative dimensions (table 4).

Table 3. Reported subjective obstacles to talk about initial prodromal experiences at the time they occurred

	Reported reasons for difficulty	Comments and illustrating quotes (case no.)
Obstacles from reduced ability	1. Experiential changes were perceived to occur gradually on a continuum.	<i>Consistently reported in the structured interview part.</i> The voices began early but faint (14). It's wrong to call this an episode, because the phenomena developed slowly and gradually (19).
	2. A compromised capacity for mental self-observation, mental processing, and mental control	Thoughts went in all directions (1,15). Didn't conceive the connections (17). Thoughts were so numerous that I didn't manage to talk (19). Loss of inner control (1,2,6,9,10,11,14, 19). Inefficient thinking (2,9,14,15,18).
	3. Lack of adequate concepts and words to describe experiences	"Something" was totally wrong, but it was impossible to communicate the experiences or the need for help to others (2,4,12,19). Tormented by something I didn't know what was. Her diary, with numerous strange messages, was found open in her parents' bathroom (19). I'm not capable of expressing what is taking place inside me (16).
	4. Preoccupation with overvalued ideas made social participation and communication unimportant	Occupied by religious mysticism/philosophy; meditation, rituals, symbols, reincarnation, the life to come, and supernatural mental processes (1,2,3,4,5,6,7,9,16). Stuck in existential themes (15,18,19).
	5. The perception of an unreal/strange self resulted in social/emotional withdrawal	Something inside me had turned inhumane (4). A scaring feeling of being changed or unreal (<i>Represented with equivalents in all reported prodromes!</i>).
Obstacles from reduced "will"	6. Lack of confidence and courage to tell	<i>Subjects who needed more than one or two interview sessions, had an increasing openness and richness in descriptions through successive sessions.</i>
	7. Fear from scaring and confusing experiences	Feelings gradually disappeared (4,15,19). Exhausting, dreadful, unbearable inner change (3,19). Intense fear of losing all social and communicative abilities (17).
	8. Overvalued ideas interfering also with the "will" to communicate experiences	I withdrew to the most sound impulses, which I found to be in my head (1). Absorbed by meditation and rituals and mental processes (1,4,5,7,9,16). If I had no clear meaning with life, I was evil and had to avoid human contact (19). Thought she might shrink if she talked (19).
	9. Active wishes to conceal experiences	Didn't want to tell anyone (1,2,3,18). Avoided eye contact (3). Tried hard to look unaffected (1,2). Had to withdraw from family meals (5). Didn't tell my parents until I had to (16,19).

Table 4. Eight dimensions of initial prodromal experience, with representative quotes and reported occurrence

Tentative dimensions	Examples of typically reported experiences	Reported occurrence
1. Disturbance of perception of self ¹	Painful emotional indifference and distance to myself. Something inside me had turned inhumane. Scaring feeling of being unreal, changed, and hazy. I totally lost myself; had to remind me about who I was. Tried to find out who I was by scrutinizing my photos, notes, and diaries. Enduring and pervasive feeling of unreality. Felt like a spectator to my own life. I lost my feelings, entailing loss of myself, making me another person.	16
2. Extreme pre-occupation with and withdrawal to overvalued ideas ¹	Occupied by, and scrutinizing, my own inner world. Extremely occupied by thoughts about how to be good enough. I had to define and analyze everything I was thinking about. Needed new concepts for the world and humane existence. The new ideas about supernatural mental phenomena gradually took over my way of life and thinking, left marks on my whole life, just everything. Occupied by religious mysticism/philosophy: meditation, rituals, symbols, reincarnation, the life to come.	14
3. Neuroticlike disturbances	Depression. Suicidal ideation. Anxiety/panic. Unstable mood. Social anxiety. Sleep disturbance. Inner tension. Restlessness. Obsessions. Irritability. Rage.	14
4. Disturbance of formal thought	Difficulties to give thoughts their direction. Great difficulties with concentration. Memory problems. Thoughts became disturbed, superficial, and illogical. My thoughts were so numerous that I didn't manage talking to people. A painful feeling that the brain was dead.	13
5. Attenuated delusional ideas or perceptions	<i>Maybe</i> I heard someone laugh and talk disparaging about me. Thought that I could <i>possibly</i> save my family from all evil. Considered law an unacceptable study subject for all students. Saw <i>short glimpses</i> of images in front of myself. <i>Fragmented</i> thoughts that the world was possessed by aliens. A very clear voice asking <i>one single</i> neutral question.	13
6. Disturbance of mental/inner control	Lost, or afraid of losing inner control. Impossible to control and monitor thoughts and inner changes. Inner chaos.	8
7. Secondary coping/relieving responses	Tried to relieve distress with alcohol/drugs. Desperately forced myself to be social, attractive, a hero. Had to be alone, preferably "invisible."	7
8. Disturbance of simple perception	Unusually strong, clear, pressing, or intentional sounds, smells, colors, or contours of things or persons. Distorted perception of one's own or others' body dimensions/construction. Foggy vision. Ringing sounds. Thunderclaps in the head.	6

¹ A tentative core dimension.

Two experiential dimensions were reported as unexpectedly frequent (table 4, upper part) and deserve special attention: (1) disturbance of perception of self and (2) extreme preoccupation by and withdrawal to overvalued ideas.

Disturbance of perception of self. This dimension contains pervasive and enduring changes, gradually

increasing into psychosis, particularly hard to express, for both cognitive and emotional reasons. Part of the essence was a painful feeling of detachment from or disintegration of previous identity cornerstones, and these changes tended to have more stable courses than other dimensions. Terms such as "unreal," "strange," "pervasively changed,"

or “something totally wrong” were used very often, always in the context of pain and horror. Distortions affected body, mind (feelings and thoughts), and soul, and thus the whole sense of basic humanity, as illustrated here: “Something inside me turned inhumane...pervasive feeling of unreality...inner life dissolved...destroy the core of my life...distance to or loss of myself...in another world...merged in the environment.” These experiences probably also continue into psychosis, as illustrated here: “What was *left of myself* had to do something powerful, so I stabbed myself.” These phenomena were not simply somatic/neurological disturbances, such as tactile, visual, or motor ones. The phenomena mainly had to do with a more basic perception of identity and existence.

Extreme preoccupation by and withdrawal to overvalued ideas. As discrete phenomena, the four constituent features (or stages) of this dimension are not unknown (new idea; overvaluation; preoccupation; and withdrawal), but subjects and relatives reported them as belonging to a common symptomatic expression. Preoccupation took several forms: “excessive brooding...quiet and unresponsive...endlessly talking about...analyzing and defining myself and my thoughts...doing thought rituals...being existentially stuck...analyzing nature of knowledge...,” as did withdrawal: “finding all sound impulses in the head...wanting an inner escape...everyday life being unimportant...” Though withdrawal is best known as a behavioral feature, subjects were highly aware of their withdrawal and the experiences that had motivated it (tables 3 and 4), which very often were the new ideas and the overvaluation.

We found it noteworthy that subjects spontaneously underlined and gave some priority to the above two dimensions. The next three dimensions (table 4, middle part) are described in most prodrome papers. *Neuroticlike disturbances* were numerous unspecific features, occur-

ring at any time prior, parallel, or secondary to other experiences. *Disturbance of formal thought* (the way of thinking) reflected changes primarily affecting concentration, memory, and speech. *Attenuated delusional ideas or perceptions* contained interpretational and perceptual deviations such as exaggerated suspiciousness, ideas of reference, incipient hallucinatory phenomena, and so forth, usually appearing close to psychosis onset.

The content of the last three dimensions is briefly indicated in table 4, lower part.

The Behavioral Dimensions. Four groups of related behaviors were reported consistently (table 5), and the families' and the subjects' reports matched each other, even about “explanatory” experiences. These four groups follow:

Quit school, university, or job, or major school truancy. School impairment is a well-known prodromal phenomenon. The consistent reports among our subjects, however, of *complete* (or next to) inability to keep up with school ($n = 9$), university ($n = 6$), or job ($n = 6$) were surprising to us. Impairments therefore occurred irrespective of prodromal length, contrary to the other dimensions, and irrespective of previous school achievements. The overall impression of these deficits was that of an unhappy struggle, not of indolence. The failures were reliably reported and dated with objective external references.

Marked and lasting observable shift of interests. We identified *shifts* rather than *lack* of interests, suggesting a more nuanced definition of a *compound* event. This change was not reported, however, in the six shortest prodromes, while 12 of the 13 remaining individuals did report this shift. It appeared that prodromes had to last for a minimum of time to allow interests to shift. To judge this dimension properly, one must remember its marked, lasting, and observable nature; it was not a normal, temporary adolescent *swing* of interests. Shifts did not occur for obvious rea-

Table 5. Four dimensions of prodromal behaviors, with best corresponding DSM-III-R item and reported occurrence

Proposed main dimensions	Corresponding DSM-III-R item (item no.)	Reported occurrence
1. Quit school, university, or job (or major school truancy).	Marked <i>impairment</i> in role functioning as wage-earner, student, or homemaker (2).	17
2. Marked and lasting observable shift of interests.	Marked lack of initiative, interests, or energy (9).	12
3a. Marked and lasting social passivity, withdrawal , or isolation.	Marked social isolation or withdrawal (1), lack of initiative (9).	14
3b. Extreme social avoidance behaviors.	Peculiar behavior (3).	10
4. Marked and lasting change in global appearance/behavior .	More or less vaguely related to several aspects of DSM categories.	12

sons nor in positive or constructive frames. Interests changed from practical, social, organizational ones into contemplative, introverted, and individual interests, such as religious mysticism, philosophy, meditation, existential themes, or supernatural phenomena, often implying an unhappy struggle.

Marked and lasting social passivity, withdrawal, or isolation (levels A and B). Fourteen individuals had displayed prodromal withdrawal (level A), generally fluctuating, limiting the value of precise cross-sectional assessments. However, what we considered an extreme level (B) of social avoidance was also identified, having in common "episodes of escape," more or less literally, from subjects' ordinary milieu. Five subjects had disappeared from home for days or weeks without any message, once or several times; another three did so very early in psychosis (not included in occurrence figures in table 5). Four individuals had for periods spent the daytime, or all the time, in bed for no apparent reason; one more did so very early in psychosis. Avoidance of eye-to-eye contact was reported in two subjects. In all, 10 reported this extreme level of avoidance, readily provoking family concern.

Marked and lasting change in global appearance or behavior. The entire appearance was pervasively changed and convinced parents that "something was basically changed or wrong," such as "generally changed mood, glance, speech, appearance, trustworthiness...becoming another person...totally changed...marked change in personality." The dominant features, subordinate in this context, were a variety of idiosyncrasies such as abstract speech; constantly slipping out of conversations; looking continuously distant, concerned, grave, or sad; a blissful or euphoric glance; preoccupation with irrelevant details; ignoring duties and agreements; impaired hygiene in several domains; living in one's own world; and sensational or provocative behavior.

Among the six shortest prodrome subjects (< 13 weeks), none reported presence of all four behavioral dimensions, the mean number being 1.7 (SD = 1.2). Complete presence of all four dimensions was the case, however, in as many as 9 of the 13 longest prodrome subjects (> 25 weeks), the mean number of dimensions being 3.5 (SD = 0.8).

Discussion

Validity of the Results. There is no established convention for assessing validity in qualitative research. Rather, validation is an argumentative discipline based on dialogue, in which coherence is the main criterion (Kvale 1987; Brannen 1992; Altheide and Johnson 1994). Thus, our results must be validated through forms of validity appropriate to this specific study. The discussion to follow will argue that the

findings (the phenomena) and the interpretations (their putative roles in prodromes) are valid in the sense that they seem coherent, logically as well as in the context of the literature. Rather than deciding whether the findings are "true" or not, we maintain that they seem likely, considering their content and the purpose of our research. We will argue that findings reflect the phenomena of interest, relevant not only for the included subjects and families, but for most people with or at risk for schizophrenia.

Difficulty of Communicating Prodromal Phenomena.

We highlight the verbal communicative obstacles because a main research objective in this field is to find strategies for early detection. This difficulty is mentioned, though not stressed, in previous and recent literature (Jaspers 1913; Conrad 1958; Meyer and Covi 1960; Chapman 1966; Fish 1976; Cutting and Dunne 1986; Strauss 1989; Yung and McGorry 1996a). In contrast, Gross et al. (1992) assert firmly that "the patient can distinguish (prodromal) basic symptoms very well." Because we found the difficulties to be still manifest during our interviews, they might reflect continuous components that even underlie overt psychosis, disturbing the very mental apparatus that conveys such experiences. Some of these phenomena probably also correspond to aspects of the "self-experienced neuropsychological deficits" (of thought, speech, memory, perception, and action) that the Bonn/Cologne group found to predict schizophrenia in patients with mainly personality disorders (Gross et al. 1992; Klosterkötter et al. 1997b).

We found all levels of obstacles, related to better or poorer communicators, pointing out vulnerable aspects of at-risk assessments. Less "psychological minded" persons probably have more problems understanding and talking about such experiences, longer treatment lag, and thus prognostic disadvantages. Optimal early detection will depend on the interviewer being aware of such obstacles. This near ineffability (not suited for verbal expression) of prodromal phenomena is even more intelligible in the light of the two proposed core experiences to follow.

Two Tentative Core Experiential Dimensions

Disturbance of Perception of Self. In essence, this dimension has similarities to the first phase ("trema" = stage fright or delusional mood) of Conrad's (1958) three-phase model for psychosis development, during which "the clouds of elements, which every object holds confined within itself, are set free." In other words, "the human elements lose their proper meaning, in a mood of terror, indicating that one must question one's own exis-

tence" (Cutting 1989; Berner 1991). Among items most often used in seven British textbooks about early diagnosis (Timbury and Mowbray 1964) were "change in the experience of self" and "preoccupations" (see next hypothesized dimension). Chapman (1966) reported the presenting complaints in 40 schizophrenia patients, including "feeling unreal, dead, separate, changed, and lack of feeling." Cutting and Dunne (1986) described "unreality" and "indefinable strangeness" as abnormal perceptions of psychosis onset. "Lack of feeling of familiarity" was listed among the first "specific schizophrenic" symptoms by Cameron (1938).

Turning to recent studies, the Bonn Scale for the Assessment of Basic Symptoms (BSABS; Gross et al. 1987) and the Interview for the Retrospective Assessment of the Onset of Schizophrenia (IRAOS; Häfner et al. 1992) contain items covering related features. However, the BSABS items psychic (B.3.4) and somatic (D.1.1) depersonalization were *not* found to be predictive of psychosis in their own early recognition study (Gross et al. 1992) and they are not listed among ("level-2") psychosis-predictive basic symptoms. The corresponding IRAOS term mingles psychic *and* somatic features, probably representing quite separate phenomena. Moreover, we consider "depersonalization" a potentially derogatory and stigmatizing term that needs revision. Yung and McGorry (1996a) found that 6 of 13 schizophrenia patients had experienced "change in sense of self, others, or the world." Notably, the mental distress and suffering embedded in these disturbances are not described in any of the mentioned studies, nor in the *DSM-III-R*.

The *DSM-IV* depersonalization disorder (300.6) is defined by four criteria, of which the first is "feeling detached from and as an outside observer of one's mental processes or body." This rather narrowly defined experience is clearly represented in our dimension (but does not cover it sufficiently). However, Simeon et al. (1997) investigated lifetime and present comorbidity in "depersonalized" patients without finding psychotic states or prodromes. Kim et al. (1994) investigated subjective psychotic experiences in 237 schizophrenia patients, based on 150 items selected from records and autobiographies. The two factors with the highest eigenvalues contained experiences such as "I have no common sense....[W]hat is most essential in humans is not working in me....I have become different from my real self....I have lost my own self." These core *psychotic* experiences are likely to represent extensions of our proposed prodromal dimension, supporting its validity.

Finally, representatives of continental phenomenology (Minkowski 1927; Bovet and Parnas 1993) deal with these issues. Parnas (1999) has asserted that "typicality of schizophrenic delusions relies partly on the fact that their content transpires a profoundly altered *form* of experiencing; blurred

Self-World articulation." This perspective has recently been applied to the psychotic prodrome (Parnas et al. 1998; Parnas 2000), displaying striking similarities to our findings.

Extreme Preoccupation By and Withdrawal to Overvalued Ideas. This composite dimension contains four components (or stages), illustrating its dimensional (continuous) nature: first the new idea, second the overvaluation, third the preoccupation (internal), and fourth the withdrawal (external). The fifth stage might be a delusional extension into psychosis. The dimension might, at least partly, overlap the second phase ("apophanie" = becoming manifest) of Conrad's (1958) scheme, during which "new meanings and beliefs are attached to the experienced changes, everything get[s] its own special meaning" (Cutting 1989; Berner 1991). Aspects of this phenomenon are captured in the IRAOS as "preoccupation with magic ideas/unusual thoughts." Because overvalued ideas are not necessarily either magic or unusual, however (cf. ideas about philosophy, mysticism, religion, existential themes, mental training, meditation, reincarnation, etc.), the IRAOS definition seems too narrow. In the *DSM-III-R* list, too, overvalued ideas drown in several examples of "odd beliefs or magical thinking." Preoccupation per se was not listed in the *DSM-III-R*, and in the BSABS it is no close analog. Some of the early phenomenological studies simply mention preoccupations without further specifications. Withdrawal is a well-known feature in psychosis, pre- and post-onset, but incompletely conceptualized as to its experiential underpinnings.

Speculating on the level of meaning and explanation, we find an interesting coherence among the three domains, namely the ineffability and the two dimensions: The painful and ineffable experiences of seriously disturbed perception of self make it reasonable to turn one's mental capacity inward, searching for explanations, and further toward new themes or ideas to prevent total identity disintegration. This interpretation is also suggested by à Campo et al. (1998) and in the domain of derealization by Chapman (1966).

A thrilling, vivid, and comprehensive review of these phenomena is given by Sass (1992). Concerning prodromal phenomena, he refers to three major sources. The first reference is to Conrad (1958) and his first phase *Trema*. The second reference is to the famous Italian painter Giorgio de Chirico (who profoundly inspired surrealism of the 20th century), who borrowed from Nietzsche the untranslatable German term *Stimmung* to denote this key symptom of schizophrenia: "To live in the world as if in an immense museum of strangeness." Sass sums up (p. 46): "Even the most articulate schizophrenics are usually reduced to helplessly repeating the same, horribly inadequate, phrase: everything is strange or everything is somewhat different." Third, Sass makes reference to *The*

Autobiography of a Schizophrenic Girl, a personal memoir written by “Renee,” including this among the many quotes: “Madness was finding oneself permanently in an all-embracing Unreality.” Sass (1994) also argues that in many people with schizophrenia, “motivations and concerns are less libidinal than cognitive or epistemological in nature (p. 12).”

The Other Experiential Dimensions: A Flower Configuration? *Neuroticlike disturbances* per se are not useful for early detection, but they might be presenting complaints and also indicators of severity of the mental distress. *Disturbance of formal thought* appears to have rather ill-defined boundaries against several other dimensions, particularly “disturbance of perception of self” (thought is part of the self) and “disturbance of mental/inner control” (thought is an integrated part of the mental apparatus). *Attenuated delusional ideas or perceptions* are, for obvious reasons, more “specific” to psychosis development, but usually offer limited gains in reducing the duration of prodrome.

The cluster of experiences outlined might be seen as an umbelliferous flower, in which the two main dimensions (or only one) constitute the center, from which a number of petals spread out, representing aspects differing from (though related to) the core phenomena. However, where the petals are attached to the center, contents of phenomena overlap considerably, whereas at the periphery of each petal features are more purely different.

Naturalistic Behavioral Dimensions

The discrete features of these behavioral dimensions (table 5) are not unknown. Nevertheless, we can add significant nuances, which was a main intent of this study.

Quit School, University, or Job, or Major School Truancy. “Loss of *interest* in school or work” remains an example of prodromal symptoms in the *DSM-IV*. The fact that subjects in our study consistently had experienced complete (or next-to-complete) inability to keep up with school/university suggests a more narrow definition. The problem of false positives is obvious for this item, and raising the threshold is thus appropriate for reasons of reliability, validity, and specificity. If disturbances develop continuously, it is reasonable to predict complete school failure, sooner or later, if treatment is not initiated. Despite expected low specificity for psychosis, such high levels of failure nevertheless justify interventions to elucidate underlying causes, whether related to psychosis or not. It is indispensable to assess all alternative causes of school or role failure. This dimension occurred in all of

the prodromes (unique for this dimension), suggesting that certain levels of prodromal disturbances cause serious school failure regardless of the time it takes to reach these levels. Finally, since brilliant as well as low-performance subjects failed at school, intellectual strength appeared to provide limited protection against this event.

The empirical literature presents poorly specified impairments: “deterioration in role functioning” (Yung and McGorry 1996a), “impaired role function” (Yung et al. 1996), and “poor performance” (Cameron 1938). Sometimes area specifications are added: “work or school performance” (Varsamis and Adamson 1971), “usual activities and tasks” (Beiser et al. 1993), or “school, work or other role functioning” (Yung and McGorry 1996b). German IRAOS studies use the comprehensive item “limited persistence, regularity or quality of performance in school, study or job”; surprisingly, this is summarized in papers as “work performance” (Hambrecht et al. 1994) or “lack of interest in work” (Hambrecht and Häfner 1997).

Marked and Lasting Observable Shift of Interests. The notion of “shift” might add validity to the prevailing (*DSM-III-R*) “lack of interests or initiative,” derived in part from pre-*DSM* studies (Cameron 1938; Chapman 1966). Though absence in the shorter prodromes suggests a time limitation for this change to develop, reasonable also from common sense, an additional reason might be that the shorter prodromes included the three immigrants in our sample, of which two (first generation) had a limited command of Norwegian. The fact that all except one of the remaining individuals reported such changes indicates valid, though not specific, prodromal events. The consistent shifts from practical/social interests (clubs, sports, music, theater, etc.) to introverted/individual ones also support validity. The apparent lack of (expressed) reasons probably reflects the ineffability of underlying experiences. The compound nature, but nevertheless naturalistic coherence, of this dimension is also overt, and the depressive frame is consistent with Sullivan’s (1994) notion that “pure depression is practically a standstill of adjustment, while the schizophrenic depression is a most unhappy struggle” (p. 138).

Marked and Lasting Social Passivity, Withdrawal, or Isolation. The acquired social status during the prodrome might determine social outcome in schizophrenia (Hans et al. 1992; Häfner et al. 1995). At present, the diagnostic contribution of withdrawal is limited, reflecting lack of knowledge about its genuine nature. When it comes to usefulness in early identification, the motivating experiences are more important than the withdrawal per se. The extreme level (“episodes of escape”) is probably more uncommon in adolescence, and could add specificity and

serve as an indicator of withdrawal severity. These maneuvers were said to protect against the painful experience of impaired ability for close human contact.

Marked and Lasting Change in Global Appearance or Behavior. For reasons of applicability, we encouraged informants to report phenomena in their authentic articulation. Therefore, we could not put aside the numerous distinct reports that “something was basically changed, not quite right, or definitely wrong.” Being a mixture of observations and emotional impressions, this dimension was heterogeneous in terms of content, but produced family concern. This dimension might be related to the “*praeco:feeling*,” denoting what is “felt even before one has spoken to the patient; the condition is recognized by mere observation...the whole of the patient’s expressivity” (Rümke 1990, p. 337). The changes concerned “mood, glance, speech, personality, attention, trustworthiness,” and so on. What makes this dimension significant is its potential to extract some conspicuous common essence from a wide variety of behaviors, with definite impact on the surroundings, difficult to capture in more specific ways. The global impression of change was more important than what specifically had changed. À Campo et al. (1998) suggested in a case study of 11 patients that “marked changes in appearance (and/or body perceptions) could be prodromal signs.”

Further Research Steps. Our results must be further validated. We will design an instrument for the assessment of prodromal experiences, for which the appropriate level of detail and the relative distribution of self-rating and interview

approaches must be designed by modeling and testing as we go. Practical usefulness will probably dictate a two-level procedure—first a low-threshold checklist (“good” headings with a few sample quotes) and then interview-based detailing with checklist positives. When an instrument is designed, it might be feasible for at least two settings. First, the prevalence of the phenomena must be assessed in representative first episode samples of all types of functional psychosis and of nonpsychotic disorders and among normals (i.e., retrospectively). Second, the field is moving to prospective studies (Yung et al. 1998; Cornblatt et al. 1999; Miller et al. 1999), in which at-risk individuals (identified in various ways) are monitored to separate out false positives and to intervene appropriately with the true positives. Our “core dimensions” will be tested prospectively in such settings.

Limitations. The following are limitations of our study:

- The deliberate choice of an uncontrolled case study design, and the selected sampling, make statistically based claims irrelevant, and age- and gender-related questions are not addressed.
- The issue of false positives is likewise not possible to handle in the present design. Nonetheless, one should monitor several dimensions concurrently, along with duration and severity of sufferings, keeping in mind all alternative causes.
- The accuracy of recall is invariably an issue in prodrome assessments, because retrospectivity is inherent in the prodrome concept. Though interviews were conducted soon after first admission, recall might have been inaccurate or tainted by experiences of subsequent psychosis, need for meaning, or family guilt.

Appendix. Selected naturalistic prodromes of *DSM-IV* schizophrenia

The table below lists selected prodromes of short, intermediate, and long duration, in condensed form. A complete list of all 19 prodromes is available on request from the first author (P.M.).

Prodrome duration	ID	Subjective experiential changes ¹	Transition features
Short (1–4 weeks)	11	(Day 1: Started treatment with erythromycin for otitis media; patient attributed changes to the medication.) Day 3: “Unpleasantly strange in my head.” Day 5: “These tablets drive me mad.” Day 8: “I feel so strange...tried to find out who I was”; scrutinized over and over again personal photos and notes/diaries. Day 9: “Strange that I started wandering outdoors like that; it just wasn’t me.” Tended to lose the temper. Poor memory.	No control, all was chaos, just walked and wept. Suspicious and accusing. Day 10: Admitted.
	17	Depression; everything seemed unspeakably heavy. Marked lack of interest in school; the whole body wanted something else. Unbearable anxiety, growing to panic or intense fear of losing the social and communicative abilities. Sudden difficulties with concentrating and thinking clearly. Strange and painful feeling that the brain was dead. Didn’t conceive the connections. Couldn’t get into conversation with people. Afraid to talk, impossible to socialize. Desperately sick, just wanted to die.	Unpleasant, distressing ringing sounds in the head for some 10 minutes.

Appendix. Selected naturalistic prodromes of *DSM-IV* schizophrenia—Continued

Prodrome duration	ID	Subjective experiential changes¹	Transition features
Intermediate (60–70 weeks)	9	Abnormal experience of time and space; time changed into a huge space in which all subsequent events took place; I felt as if I flew out of time. Inner change, felt more and more strange to myself. Almost didn't know who I was. Feared that changed thoughts also could change the appearance, which could be seen by others; social contact impossible. Had to look in a mirror very frequently. Difficulties with concentration. Experienced thoughts as disturbed; they became simplified, superficial, and illogical. Brooding on superstition themes. Social anxiety.	Short episodes: My mother's voice expressed my own thoughts; audible thought or voice? Others' voices changed to clicking sounds. My head became bigger. Afraid of losing control.
	19	Always wondered who I really was. Increasingly unstable mood; either depressed, quiet, withdrawn, or very happy, distended. Extremely occupied with thoughts about how to be accepted, good enough. Tried to counteract the depression and achieve social acceptance by means of hashish, and a few times amphetamine. My thoughts were so numerous, that I didn't manage to concentrate while talking to people. Growing uncertainty, depression and crying, hated myself, sometimes suicidal thoughts. Brooded on ever-new existential themes: What is good and what is evil? Without a good meaning with life, I was evil. Everyday life became completely unimportant. Strongly tormented by something dreadful and unbearable that I didn't know what was; impossible to communicate these experiences to others. Something was obviously wrong, but I didn't manage to seek help. Often said to father: unhappy and afraid of losing myself. I felt changed and evil. My feelings, inner life, and empathy was [sic] dissolved or disappeared; I eventually lost myself completely. Great difficulties with concentration; forced myself to be social, to not give in.	Failing control over my thoughts, increasing to chaos. Difficult to stay assembled.
Long (8–11 years)	4	Intolerable inner tension, impossible to relax. Loss of contact with the feelings. Painful distance to self. It couldn't be long-lasting. Something was totally wrong/out of mind. Experienced own interests, attitudes, and self as dirty and perverted; had to get rid of them and find new life channels. Uncertain gender identity. Occupied by eastern religious mysticism/meditation, to be purified and elevated. Poor concentration. Felt changed in the personality. Something inside me had turned inhumane. Loss of energy and contact with the body; felt dead and empty. Often suicidal ideation. Occupied by strange philosophical ideas and dreams. Lost belief in concepts.	Thought everybody avoided him. Felt possessed by worms. Fragmented ideas about creatures from other planets.
	15	Felt distant. Varying but permanent difficulties with concentration; thoughts went in all directions. Socially more introverted and insecure. Something was changed with me; I wasn't that quick any longer; my feelings were gradually blocked up and disappeared. Brooded and was stuck in existential themes; the meaning behind all, the nature of consciousness, freedom of choice, etc. I had become somewhat of a stranger to myself; wasn't good old me; didn't manage to return to myself again. Life became empty.	Several short episodes: Visual, auditory, and olfactory perceptions were clearer and stronger.

Note.—ID = identification.

¹ Experiences in authentic words and phrases as reported in open-ended interviews

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