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The Zurich Study

X. Hypomania in a 28- to 30-Year-Old Cohort*

W. Wicki and J. Angst

Psychiatric University Hospital, Research Department, P.O. Box 68, CH-8029 Zurich, Switzerland

Summary. Hypomania in a 28- to 30-year-old cohort is described. Data were taken from a prospective longitudinal cohort study from the general population of Zurich, Switzerland. An estimated 1-year prevalence rate of hypomania of 4% was found. Over a period of time hypomania was associated with major depression and dysthymia. We found equal proportions of suicide attempts and equal rates of treated family members among hypomanics and depressives. Furthermore, the previous history of treatment of mild bipolars (hypomania with depression) and unipolar depressives was comparable. The sum of life events, several SCL-90R scores and the scores of distress in relationships were already elevated in hypomanics 7 years before diagnosis of hypomania, indicating an increased activity level, a generalized increase in neuroticism, and a relatively unvarying behaviour pattern in social relationships.

Key words: Hypomania – Epidemiology – Prevalence – Depression – Psychosocial factors

The concept of hypomania

Normal human beings show marked mood fluctuations and obviously there is a continuum from sustained elation to mildly pathological states or traits. This has been frequently maintained in the literature, for instance, by Jung (1904), Schneider (1932), Wertham (1929a, b), and more recently by Kendell (1985). As early as 1910 Reiss had stressed that every distinction between normal and pathological mood is to a certain extent artificial.

The term *hypomania* in a modern sense was introduced and defined by Mendel (1881) in his monograph on mania in order to designate milder forms of manic disorders. The term was used by Hippocrates, but at that time mania embraced a very broad concept.

During this century a variety of other terms have been used to describe *hypomanic states or traits* depending on hypothetical aetiologies. In the earlier literature the *sanguinic temperament* was considered to be an intermediate state between hypomanic and normal personalities (Jung 1904). Jung also stressed that in its original usage the term *chronic mania* described essentially hypomanic states, a statement confirmed later by Wertham (1929a + b) in his review of chronic mania. In his standard work on chronic mania Nitsche (1910) extensively discussed different terms designating hypomanic states like "sanguinic temperament", "constitutional mania", the "constitutional excitement" of Kraepelin and "persisting psychopathic states". Stransky's monograph (1911) with a chapter on cyclothymia carefully describes milder forms of hypomania with transition to normal mood states. *Cyclothymia* was originally conceptionalized as a mild subtype of bipolar disorder with constitutional mood changes. This same group was frequently diagnosed as "heboid", "querulous", "morally insane" or as "hyperthymic psychopaths" (Blankenburg 1957).

Hypomanic personality traits were extensively described in relatives of manics by Reiss (1910) in his important monograph, and later by Leonhard (1963). The notion of a premorbid "hyperthymic personality" described by Tellenbach (1965) has frequently been used in the context of psychopathy, personality disorder or character descriptions (Buerger-Prinz 1950; Schneider 1932). Recently the "typus manicus" defined as a premorbid character structure of mainly manic bipolars was put forward by von Zerssen (1988). In the terminology of Akiskal et al. (1977) the large group of *"subaffective disorders"* subsumes cyclothymic and hyperthymic states. Gershon et al. (1975a, b) were the first authors to test the *spectrum concept* of cyclothymia and bipolar disorder in a genetic model. The spectrum concept of mania and elation was also elaborated by Klerman (1981) for the continuum from normal elation, neurotic elation, hypomania, mania, to delirious mania.

An *operational definition for hypomania* was not given by DSM-III (American Psychiatric Association 1980),

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Offprint requests to: J. Angst

which allocated this syndrome to a residual category of "atypical bipolar disorder". DSM-III-R (American Psychiatric Association 1987) defined hypomania in a more precise way. It is important to mention that by definition the disturbance is considered not to be severe enough to cause hospitalization or marked impairment in social or occupational functioning. (These are criteria required for the diagnosis of manic episodes.)

Our own operational definition of hypomania is based on the definition given in the DSM-III-R, but it includes an additional criterion (see section "Diagnostic Assessment: Hypomania").

Methods

Subjects and Procedure. Our data were derived from four interviews of the longitudinal "Zurich Study". The Zurich Study began in 1978 with a screening procedure, investigating a representative cohort of 2201 19-year-old men and 2346 20-year-old women from the Canton Zurich in Switzerland. The sample for the prospective study consisted of 591 probands in 1979, with two-thirds of the probands with high scores and one-third with low scores in the SCL-90 (Symptom-Check-List-90-R; Derogatis 1977[1]). These probands were given a semi-structured interview in 1979 and a questionnaire in 1980[2]. They were reinterviewed in 1981, 1986 and in 1988. In 1986, at the third interview, the cohort consisted of 225 males and 232 females who were 27–28 years old. In 1988, when the cohort was at age 29–30, 197 males and 218 females were reinterviewed. The overall drop-out rate at the third interview in 1986 was 23% and at the fourth interview – 9 years after the first interview – 30%. Sex ratios and ratios of high versus low scorers, according to the screening with the SCL-90, remained stable betwen 1978 and 1988.

Instruments and Measurements. The semi-structured interviews of 1979 to 1988 included the structured psychopathological interview of the social consequences of mental disorders for epidemiology (SPIKE) (Angst et al. 1984), the SCL-90-R, a modified life event inventory based on Tennant and Andrews (1976, 1977) with additional items from Holmes and Rahe (1967) and various sociological and psychological measures.

In 1988 the Freiburg Personality Inventory (FPI; Fahrenberg et al. 1978) was also used. Data concerning the history of childhood up to the age of 16 years were obtained retrospectively from the interview of 1986. School phobia, behavioural problems, psychiatric treatment, referrals to a school psychologist, and problems with and of parents were assessed.

Conflicts and distress in relationships with parents, partner, friends, and at work were recorded with the help of different direct questions based on items of the Scales of Social Adjustment (SSIAM) by Gurland et al. (1972) and of the Social Adjustment Scale (SAS) by Weissman and Paykel (1974). Conflicts and distress in relationships were assessed at all interviews except in 1988. For the measurements of self-esteem and locus of control, two scales developed by Pearlin and Schooler (1978) were used in 1979, 1981 and 1986.

The subjects' education and their fathers' social class were assessed by means of the questionnaire in 1978.

In 1988 the SPIKE interview collected information on 23 clinical syndromes and detailed data on consumption habits. The usual range of psychiatric syndromes was assessed (such as depression, anxiety, panic, phobia, hypomania, suicidal behaviour, obsessive-compulsive or hypochondriacal syndromes), as well as a variety of somatic and psychosomatic syndromes of stomach, intestinal tract, respiratory system, heart and circulation. Additionally, backache, allergies, menstrual and sexual problems were assessed. While most of the syndromes were assessed at all interviews, hypomania was included in the interviews only in 1986 and in 1988.

Table 1. Hypomania assessment: probe questions

	1986 ($n = 457$)	1988 ($n = 415$)
	n	*n*
1. Were you, during the past 12 months, much more energetic, active, less easily tired, needing less sleep than usual (i.e. talking more, travelling more)?	120	71
2. Was this to the extent that it created difficulties (i.e. for yourself, with others or financially)?	11	10
3. Did others (i.e. family members, partner) observe that something wasn't as usual so that they thought something might be wrong with you?	33	23

Diagnostic Assessment of Mood Disorders, Insomnia and Neurasthenia. Mood disorders, insomnia and neurasthenia were assessed in 1979, 1981 and 1988. The diagnoses of DSM-III major depression (MDD) and dysthymia are based on the reported number of depressive symptoms, and on the duration and frequency of episodes during the last 12 months. The diagnosis of recurrent brief depression (RBD) also includes work impairment (Angst et al. 1990)[3].

The diagnoses of panic and general anxiety were also based upon the criteria of the DSM-III (American Psychiatric Association 1980). Additionally, we developed empirical definitions concerning insomnia (Angst et al. 1989), neurasthenia (Angst and Koch, in press) and sporadic panic (Vollrath et al. 1990).

Statistical Analysis. All analyses were conducted using SAS procedures (SAS 1985). For the purpose of the analysis of categorical data chi-squared statistics were computed. As a measure of association between diagnosis we calculated odds ratios and their confidence limits. Continuous data were subjected to the non-parametric Wilcoxon two-sample test. Because of the high number of statistical test, any significant results should be interpreted with caution.

Diagnostic Assessment of Hypomania. The items concerning hypomania were situated in the middle of the interview after the section on depression. The interviewer started with the three probe questions shown in Table 1. The proband had to assent to the first question and additionally to the second *or* to the third probe question in order to meet our additional criterion for hypomania. Probands who did not assent to either the second or to the third probe question were excluded from further examination and were thus not considered to be "hypomanic cases". This criterion was introduced because of the lack of information from external sources to corroborate the occurrence of the hypomanic episode. (The same procedure was used in epidemiological studies to assess alcoholism.) Thus, subjects with the diagnosis of hypomania not only had to experience symptoms of elation, but these symptoms had to be

[1] By reason of this sampling procedure we weighted the prevalence rates back to the normal population (see Table 3).

[2] Further details on methodology and results have previously been described by Angst et al. (1984) and Angst and Dobler-Mikola (1984).

[3] The RBD diagnosis requires the same symptoms as major depression (DSM-III). In contrast to MDD, the depressive episodes in RBD last less than 2 weeks, but they recur at least monthly over 1 year and include work impairment.

Table 2. Assessment of the hypomanic syndrome

Symptoms	1986 ($n = 23$) %	1988 ($n = 20$) %
Could you describe more precisely how you experienced this?		
1. Less sleep	87	80
2. More energy, strength	97	95
3. More self-confidence	87	85
4. Enjoying work more than usual	[a]	75
5. More social activities (i.e. more telephone calls, more visiting other people)	[a]	85
6. More travelling, reckless driving	[a]	45
7. Spending too much money	[a]	55
8. Unwise business activities	[a]	20
9. Increased activities (including working more)	97	[a]
10. Excessive activity (i.e. buying sprees, business deals, telephone calls, travelling, driving)	70	[a]
11. More plans and ideas (creative)	91	90
12. Increased physical activity	65	65
13. Less shy, less inhibited	52	90
14. More talkative than usual	78	65
15. More impatient than usual	57	[a]
16. Irritable	35	[a]
17. More impatient or irritable	[a]	40
18. Easily distracted	[a]	50
19. Increased sex drive	39	55
20. Increased consumption: coffee, cigarettes	39	60
21. Increased consumption: alcohol	26	45
22. Overly optimistic, euphoric	70	65
23. Increased laughter (making jokes, puns)	74	[a]
24. Thinking fast, sudden ideas, making puns, joking	[a]	90

[a] Item not checked either in 1986 or 1988
Frequencies (%) of affirmative answers are given for cases with diagnosis of hypomania

noticed by others (e.g. family members, partner), or to cause difficulties to the subject or to others.

After meeting the initial probes for hypomania, specific data on the frequency, duration and occurrence of symptoms of hypomania during the year before the interview were collected (Table 2). The attribution of symptoms to somatic or psychological causes by the subject, the amount of suffering, and eventual help-seeking behaviour, and the individual and family history of the subject were also assessed.

Diagnostic Criteria. For case definition of hypomania, we applied the diagnostic criteria for *manic* episode given in DSM-III-R (American Psychiatric Association 1987) concerning the *symptomatology* (at least three of seven symptoms). As proposed in the DSM-III-R criteria for hypomania, neither social impairment nor hospitalization is required. In addition to the DSM-III-R criteria, we applied the above-mentioned criterion (probe question 1 plus probe question 2 or 3 of Table 1). We have labelled our diagnosis with an asterisk (hypomania DSM-III-R*) to indicate this modification of the DSM-III-R criteria.

Results

Rates

One hundred and twenty probands (26%) assented to probe question 1 (Table 1) in 1986 and 71 probands (17%) in 1988. Of these groups, 33 subjects in 1986 and 23 subjects in 1988 reported observations by others associated with hypomanic behaviour and 11 (resp. 10) subjects respectively gave an account of difficulties associated with the former. All subjects with difficulties (question 2 in Table 1) also reported observations by others (question 3 in Table 1). Therefore, question 2 was redundant for case definition.

We identified 23 cases in 1986 and 20 cases in 1988 with hypomanic episodes (DSM-III-R*) and calculated *weighted* 1-year prevalence rates of 4.4% for 1986 and 3.4% for 1988 (Table 3). There was no consistent sex difference.

Core symptoms of (hypo)mania were reported by 70–90% of the hypomanics (Table 2). There were two patterns of course of hypomanic episodes. One course pattern consisted of recurrent brief episodes lasting a few days; another pattern comprised longer episodes, which occurred with less frequency. These findings are shown in Table 4 for the interview of 1988. In 1986, the mean duration of episodes was somewhat longer than in 1988 (11 of 23 cases reported hypomanic episodes equal to or longer than 1 month in 1986).

Table 3. Number, sex, and prevalence of hypomania cases

		Interviews	
		1986 ($n = 457$)	1988 ($n = 415$)
		n	*n*
Hypomania cases	(m)	8	14
	(f)	15	6
One-year prevalence rates weighted back to the normal population	(m + f)	4.4	3.4

Table 4. Frequency by duration of hypomanic periods in 1988

Frequency	Duration					
	1–3 days	4–6 days	≧1 week	≧2 weeks	≧1 month	Total
Once	0	0	0	0	1	1
2– 3 times	1	1	0	1	1	4
4– 7 times	3	1	2	0	0	6
8–11 times	1	0	0	0	0	1
1– 2 times/month	4	1	1	0	0	6
Weekly	2	0	0	0	0	2
Total	11	3	3	1	2	20

Absolute frequencies *(n)* were given for observed frequency/duration combinations for interview 1988

Table 5. Hypomanic episode: 2-year follow-up

1986 ($n = 457$)	1988 ($n = 415$)			
	Hypomania (DSM-III-R*) ($n = 20$)	Hypomanic symptoms (subthreshold) ($n = 51$)	Controls ($n = 344$)	Dropouts ($n = 47$)
	n Row %	*n* Row %	*n* Row %	*n* Row %
Hypomania ($n = 23$) (DSM-III-R*)	5 (22)	3 (13)	14 (61)	1 (4)
Hypomanic symptoms ($n = 97$)	4 (4)	18 (19)	69 (71)	6 (6)
Controls ($n = 337$)	11 (3)	30 (9)	256 (76)	40 (12)

Subjects of the control group did not report any hypomanic symptoms.
Subjects with a subthreshold syndrome reported hypomanic symptoms, but did not meet the diagnosis of hypomania (DSM-III-R*)

Rates over 2 Years (1986/1988)

The stability of the hypomanic syndrome over 2 years was examined by cross-tabulating the findings of the 1986 and 1988 interviews. Milder forms of hypomanic states not meeting the diagnostic level (only probe question 1 assented to) were included in this analysis in order to test sub-threshold syndromes as predictors.

Hypomanics are 7 times more likely to be given the same diagnosis 2 years later than controls (Table 5). However, there was a considerable proportion of subjects (61%) with hypomania in 1986 who had not reported symptoms in 1988. Thus, hypomania was usually not persistent over time. Sub-threshold hypomanic symptoms were not predictive of subsequent hypomania. Of the total group of subjects with an interview at age 28 and/or 30 ($n = 462$), we found 38 (8%) subjects with hypomania at either one or both interviews (see Table 6). Only 5 subjects (1%) received the diagnosis on both occasions.

Social Impairment, Degrees of Suffering and Professional Treatment

Objective social impairment has been used in DSM-III-R as a discriminating key criterion for the differentiation between a manic episode (social impairment present) and hypomania (no social impairment). It was not possible to measure *objective* social impairment, but during the SPIKE interview in 1986 the subjects were asked to assess their *subjective* impairment[4] associated with the reported hypomanic symptoms on a visual analogue scale (ranging from 1 to 100) with regard to their work, leisure activities, contacts with friends and acquaintances and with regard to their relationship to partners. In 1988, only work impairment was assessed on the visual analogue scale and the other items assessed with a dichotomous question.

The level of distress caused by hypomanic episodes was assessed on the analogue scale (0–100). In addition, direct questions were posed at both interviews concerning the seeking of professional treatment for hypomania over the past year.

As expected, about 50% of the cases reported no impairment or suffering or treatment. Six of 23 cases in 1986 and 7 of 20 cases in 1988 reported suffering. One and 2 of these subjects respectively also reported work impairment. Work impairment without suffering on the other hand was present in 2 subjects in 1986. Treatment was reported by only 2 subjects in 1986 and only 1 subject in 1988. (One subject was treated during both years.) As expected work impairment and treatment did not play a major role among subjects with hypomania.

Psychosocial Factors

For the purpose of the following analyses, the hypomanic cases at the 1986 and 1988 interviews were combined. The analysis includes 38 hypomanic subjects described above (see section 'Rates over 2 Years'). All subjects without a diagnosis of hypomania served as controls.

Childhood of Subjects with Hypomania. Neither the probands' educational level nor their father's social class differentiated between the hypomanic subjects and controls. Nor did we find significant differences between hypomanic subjects and controls with respect to the frequencies of loss of parents, psychiatric treatments, or referrals to psychologists in adolescence, or adolescent behavioural problems (such as truancy, running away from home, excessive fighting with peers). Subjects with hypomania, however, more often reported *disciplinary difficulties at school* (30% vs 12%, chi square = 8.36, $P = 0.004$) and more frequent thefts during childhood and adolescence (21% vs 10%, chi square = 4.62, $P = 0.03$) than controls.

Conflictual and Distressful Relationships and Life Events. We assessed five degrees of interpersonal conflicts ranging from "no conflict" to "disruption". "Distress in relationships" summarizes several questions concerning "emotional strain" in relationships with partner, spouse, parents, friends, and at work (graduated from "no significant strain" to "strain threatens relationship"). The single item scores were combined to obtain a total score and subsequently divided by the sum of the items answered by the subject. However, the items concerning

[4] The assessment of subjective social impairment (or consequences) can be regarded as an approach to the objective social impairment mentioned above, but at the same time the essential differences between the two approaches should not be ignored.

conflictual and distressful relationships were not included in the interview in 1988.

We tested the hypothesis that hypomanic subjects not only experienced more interpersonal conflicts and distress than controls concurrent with hypomania at the 1986 interview, but also already 5–7 years earlier (1979 and 1981) prior to the diagnosis of hypomania. By means of Wilcoxon tests, we found stong evidence for a *concurrence* of hypomania with interpersonal conflicts and distress, but no consistent evidence for conflicts and distress at the former interviews (see Table 6). The *divorce rate* measured at age 30 was 2.6-fold higher among hypomanics compared with controls (13% vs 5%). Hypomanics also remained unmarried more frequently than controls at this age (61% vs 51%). These differences are significant (chi square = 8.13, $df = 2$, $P < 0.05$).

The sum of life events that hypomanics had experienced was already elevated in comparison with controls in 1979 and 1981 (Table 6). This finding may indicate that the subjects' activity level was already higher some years before the diagnosis was given.

Table 6. Conflictual and distressful relationships and sum of life events among subjects with hypomania

	Diagnosis of hypomania at age 28 or 30 ($n = 38$)			
	yes	no (controls)		
	$\bar{x}$	$\bar{x}$	Z	P
1979 (age 20)				
Conflicts with				
friends	1.5	1.5	−0.2	NS
father	2.0	1.9	0.7	NS
mother	1.7	1.9	−1.3	NS
partner	1.8	2.0	−0.9	NS
at work	1.7	1.6	1.2	NS
Distress in relationships[a]	4.1	4.3	−2.2	0.03
Sum of life events	11.0	8.9	2.8	0.005
1981 (age 22)				
Conflicts with				
friends	1.4	1.2	1.9	0.05
father	1.2	1.2	−0.3	NS
mother	1.2	1.2	−0.9	NS
partner	1.8	1.5	1.5	NS
at work	1.3	1.4	−0.2	NS
Distress in relationships[a]	4.1	4.3	−1.4	NS
Sum of life events	10.6	8.9	1.9	0.05
1986 (age 28)				
Conflicts with				
friends	1.5	1.2	4.3	0.000
father	1.3	1.2	1.9	0.05
mother	1.4	1.2	2.0	0.05
partner	2.1	1.6	2.3	0.02
at work	1.6	1.3	3.0	0.003
Distress in relationships[a]	3.9	4.4	−4.1	0.000
Sum of life events	8.8	6.7	3.8	0.000

[a] Small values of this variable indicate more, and high values less distress

The n are variable because they depend on the existence of the different persons (partner, parents). The maximal n is 462. Wilcoxon two-sample tests were performed using SAS (1985). Means, Z values (normal approximation) and their probabilities are given

Psychopathology and Personality Scores

SCL-90-R Scores. We tested the hypothesis that the SCL scales as a measure of psychopathology differentiate the hypomanic group ($n = 38$) from a non-hypomanic control group at the 1986 and 1988 interviews. (The control group consisted of healthy subjects *and* of subjects with (unipolar) depression or anxiety disorders.)

With regard to the combined sample of hypomanics (hypomania at age 28 and/or 30) the SCL scores at age 28 were concurrent with hypomania diagnosed in the same year for 23 subjects. For another 15 subjects, the SCL-90 scores were a premorbid measure, because hypomania was only diagnosed 2 years later. (We do not know, however, anything about the years before 1986.) For 17 subjects who did not meet criteria for hypomania in 1988 the SCL-90-R in 1988 is a postmorbid measure.

On all SCL scales the hypomanics scored higher than controls at age 28 with the somatization scale as the only exception (Table 7). We found the scales "interpersonal sensitivity" and "paranoid ideation" consistently differentiated between hypomanics and controls. The SCL-R scales at the interviews in 1978, 1979 and 1981 may or may not reflect concurrent hypomania, as the diagnosis was given for the first time in 1986. Several scores were elevated, which give the impression of a generalized increase in neuroticism.

Personality Measures. The FPI was administered in 1988 when the probands were 30 years of age. FPI scores of the combined group of hypomanics ($n = 38$) were compared with the FPI scores of non-hypomanic controls ($n = 376$). A supplementary analysis among hypomanics diagnosed in 1986, but not in 1988 ($n = 17$), was also conducted. The control group of both analyses consisted of healthy subjects as well as of subjects with depression or anxiety disorders.

Hypomanics ($n = 38$) scored significantly higher than controls on neuroticsm, extraversion, aggressivity, depression, excitability, sociability and striving for dominance (Table 8). Recovered hypomanics ($n = 17$) only scored significantly higher than controls on aggressivity and excitability (Table 8).

Family History of Depression and Hypomania

A family history (parents and siblings) of *treated* depression was reported by 8 (21%) of the total of 38 hypomanic subjects. This is not different from that obtained among subjects with MDD or RBD. Although this rate was nearly twice the rate of controls (Table 9), the latter comparison was not significant. However, the rate of

Table 7. SCL-90 scores of subjects with hypomania over 10 years

SCL-90 scores	Interviews									
	1978	*P*	1979	*P*	1981	*P*	1986	*P*	1988	*P*
Hostility										
Hypomanics	2.08	0.04	1.87	NS	1.91	0.03	1.69	0.05	1.62	NS
Controls	1.82		1.72		1.60		1.51		1.50	
Anxiety										
Hypomanics	2.08	NS	1.91	NS	1.96	0.01	1.84	0.001	1.64	NS
Controls	1.98		1.73		1.59		1.50		1.47	
Phobic anxiety										
Hypomanics	1.61	NS	1.46	NS	1.47	NS	1.43	0.005	1.39	0.03
Controls	1.44		1.40		1.32		1.27		1.25	
Depression										
Hypomanics	2.18	NS	2.10	NS	2.04	NS	2.07	0.005	1.97	0.04
Controls	2.12		1.94		1.77		1.69		1.70	
Interpersonal sensitivity										
Hypomanics	2.03	NS	2.30	0.01	2.14	0.02	1.96	0.01	2.00	0.004
Controls	2.02		1.92		1.77		1.64		1.65	
Obsessive-compulsive										
Hypomanics	1.99	NS	1.97	NS	1.95	0.04	1.98	0.001	1.80	0.05
Controls	1.95		1.84		1.65		1.58		1.59	
Paranoid ideation										
Hypomanics	2.06	NS	2.24	0.03	2.06	0.02	1.99	0.001	1.95	0.003
Controls	2.01		1.93		1.75		1.63		1.62	
Psychoticism										
Hypomanics	1.85	NS	1.72	NS	1.72	0.02	1.58	0.002	1.50	0.05
Controls	1.70		1.52		1.41		1.34		1.32	
Somatization										
Hypomanics	1.71	NS	1.67	NS	1.67	NS	1.61	NS	1.48	NS
Controls	1.62		1.59		1.44		1.41		1.42	

The sample sizes vary because of missing values and refusals. The maximal n is 462 (a follow-up interview at age 28 or 30 must be conducted for inclusion into the sample).
Wilcoxon two-sample tests were performed (with SAS) and means and probabilities of Z values (normal approximation) have been given

Table 8. Personality measures of the Freiburg Personality Inventory (FPI) at age 30 of subjects with hypomania

FPI scales	1 Controls ($n = 376$) $\bar{x}$	2 Hypomania at 28 or 30 ($n = 38$) $\bar{x}$	3 Recovered sub-group at age 30 ($n = 17$) $\bar{x}$	1 vs 2 *P*	1 vs 3 *P*
1 Nervousness	4.66	5.21	4.82	NS	NS
2 Aggressivity	2.61	3.82	3.59	0.0002	0.04
3 Depressiveness	3.77	5.55	5.12	0.003	NS
4 Excitability	4.25	5.55	5.59	0.003	0.05
5 Sociability	7.52	8.50	7.94	0.007	NS
6 Stability	4.43	4.58	4.24	NS	NS
7 Striving for dominance	2.77	3.34	3.29	0.04	NS
8 Inhibition	4.25	4.08	4.29	NS	NS
9 Frankness	4.60	5.05	5.12	NS	NS
E Extraversion	5.27	6.42	5.82	0.008	NS
N Neuroticism	4.54	6.24	5.82	0.001	NS
M Masculinity	5.96	6.34	6.24	NS	NS

$n = 462$; Wilcoxon two-sample tests were performed (SAS 1985). Means and the probabilities of Z values (normal approximation) were given

Table 9. Family history of depression and hypomania

	1 Controls ($n = 217$) %	2 Hypomania (DSM-III-R*) ($n = 38$) %	3 Depressives ($n = 202$) %	1 vs 2 P	2 vs 3 P
FH + treated depression	12.4	21.1	20.8	NS	NS
FH + hypomanic symptoms	6.0	31.6	9.4	0.000	0.000

Longitudinal classifications were made as described in section "Longitudinal Association with Depression". All depressive disorders were unified (group 3) excluding hypomanics (group 2). Controls are non-depressed and non-hypomanic subjects (group 1). Chi-square tests were performed

Table 10. Hypomania and depressive disorders: longitudinal association

Depressive disorders at age 20, 22, 28 or 30 (once or recurrent)		Hypomania (DSM-III-R*) at age 28 or 30 Yes (total $n = 38$)	
		n	Row %
Dysthymia	($n = 25$)[a]	3	12.0
RBD	($n = 84$)	4	4.8
MDD	($n = 75$)	7	9.3
MDD and RBD	($n = 40$)	7	17.5
No dx	($n = 238$)	17	7.1

$n = 462$; MDD, major depressive disorder; RBD, recurrent brief depression
Chi square = 6.87, $df = 4$, NS
[a] Including cases associated with MDD or RBD

Table 11. Association of dichotomous longitudinal diagnosis

Diagnosis of MDD or dysthymia between age 20 and 30		Hypomania (DSM-III-R*) at age 28 or 30 None n	(Col %)	Yes n	(Col %)
None	($n = 322$)	301	(71.0)	21	(55.3)
Yes	($n = 140$)	123	(29.0)	17	(44.7)
Total	($n = 462$)	424		38	

Odds ratio = 1.98, 95% confidence limits: 1.01–3.88

hypomanic symptoms among family members (parents and siblings) of hypomanic subjects was 5 times higher than that reported by controls ($P = 0.000$).

Association of Hypomania with Other Psychiatric Disorders

Cross-Sectional Association with Mood Disorders, Neurasthenia and Insomnia. Among about 40% of the hypomanic cases we also diagnosed depressive disorders during the same 12-month period. Because of the small sample, it is not possible to assess the association of hypomania with different subtypes of depression. Odds ratios of unified depressive disorder (Yes/No) on the one hand and hypomania on the other were 2.0 (NS) in 1986 and 3.5 ($P < 0.05$) in 1988.

The overlaps of insomnia and neurasthenia with hypomania were greater than expected by chance in 1988, but not in 1986. This result points to the greater rate of comorbidity among the hypomanics in 1988 and also to the fact that insomnia and neurasthenia are associated with each other and also strongly with depression. Despite the association of panic with depression (described by Vollrath et al. 1990), the association of panic with hypomania remains weak and is not significant.

Longitudinal Association with Depression. While depressive disorders had been assessed since 1979, when the subjects were 21 years old, hypomania was diagnosed operationally for the first time at the 1986 interview. In 1986 the occurrence of both syndromes and treatments since 1980 and in childhood and adolescence were retrospectively assessed.

In order to check whether there was an association of hypomania with depression, we cross-tabulated hypomania diagnosed at the interview in 1986 and 1988 and depressive disorders assessed in 1979, 1981, 1986 and 1988. A diagnosis was given if the diagnostic criteria were met in one or more of the interviews (see Table 10).

We found 21 subjects with a current or former depressive disorder *and* hypomania at age 28 or 30. These subjects were classified as mild bipolars and would meet criteria for bipolar disorder NOS or "Bipolar II" (as referred to in American Psychiatric Association 1987). As shown in Table 10, we included *RBD and dysthymia* in addition to MDD in order to assess mild bipolar disorder. The remaining subjects ($n = 17$) with hypomania at age 28 or 30 are classified as "pure" (unipolar) hypomanics.

Although there is only a small degree of overlap between hypomania and RBD, hypomanic cases seemed to complain more frequently than controls of long-lasting and (over several years) recurring depressions. Therefore, we calculated the association between MDD and dysthymia on the one hand, and hypomania on the other hand (Table 11).

While 45% of the hypomanic cases were given a longitudinal diagnosis of MDD or dysthymia at least once, this proportion amounted to 29% among controls (all subjects that were never given a diagnosis of hypomania). Thus a weak (but significant) affinity of our hypomanic subjects to long-lasting depressive disorders appears if previous MDD and dysthymia were included.

Suicide Attempts. Suicide attempts during the last 12 months were assessed 5 times during the study. In 1986, we inquired about suicide attempts during childhood, and during the period between the interviews of 1981 and 1986. By this procedure the lifetime prevalence of suicide attempts until age 30 was assessed. For the pur-

Table 12. Suicide attempts: hypomania compared with depression and controls

Suicide attempts prior to age 30	Longitudinal diagnosis ($n = 462$)					
	Hypomania at age 28 or 30	MDD	RBD	RBD and MDD	Dysthymia[a]	Control-group
	($n = 38$) Col %	($n = 68$) Col %	($n = 80$) Col %	($n = 33$) Col %	($n = 22$) Col %	($n = 221$) Col %
Yes	15.8	13.2	12.5	30.3	27.3	4.1

[a] Including cases associated with MDD or RBD
Over all chi square = 31.19, $df = 5$, $P < 0.000$

Table 13. Lifetime treatment for depression or hypomania

Diagnosis		Treatment	
		n	(Row %)
"Pure" hypomania	($n = 17$)	5	(29.4)
Mild bipolar disorder	($n = 21$)	13	(61.9)
MDD, RBD or dysthymia	($n = 203$)	99	(48.8)
Neither depression nor dysthymia	($n = 221$)	28	(12.7)
Total	($n = 462$)		145

Over all chi square = 13.5, $df = 3$, $P < 0.001$

pose of the following analysis, we combined all cases of hypomania and compared them with the subjects with depression without hypomania and with nondepressed-nonhypomanic controls. Among the hypomanic subjects we found 6 (15.8%) with suicide attempts (see Table 12). This proportion is 4 times higher than that of attempts among controls. It is equal to the proportion among subjects with MDD or RBD, but lower than that among subjects with combined MDD and RBD or with dysthymia. Five of the 6 hypomanics with suicide attempts also had a longitudinal diagnosis of depression (3 subjects with MDD and RBD, 2 subjects with dysthymia). Thus, the elevated rate of suicide attempts of hypomanics can be attributed to the occurrence of depression.

Previous Treatment History

We compared lifetime treatment rates of cases of hypomania with and without depression with those of all subjects who had ever been depressed. (Retrospective data concerning lifetime treatment were collected in 1986 and 1988).

For the purpose of a simple comparison treatments for hypomania and depression were combined. Hypomanics and depressives were treated more frequently than controls (Table 13) and hypomanics with depression were treated more frequently than "pure" hypomanics (chi square = 3.98, $df = 1$, $P = 0.05$). The "pure" hypomanics comprised 3 subjects with (outpatient) treatment for depression, 1 for hypomania and 1 for both. Thus, the 4 subjects with treatment for depression but without diagnosis of depression could also be considered as having mild bipolar disorder in addition to the 21 subjects shown in Table 13.

Seasonal Pattern

Seasonality of episodes was also assessed in 1986, when the subjects were aged 27–28. Eleven subjects, 4 of them with hypomania (DSM-III-R*), reported a seasonal occurrence of episodes. It was found that 13% of the hypomanics reported increased susceptibility in spring or summer. With regard to depression, we also examined seasonality both in 1986 and 1988. For the purpose of this paper the seasonal pattern of mild bipolars is of special interest. Eight of the total of 21 mild bipolars reported that they were especially susceptible to depression in a particular season, 5 subjects in fall and/or winter, 1 in spring and also 1 in winter and spring. But only 2 of the 5 subjects with depression in fall/winter also experienced hypomanic episodes with a seasonal pattern. Their hypomanic episodes were in spring and summer. The subject with depression in spring had hypomanic episodes in summer. Thus, the total number of mild bipolars with season-dependent susceptibility to both depression *and* hypomania amounts to 3 subjects (14%) and seems to be small.

Persisting Hyperthymic States: Hyperthymic Personality

As demonstrated in a previous section, 13 hypomanic subjects neither had a history of depression nor a history of treatment for depression (see Table 13). Because early age of onset (< 21 years) was proposed by Akiskal and Mallya (1987) as an operational criterion for "The Hyperthymic Type", we assessed the age of onset of hypomanic symptoms.

For 8 of the 38 hypomanics an exact age of onset could not be assessed; 50% of the remaining hypomanics reported an age of onset before 18 and only 20% an age of onset after 20. Seven subjects of our sub-sample of untreated pure hypomanics ($n = 13$) reported at age 28 that they had already experienced hypomanic episodes *before* age 21. With respect to the time characteristics 1 of the 7 subjects with early age of onset could not be considered as hyperthymic personality, because this subject experienced hypomanic episodes too seldom (3 times over 1–3 days/year). The remaining 6 subjects with early age of onset experienced hypomanic episodes at least 8 times/year or at least over a period of 1 month and thus they could be classified as hyperthymic personalities.

However, some of those subjects ($n = 6$) with age of onset *after* 20 or with uncertain age of onset also reported hypomanic episodes with long duration and/or frequent occurrence, but based on our data a closer classification of them was not possible.

Discussion

In epidemiological field studies usually only the data collected by structured interviews are available. In this way, we found a high prevalence of mood changes within the normal range in the sense of a transient increase of energy and activity (i.e. talking more, travelling more) and a decrease of tiredness and need for less sleep than usual.

This finding supports the existence of a continuum from normal mood fluctuations to hypomania and mania. Hypomania is very difficult to perceive as a pathological state by the person's themselves, but also by the investigator during a cross-sectional examination. External independent information from others is usually not available in a study of a representative population sample. Therefore, we have to rely on the subjects themselves.

DSM-III-R defines a hypomanic episode as a "distinct period, in which the predominant mood is either elevated, expansive or irritable and there are associated symptoms of the manic syndrome. By definition, the disturbance is not severe enough to cause marked impairment in social or occupational functioning or to require hospitalization. The associated features are similar to those of a manic episode except that delusions are never present and all of the symptoms tend to be less severe than in manic episodes".

Because of the lack of judgement induced by the hypomanic state itself and the lack of information from others, we tried to improve the *case definition* by collecting data on the social consequences of hypomania and verbal comments of others.

The *prevalence rate* 2 years apart in the same cohort was 4.4 and 3.4%, with no consistent sex difference. The duration of hypomanic episodes was highly variable. As in depression we found, on the one hand, more extended episodes of 1 to several weeks' or months' duration. On the other hand, there was a group of subjects suffering from brief spells of euphoric mood changes lasting usually 1–3 days with a high recurrence over 1 year. An analogous subgroup of depression has been shown to be an important one in depression and was called "Recurrent Brief Depression" (Angst et al. 1990). Similarly, one could call recurrent brief spells of hypomania "Recurrent Brief Hypomania". The validity of such a subgroup has still to be shown. The data available from our study are not numerous enough to do that.

The *validity* of our diagnosis of hypomania was shown by several criteria. A positive family history among parents and siblings was 5 times more frequent in subjects with hypomania (31.6%) than in controls (6%). The second more independent validator is a family history of *treated depression*. It was found in 21% of hypomanics, 21% of depressives versus 12% of controls. An additional validator of the diagnosis of hypomania is the lifetime history for *suicide attempts*. The suicide attempt rate of hypomanic subjects (15.8%) was 3.8-fold higher than that of controls (4.1%) and it is comparable with subjects with MDD (13.2%) or RBD (12.5%). A higher rate of suicide attempts could be seen only in subjects with an association of both MDD and RBD (30.3%) and subjects with dysthymia (27.3%) (usually associated with major or recurrent brief depression). The information on the family history for depression or on suicide attempts was collected during interviewing a different section for assessment of hypomania.

There are no prospective studies on the *course* of hypomania in the normal population. Among the young cohort we investigated, hypomania is usually a transitory state and the diagnosis is not stable over a period of 2 years. But the risk of hypomania recurring at a follow-up of 2 years was 7 times higher for hypomanics diagnosed at age 28 than in controls without this diagnosis.

The *clinical picture* of hypomanic states in the normal population is the same as in manics, who have been characterized in clinical studies. It is characterized by an increase of energy, strength, self-confidence, activities, expansive ideas, speech, sex drive, consumption, travelling, spending money and irritability with a decrease of inhibitions, patience and sleep. As expected, only a minority of cases receiving a diagnosis of hypomania complained of suffering or any social impairment. Treatment seeking was usually linked with depressive states in subjects with mild bipolar illness.

It is of interest that we found in the SCL-90 an increase of the scores in almost all scales except somatization. This increase was partially state-dependent and the measures over 10 years did not show a marked deviation from controls at the age of 20 (1978) except in increase of hostility. Over the 10 years, first interpersonal sensitivity, paranoid ideation and later anxiety and obsessive-compulsive symptoms with psychoticism were associated with hypomania.

The presence of a cross-sectional (1-year) association of hypomania with depression is also supported by the FPI, which is originally a personality inventory. Furthermore, it is of interest that depression measured at age 30 by means of FPI decreased among recovered subjects, while the scores on excitability remained stable among the mentioned subjects and time period. The findings of Price and O'Kearney (1982), who reported decreasing hostility scores after recovery of hypomania, were partly supported by our results. Applying a different questionnaire the recovered hypomanics of our study were still found to score significantly higher than controls on aggressivity, but not as high as concurrent hypomanics.

As demonstrated above, hypomanic subjects were only partly depressed in the past or concurrently. If we considered the longitudinal overlap of hypomania and depression we found approximately equal treatment rates for mild bipolar and unipolar depressed subjects while the treatment rates did not differentiate between pure hypomanics and controls. It was difficult to distinguish between pure hypomanics and mild bipolar subjects. At the last follow-up, 21 of 38 (55%) of the subjects were diagnosed on one or the other occasion as hypomanic and depressed. Of the remaining 17 subjects, 4 were also treated for depression which did not reach the diagnostic threshold. The follow-up is too brief and the cohort is too young to allow a definite statement about the true prevalence of bipolar or unipolar hypomania.

With respect to *pre-diagnostic characteristics* in childhood and adolescence we found that subjects with hypomania at age 28 or 30 reported more thefts and more disciplinary difficulties at school than controls. This is in line with the finding of the presence of more distressful and conflictual relationships at the age of 20 and 22. Our data characterize a relatively unvarying behaviour pattern in social relationships, including a higher divorce rate. Chronic conflicts with partners are typical for hypomania and were found in other studies too (e.g. Brodie

and Leff 1971; Lesser 1983). Our subjects diagnosed in 1986 and/or 1988 as hypomanics reported more life events at every earlier interview, beginning at age 20, which may signify that they are more active than controls. On the other hand, these hypomanics did not score differently at age 20 on depression, anxiety or hostility (measured by SCL) from controls, but they already scored higher at that time on the interpersonal sensitivity scale and on the paranoid ideation scale. This may reflect a perception of difficulties in social relationships.

Since this cohort is still young (i.e. age 30), conclusions should only be drawn from this work with caution. More data concerning the future course will provide a more complete picture. We expect that hypomanic subjects will continue to be exposed to a higher risk of developing depression compared with normal controls, but a pure hypomanic subgroup will probably remain without suffering or social impairment, which may consist partially of hypomanic (hyperthymic) personalities.

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