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Unspecific neurologic symptoms as possible psychogenic complaints*

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Summary. Prevalence and course of psychogenically influenced symptoms in neurology and their dependence on age and gender are reported. The epidemiological basis of the data is a long-term follow-up investigation of a high-risk population for about 10 years ($n = 240$): the Mannheim Cohort Study on Epidemiology of Psychogenic Disorders. Seven psychogenic symptoms of neurologic relevance (headache, lumbar and cervical vertebral complaints, functional vertigo, hyperkinesias, pareses, sleep and concentration disturbances) are characterized in regard to frequency, course and diagnostic significance.

Key words: Psychogenic symptoms – Neurology – Prevalence – Course – Epidemiology

Introduction

Psychogenic symptoms are frequently found also in neurology [7, 12, 26]. The psychodynamic concept was first developed by Charcot and Freud at the end of the 19th century, primarily according to "neurologic disorders". Numerous recent studies investigate increasingly the psychodynamic aspects of neurologic complaints or disorders. Headaches [1, 9, 27, 33–35] and back pains [2, 10, 11, 13, 16–20, 23–25, 36, 47] must be mentioned first, because of their high frequency. Many studies, however, refer also to characteristic neurological conversion symptoms [5, 48], extrapyramidal disorders [3, 6, 30, 31, 39, 45] and even epilepsy [4, 8, 15, 21, 29, 32, 43]. Most of the studies were based on patient samples from clinical institutions [7, 14, 22, 44, 46]. For the prevalence of low back pain syndromes we can find epidemiologic field studies [37] but not for the psychodynamic aspect. However, there is a lack of epidemiologic field surveys referring to frequency and course of psychogenic complaints in neurology [38]. Because of the high frequency of unspecific and psychogenic complaints in neurological patients [22, 44], information referring to this aspect is desirable.

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Methods

Within the Mannheim Cohort Study on the epidemiology of psychogenic disorders, the prevalence, course, and aetiology of these disorders have been investigated since 1979 (Fig. 1).

In all of three cross sections a proband was considered as a case of psychogenic disorder, if the interviewer (psychodynamically trained physicians or psychologists under the supervision of a physician) diagnosed a psychogenic disorder (psychoneuroses, personality disorders, alcohol and drug-dependence/-abuse, functional disturbances, stress and adjustment reactions) according to ICD-9 (qualitative criterion) of a clinically relevant degree (quantitative criterion: Impairment Score ≥ 5) for the last 7 days (temporal criterion). The Impairment Score [41, 42] is an expert rating. On three subscales, (somatic, psychic, social-communicative impairment) each divided into five grades (0–4) it allows a case definition by assessing the severity of current psychogenic impairment. The sum score reaches a maximum value of 12 (corresponding to the severest psychogenic impairment on all three subscales), while the case limit is fixed at a cut-off ≥ 5. The severity of psychogenic impairment was related to three different prevalence intervals: the

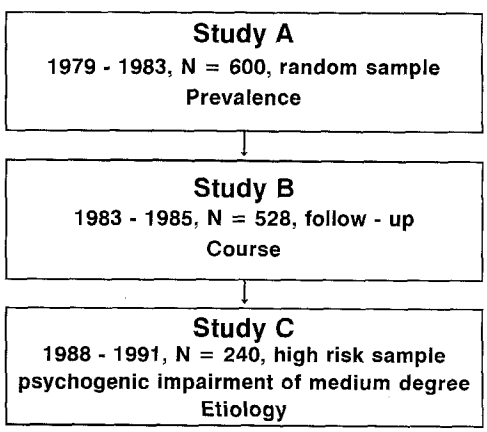


Fig. 1. The Mannheim Cohort Study on the epidemiology of psychogenic disorders

last 7 days, the last year (*except* the last 7 days), and the last 3 years (*except* the last year and the last 7 days) before interview. The investigators ascertained a predominantly psychogenic aetiology for the current impairment, if a triggering psychodynamic conflict could be demonstrated, *and* an organic cause could be ruled out by anamnesis or former diagnostic results within the investigation period of 10 years between study A and C. The necessary complex diagnostic competences were ensured by the high standard of qualification of the investigators. Between 1979 and 1982 a sample of 600 randomly selected adults of the urban population of Mannheim (200 subjects belonging to each of the three birth groups of the years 1935, 1945 and 1955) was investigated [study A, 41] with regard to the frequency of psychogenic disorders. The case rate (point prevalence for the last 7 days) of psychogenic disorders was 26%. Among the cases women predominated. Lower class members, unpleasant life events, lack of partnership, conflicts in interpersonal relationships, strains in early childhood were significantly more frequent in cases than in non-cases. Between 1983 and 1985, 528 of the original 600 probands were re-investigated in a follow-up study [B-study, 42]. 57 probands refused the participation in the follow-up investigation, 12 could not be reached or had moved too far away, 3 had died. This follow-up investigation replicated the essential results of the A-study. A part of the B-sample was re-investigated for the third time between 1989 and 1991 (C-study). This study aimed at the specification of a model of aetiological relevant factors, which trigger the release and course of psychogenic disorders. For this reason, 292 probands suffering from medium psychogenic impairment were chosen out of the probands of the B-sample. The selection of this section of the B-sample, which is particularly sensitive to alterations of course, was carried out with the Impairment Score [41, 42]. For the last year the high-risk probands should have had at least in one cross section (A- and/or B-study) an IS value of ≥ 2 on the somatic and/or psychic subscale. Furthermore, the IS sum score for all three subscales should have the value of < 7 in the A- and in the B-study. By this procedure, the sample was homogenized in respect of the somatic and/or psychogenic severity of impairment, and more seriously disturbed ($n = 44$) or stabile healthy probands ($n = 192$) were excluded. This high-risk sample consisted of 292 probands. The probands were somatically and/or psychically impaired, but the impairment was not so severe that their social adaptation in professional life and family was acutely menaced. Of the selected 292 probands, 240 were investigated in the C-study for the third time. This high-risk sample was not representative for the adult urban population of Mannheim at the A- and B-study, but nevertheless it permits statement on the course of psychogenic impairment over 10 years. In addition it is not a inpatient sample, which is selected by uncontrollable criteria. To this extent this sample is appropriate to the investigation of some relevant questions for the medical care system.

Besides various other instruments, a symptom checklist was used in each cross section. The symptom checklist included, among others, seven neurologically relevant items: headaches, lumbar and cervical vertebral pains, vertigo, symptoms resembling extrapyramidal-hyperkinetic disturbances, pareses as well as less specific symptoms like sleep and concentration disturbances. The symptom group headache comprised above all vasomotoric and tension headaches, lower and upper back pains occurred mainly in the form of so-called non-specific dorsalgias, lumbagos and increased muscular tension. Vertigo symptoms were non-systematic and often an expression of a psychodynamic conflict on the basis of a phobia. The complaints exhibiting the greatest similarity to extrapyramidal-hyperkinetic symptoms were mainly functional tremor, disturbances of speech (e.g. stuttering) and tics.

Statistics

One aim of this investigation was the determination of the risk of developing a case of psychogenic disorder. For this purpose the probability was estimated by which a proband, who was exposed to the risk factor "psychogenic symptom", became a case of psychogenic disorder in a defined prevalence interval. The association between psychogenic symptom and case status was calculated as the relative risk, expressed as an odds-ratio [49]. The relative risk indicates how many times more frequently the characteristic "case of psychogenic disorder" is found in exposed probands (i.e. probands who suffer from a determined symptom) in comparison with non-exposed probands. The odds-ratios were calculated as follows:

$$\frac{(\text{PC with S}) \times (\text{PNC without S})}{(\text{PNC with S}) \times (\text{PC without S})},$$

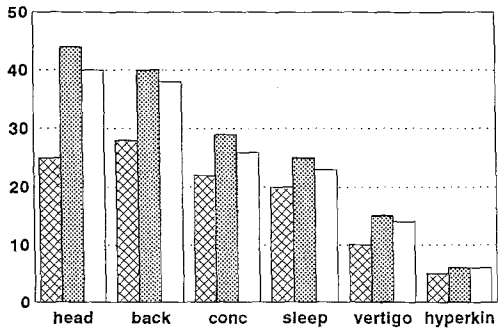
where PC = prevalence of cases, PNC = prevalence of non-cases, S = defined neurologically relevant psychogenic symptom.

To compare the frequencies of two alternative characteristics, like sex and existence of symptoms, the chi square test was calculated with $df = 1$. To compare e.g. the frequencies of the alternative characteristic (existence of neurological symptoms) in the three birth groups the chi square test was calculated with $df = 2$. This procedure was consistently carried out for all symptoms.

Results

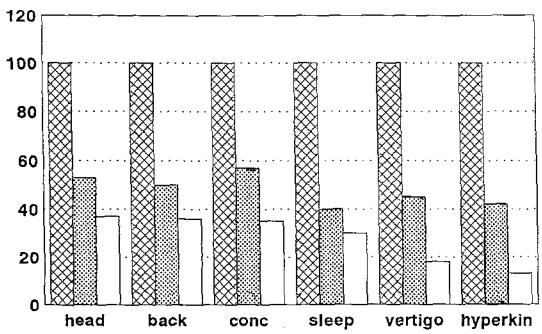
The prevalence of the neurologically relevant symptoms was assessed in each follow-up by different intervals: last 7 days, last year (without last 7 days), last 3 years (without last year and last 7 days).

Headaches, back pains and concentration disturbances were consistently the most frequent found impairments (Fig. 2). Sleep disturbances, vertigo and functional hyperkinesias were rare; psychogenic pareses were not found in our sample. The high prevalence of neurologically relevant impairments in connection with a psychodynamic conflict seems to be a remarkable finding.



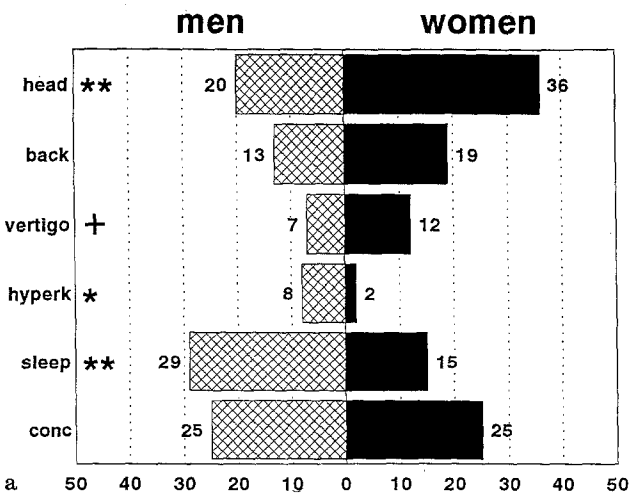
	head	back	conc	sleep	vertigo	hyperkin
last 7 days	25	28	22	20	10	5
last year[1]	44	40	29	25	15	6
last 3 years[2]	40	38	26	23	14	6

Fig. 2. Prevalence (%) by different intervals (last 7 days, last year, last 3 years) aggregated across 3 cross-sections; head = headache; back = back pain; conc = concentration disturbances; sleep = sleep disturbances; vertigo = functional, non-systematic vertigo; hyperkin = functional hyperkinesias



	head	back	conc	sleep	vertigo	hyperkin
A	100	100	100	100	100	100
A+B	53	50	57	40	45	42
A+B+C	37	36	35	30	18	13

Fig. 3. Symptoms in long-term course (10 years), stability and intraindividual refinding (%), 1-year prevalence of the C-sample ($N = 240$) in study A = 100%



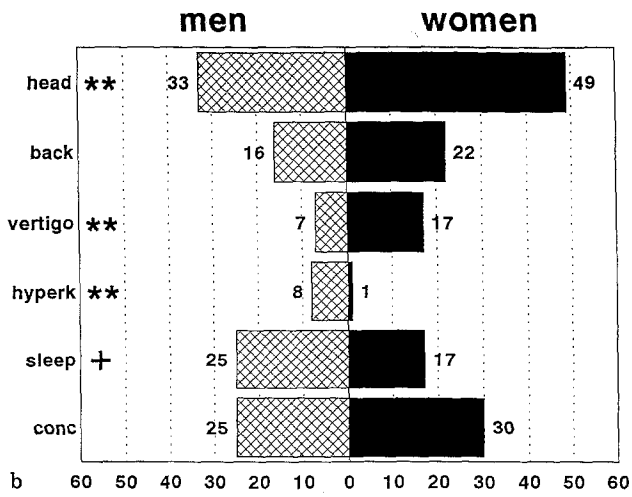


Fig. 4a. Sex-related prevalence (%) of symptoms (last 7 days); ** = $P < 0.01$, * = $P < 0.05$, + = $P < 0.10$. **b** Sex-related prevalence (%) of symptoms (last 3 years); ** = $P < 0.01$, * = $P < 0.05$, + = $P < 0.10$

As a next step we investigated the course characteristics of these symptoms. The stability of the long-term course was defined as an intraindividually continuous prevalence of the symptom. For the probands of the C-sample the same symptom had therefore to be found in each of the studies A, B, and C.

Headaches, back pains and sleep disturbances showed the highest intraindividual stability in longterm course. The subject-related refinding rate – here illustrated by the example of the 1-year prevalence – was by far the highest after 10 years for these symptoms (Fig. 3). This result was present in each of the prevalence intervals investigated. A low course stability and, probably, a high tendency to spontaneous remission or to symptom shift was found for vertigo, concentration disturbances and functional hyperkinesias. Particularly the two most frequent symptoms – headaches and back pains – have therefore also an unfavourable prognosis.

In a further step, we investigated if there were sex-related differences between the various symptoms. Indeed we found a sex-related distribution of the prevalence rates for each prevalence interval. The findings, for instance, for the last 7 days and the last 3 years are shown in Fig. 4.

While men significantly more often reported sleep disorders and functional hyperkinesias, the prevalence of headaches, back pains and vertigo was significantly higher for women. We found no clear sex-related affinity for concentration disturbances.

Prevalence rates of the investigated symptoms showed, as expected, mostly no clear age dependence. Only the back pain syndromes increased significantly over the course. An age dependence could be found both in the cohort distribution and in the course of the follow-up investigations (Table 1).

The presented data (statistically not significant) give the impression that younger probands more often complain about functional hyperkinesia (Table 2). For other complaints e.g. unspecific vertigo there was no clear age dependence (Table 3).

Finally we examined whether certain symptoms, on account of their severity, predispose the subjects to be classified as cases [ICD-9 diagnosis 300–309 and IS (40) ≥ 5 (last 7 days) assessed by psychodynamically trained

Table 1. Age-dependence of back pain, prevalence last year (%)

		Birth group						
		1955 ($n=72$)		1945 ($n=91$)		1935 ($n=77$)		P
A-Study	+	15	*(20.8)*	12	*(13.2)*	25	*(32.5)*	0.01
	−	57	(79.2)	79	(86.8)	52	(67.5)	
B-Study	+	23	*(31.9)*	46	*(50.6)*	31	*(40.3)*	0.05
	−	49	(68.1)	45	(49.4)	46	(59.7)	
C-Study	+	36	*(50.0)*	53	*(58.2)*	46	*(59.7)*	n.s.
	−	36	(50.0)	38	(41.8)	31	(40.3)	
P		0.001		0.000		0.002		

+ = Back pain; − = no back pain; $n=240$; $df=2$

Table 2. Age-dependence of functional hyperkinesia, prevalence last year (%)

		Birth group						
		1955 ($n=72$)		1945 ($n=91$)		1935 ($n=77$)		P
A-Study	+	7	*(9.7)*	4	*(4.4)*	2	*(2.6)*	n.s.
	−	65	(90.3)	87	(95.6)	75	(97.4)	
B-Study	+	9	*(12.5)*	10	*(11.0)*	3	*(3.9)*	n.s.
	−	63	(87.5)	81	(89.0)	74	(96.1)	
C-Study	+	5	*(6.9)*	3	*(3.3)*	1	*(1.3)*	n.s.
	−	67	(93.1)	88	(96.7)	76	(98.7)	
P		n.s.		n.s.		n.s.		

+ = Hyperkinesia; − = no hyperkinesia; $n=240$; $df=2$

Table 3. Age-dependence of unspecific vertigo, prevalence last year (%)

		Birth group						
		1955 ($n=72$)		1945 ($n=91$)		1935 ($n=77$)		P
A-Study	+	12	*(16.7)*	6	*(6.6)*	8	*(10.4)*	n.s.
	−	60	(83.3)	85	(93.4)	69	(89.6)	
B-Study	+	6	*(8.3)*	16	*(17.6)*	8	*(10.4)*	n.s.
	−	66	(91.7)	75	(82.4)	69	(89.6)	
C-Study	+	14	*(19.4)*	12	*(13.2)*	24	*(31.2)*	0.02[a]
	−	58	(80.6)	79	(86.8)	53	(68.8)	
P		n.s.		n.s.		0.000[a]		

+ = Vertigo; − = no vertigo; $n=240$; $df=2$

[a] Significances not alpha-adjusted

physicians and psychologists] of a psychogenic disorder. For this purpose for both items − case status and symptom − the odds-ratios for the four most frequent symptoms were calculated (Fig. 5).

The odds-ratios for sleep disorders and concentration impairments were consistently higher than those for headache and back pains. The subjects with sleep or concentration disturbances, exceeded significantly more often the case limit than did those which other symptoms. At

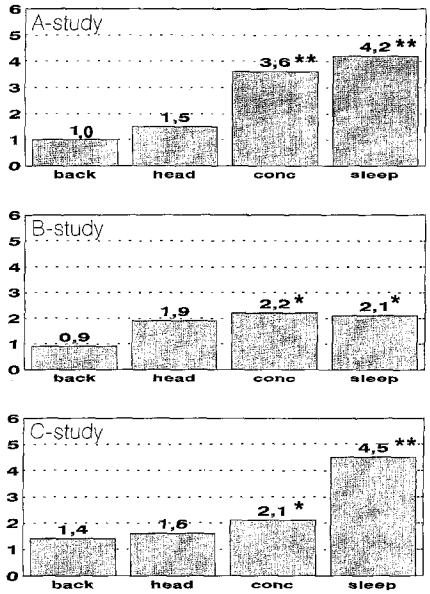


Fig. 5. Odds-ratios of case (of a psychogenic disorder: ICD-9 300-309, IS ≥5 last 7 days) and psychogenic symptom (last 7 days); ** = $P<0.01$, * = $P<0.05$

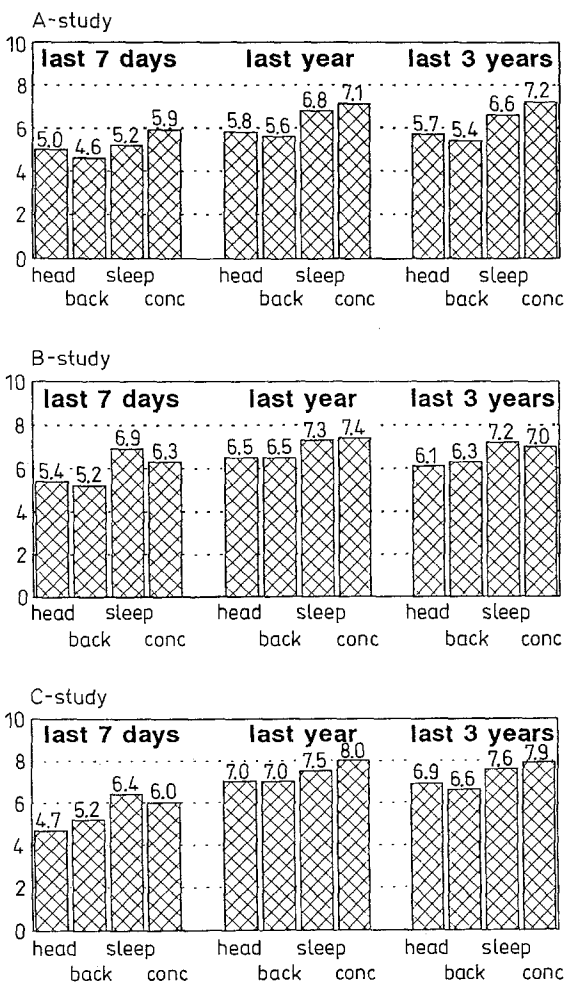


Fig. 6. Number of all additional psychogenic symptoms in the four most frequent symptom groups (headache, back pain, sleep and concentration disturbances)

first, we did not understand the correlation between sleep and concentration disturbances and the case status. So we examined whether subjects with such symptoms had generally been more complaining.

Indeed we found that these subjects had consistently suffered more often, not only from neurologically relevant, but also from other psychogenic symptoms. This effect is not very pronounced, but provable at each study or prevalence interval. Sleep and concentration disturbances are particularly often linked to other psychogenic symptoms (Fig. 6).

Discussion

The results of our epidemiologic long-term follow-up study revealed the frequency and importance of neurologic complaint patterns for the symptomatic expression and communication of a psychodynamic conflict. Nevertheless, it remains indispensible that all the mentioned symptoms first must be thoroughly examined on the somatic level.

Especially headaches, back pains and concentration disturbances were found in all cross sections most frequently. The highest prevalence rate was found for the 1-year interval, probably due to increasing uncertainty of memory in the assessment of impairments 2 or 3 years previously. Headaches, back pains and sleep disturbances showed the highest intraindividual stability in their long-term course. The significance of these symptoms is rather evident. Of all symptoms studied they can be regarded as expressions and/or as best indicators of a psychodynamic basic conflict. In the patients' view they represent efficient, socially compatible symptoms or complaint patterns, which can fulfil the intended purpose [28]. Vertigo, concentration disturbances and functional hyperkinesia are more diffuse, fluctuating in their clinical manifestation and less persistent in long-term course. Therefore, each one of these symptoms considered in a cross-sectional view is quite difficult to interpret as indicative of a psychodynamic conflict. However, it is exactly this instability of the long-term course that can indicate a psychogenic component.

Further we found sex-related differences between the symptoms. Under the impact of a psychodynamic conflict women seem to express themselves preferably with headaches, vertigo and back pain. Men tend to translate their psychodynamic conflicts into symptoms like sleep disorders and functional hyperkinesias. It may be debated to what extent these complaint patterns are due to role stereotypies [40].

Only back pains showed a significant age-dependence and increase over the course. This effect might be due to the secondary structural lesions and the structure-alterating processes determined by chronic paravertebral muscular tension and dysfunctional strain of the spine; these are processes which may well be psychogenically influenced [13, 16–20, 36]. In older subjects, the psychogenic expression of vertebral complaints develops along with the somatic process of aging. However, this should not lead to the premature conclusion of an exclusively organic cause of these symptoms.

Sleep and concentration disturbances have a specific value in classifying a proband as a case of psychogenic disorder. Further, probands who suffered from sleep or concentration disorders, indicated more often additional, non-neurological psychogenic symptoms. Therefore these symptoms probably have a stronger power as indicators of a psychogenic background. As a consequence the patients who complain of unspecific sleep and concentration disturbances should be carefully examined with regard to a possible psychodynamic conflict and eventually be motivated to accept psychotherapy. In this way the large and inadequate utilization of somatically oriented services by psychogenically affected patients of the neurological phenotype could be reduced. Also the bad long-term prognosis of these relatively stable symptoms could be optimized.

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