

An Epidemiological Study of Neurasthenia in Chinese-Americans in Los Angeles

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This study examined the prevalence and clinical features of ICD-10-defined neurasthenia (NT) in Chinese-Americans and its relations to other psychiatric disorders. In this community epidemiological survey, the enhanced Composite International Diagnostic Interview (CIDI), with a supplemental NT module, was administered to 1,747 Chinese-Americans, selected with a stratified cluster sampling method. The SCL-90-R was also used for measuring psychiatric morbidity and symptoms. Dimensions of social stress and social support were measured by established instruments. A total of 112 ICD-10 NT subjects (6.4%) were identified. Of these, 63 (56.3%) did not experience any current and lifetime DSM-III-R diagnoses, yielding a 12-month or lifetime prevalence rate of "pure" NT of 3.61%. This rate was much higher than any of the other psychiatric disorders in this sample. Compared

with normal subjects, "pure" NT subjects had significantly higher SCL-90-R total and factor scores, experienced more psychosocial stress, and perceived less social support ($P < .05$ or $.01$). Compared with subjects with depression and anxiety disorders, "pure" NT cases reported significantly less SCL-90-R psychological symptoms ($P < .05$ or $.01$), but had a strikingly similar elevation in the somatization subscale score. These data suggest that NT is a distinctive clinical condition overlapping only partially with the other better recognized diagnostic entities. In view of its high prevalence and the salience of its impact on the health of those afflicted, it is imperative that concerted research efforts be made to further elucidate the temporal stability, natural course, and outcome of such a condition.

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NEURASTHENIA (NT), originally coined by George Beard^{1,2} over a century ago, is characterized by either fatigue or weakness and is often accompanied by a variety of physical and psychological symptoms, including poor concentration and memory loss, irritability, excitability, diffuse aches and pains, gastrointestinal problems, sleep disturbances, sexual dysfunction, and dizziness. The term has fallen progressively out of favor among professionals and the general public in the West since the 1940s, and it was omitted from the third and fourth editions of the American Psychiatric Association's DSM.^{3,4} In sharp contrast, the concept of NT continues to be widely accepted and frequently used by patients, professionals, and the general public in modern-day Chinese societies. This remarkable cross-national and cross-cultural discrepancy in psychiatric diagnoses has generated intense and repeated debates in the past decade.⁵⁻⁸ At issue is the nosologic status of NT: Does it represent a discrete syndrome, or is it a vague, nonspecific term used by patients to convey their distress that could be more properly classified with diagnostic systems such as the DSMs?

As one of the first to systematically examine these issues, Kleinman⁵ found in the early 1980s that the overwhelming majority (87%) of Chinese psychiatric patients with a clinical diagnosis of NT could be reclassified as cases of major depression (MD) according to DSM-III criteria. These and other major research findings generated serious doubts about the validity of the concept of NT. While agreeing with Kleinman and others regarding the tendency for the past overuse of NT as a

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diagnostic term in mainland China, many Chinese psychiatrists continued to believe that a significant number of their patients are still best characterized by a more narrowly defined NT. This led to intense and prolonged debates and efforts in the operational definition of the concept, eventually resulting in its being retained in the Chinese Classification of Mental Disorders—Second Edition (CCMD-2) in the late 1980s.^{9,10}

Similarly, despite the strong influence of the DSM-III, NT continued to be a clinically salient diagnostic concept in many Third-World and European countries, leading to the retention of NT in the current edition of the World Health Organization ICD-10¹¹ (Appendix), whose criteria overlap substantially but not completely with CCMD-2.^{9,12} In contrast, despite the pressure to render the American and international diagnostic systems more compatible with each other, the DSM-IV Task Force had resisted such a move, citing a lack of research-based data as the reason.³ NT thus represents one of the most prominent areas of disagreement between these two major diagnostic systems.^{3,11}

Perhaps as a reflection of the fluidity of the definition of NT in the past, this condition has been reported to be extremely prevalent in Chinese societies, both in clinics and in communities.¹³⁻¹⁵ This is especially true before the 1980s. Up to 80% of psychiatric outpatients were given NT as the primary diagnosis, and a number of large-scale community-wide epidemiological surveys^{5,14,15} reported prevalence rates of NT ranging from 6% to 10%. Reflecting the effect of the use of operationalized diagnostic criteria and the increased awareness of depressive disorders by Chinese psychiatrists,^{6,7} the use of NT as a diagnostic category has decreased precipitously in recent years. However, even so, many patients in China continued to suffer from a condition that appeared to be best characterized as NT. For example, recent surveys found a NT prevalence rate of 5.5% to 6.3% in clinical settings,¹⁴ and one nationwide epidemiological study found a rate of 1.3% in the general population.¹⁵

Similarly, in a pilot study, we assessed 29 Chinese students and visiting scholars enrolled at the University of California at Los Angeles¹² with a modified version of a structured interview schedule that allowed for generation of both DSM-III-R diagnoses and the CCMD-2 diagnosis of NT. Of these 29, two (6.9%) were identified as suffering

from a CCMD-2-defined NT; neither fulfilled any DSM-III-R diagnoses. These initial experiences encouraged us to further refine our efforts in incorporating operationally defined NT criteria into standard research instruments and in using such assessment tools in the epidemiological study described here, as well as a number of clinical and ethnographic studies that are still ongoing.

To the best of our knowledge, despite the availability of operationalized criteria for NT such as those included in the ICD-10, no epidemiological study has used such contemporary developments to systematically determine the distribution and characteristics of this condition in the community setting. This study thus represents the first effort to examine the prevalence, symptom profiles, and psychosocial correlates of ICD-10-defined NT in comparison to other psychiatric disorders, as well as their degree of overlap.

METHOD

Data Collection

The target population for the study included Chinese immigrants and native-born residents of the United States. The study was limited to adults (ages 18 to 65) who reside in Los Angeles County and who speak English or one of the two most common Chinese dialects, Mandarin and Cantonese. Since Chinese-Americans comprised less than 3% of the total population in Los Angeles County in 1990, we selected census tracts where Chinese-Americans represented at least 6% (6% to 72.3%) of the population. According to the 1990 Census, Chinese who were living in these tracts amounted to approximately 61.1% of the Chinese in the county. The sample design is the most sophisticated to be used for an Asian-American group, and has been successfully applied in similar studies involving sampling of African-Americans.^{16,17}

Sampling proceeded in three stages: (1) selection of tracts, (2) selection of blocks within tracts, and (3) selection of households within blocks. Selection in the first two stages was within probabilities proportional to size that achieve self-weighting overall. Even though selection probabilities varied within each stage, the ultimate selection probabilities were the same for all Chinese households. This precludes the need for weighting survey data when making simple estimates at the household level and minimizes the variability of weights for estimates at the personal level. Within each census tract, sampling was stratified by percent Chinese and racial-ethnic composition. Median income and educational attainment were taken into consideration with the use of probability lattice sampling.¹⁸ A detailed description of the sampling strategy will be available in a companion publication.

Bilingual lay interviewers, fluent in Mandarin and/or Cantonese as well as English, were recruited for this study. All recruits had at least some college education, but had no formal training in clinical diagnoses. They have reading and writing ability in both languages. After complete description of the

study to the subjects, written informed consent was obtained. The English and Chinese versions of interview schedules that contained different instruments used in this study were prepared. The interviews were conducted in English or Chinese (Mandarin or Cantonese) using either the English version or Chinese version of the interview schedule, depending on the respondent's language preference. The interview process lasted approximately 90 minutes. Data collection began on a total of 16,916 households that were visited and screened to obtain 1,747 completed interviews. The response rate was 82%, which is comparable to the figure obtained in the National Comorbidity Study.¹⁹

Instruments

The enhanced Composite International Diagnostic Interview. The University of Michigan version of the Composite International Diagnostic Interview (UM-CIDI) was used as the major diagnostic instrument. As a supplement to the CIDI, a NT module was constructed with the ICD-10 diagnostic criteria (Appendix) for NT following the same format of the CIDI. The CIDI with its supplement is a structured interview schedule based on the Diagnostic Interview Schedule and designed to be used by trained interviewers who are nonclinicians. The CIDI is particularly useful for describing the co-occurrence of two or more disorders.²⁰ Its Chinese version has demonstrated good interrater reliability,²⁰ test-retest reliability,^{20,21} and validity for almost all diagnoses in different countries including Taiwan, Hong Kong, and mainland China.^{10,22-24} The CIDI supplement of NT had good translation and back-translation reliability. The interrater reliability of the supplement of NT diagnosis was tested using a joint interview method. Based on the responses of the subject, the interviewer and observer make their own judgments blindly in the whole study. Twelve Chinese patients with a chief complaint of chronic fatigue were recruited for this reliability study. The result demonstrated satisfactory interrater reliability, with a κ value of 0.92 between these two interviewers. Unlike the other CIDI modules, which include both current and lifetime diagnoses, the newly constructed NT module includes only a current diagnosis of NT.

SCL-90-R. The SCL-90-R^{25,26} has 90 items that can be grouped into nine different factors. The SCL-90 is a self-report scale for measuring psychological and somatic distress of the patient. It has been translated into Chinese and validated in mainland China, Hong Kong, and Taiwan.²⁷⁻²⁹

Social support. Social support was measured by items derived from the UM-CIDI, which were derived from previous scales for measurement of affective support.³⁰ This instrument assesses perceived satisfaction with three types of social support: spouse, family or relatives, and friends.

Social stress. The survey included measurements of (1) recent negative life events and (2) daily hassles. Recent negative life events were assessed by a list of 10 negative events that occurred within the past 12 months, including trouble with the law, being robbed, and the break up of a relationship. A modified version of the Daily Hassles Scale³¹ measured 16 areas of everyday strains, including job hassles, interpersonal conflicts, and inconveniences typical of urban living such as traffic, pollution, crime, interracial conflict, and physical conditions of the neighborhood.

All instruments used in the study were combined as an interview book both for the English version and Chinese

version. The interview responses were coded in the book and input into a computer for data analysis.

Statistical Analysis

Considering that the nonrespondents could not be uniformly distributed among the subpopulations (such as Chinese strata) and the number of persons eligible for interview varies from household to household, weights were adjusted at the respondent level to minimize potential bias in the data analysis. The weights were set inversely proportional to the product of completion rate times the number of eligible members in the household. The factor score of SCL-90-R was calculated by the sum of the item scores for the factor divided by the number of items of the factor. The scores for satisfaction with social support from spouse, family/relatives, and friends and the levels of stress in 16 different areas measured by the Daily Hassle Scale were also calculated in a similar way as SCL-90 factor scores. In addition, the number of negative life events that the subject experienced within the 12 months before the interview was summed as a frequency of experienced negative life events. Chi-square testing with Fisher's correction (if the number of cases in any cell is < five) was used for categorical variables among pure NT subjects (without any current and past DSM-III-R diagnosis), normal subjects (without any current and past diagnosis based on DSM-III-R criteria and ICD-10 criteria for NT), pure depression (current MD and/or dysthymia without any other current DSM-III-R diagnoses and current NT of the ICD-10), and pure anxiety disorders (ADs) (current ADs without any other current DSM-III-R diagnoses and current NT of the ICD-10). The *t* test and two group comparisons were applied for continuous variables such as scores for the SCL-90-R, level of social support, and stress among groups. The *t* test examined equality of the means for each of the two groups. When the variances of the groups are significantly different, the assumption of an unequal variance is used for calculation of *P* values for the *t* test.

RESULTS

Prevalence Rates of NT in the Community

Of 1,747 subjects interviewed, 112 cases (6.4% of the total sample) manifested symptom patterns compatible with a current ICD-10 NT diagnosis. These 112 cases were further divided into two groups, "pure" NT and mixed NT. "Pure" NT indicates that the patient met the ICD-10 NT diagnosis but not any DSM-III-R current and/or lifetime diagnosis. Mixed NT was defined such that the patient met ICD-10 NT and other DSM-III-R current and/or lifetime diagnoses. The 12-month and lifetime prevalence rates were calculated respectively for these two groups (Table 1) and compared with prevalence rates of other psychiatric conditions. The 12-month prevalence rate of "pure" NT without a current DSM-III-R diagnosis was 4.98%. If lifetime DSM-III-R diagnoses were excluded, the 12-month prevalence rate of "pure" NT was 3.61%, which was still higher than any discrete

Table 1. Diagnostic Overlap of NT With DSM-III-R Diagnoses (n = 112)

Diagnosis	Overlap With Current DSM-III-R Diagnosis			Overlapping With Lifetime DSM-III-R Diagnosis		
	Cases	%	Prevalence	Cases	%	Prevalence
"Pure" NT	87	77.7	4.98	63	56.2	3.61
Mixed NT	25	22.3	1.43	49	43.8	2.80
With MD	14	12.5	0.80	22	19.6	1.26
With dysthymia	1	0.9	0.06	9	8.0	0.52
With GAD	8	7.1	0.46	12	10.7	0.69
With PD	0	0.0	0.00	0	0.0	0.00
With phobia	2	1.8	0.11	6	5.4	0.34
Combined diagnoses						
With depression (MD/dysthymia)	15	13.4	0.86	31	27.7	1.77
With AD (GAD/PD/phobia)	10	8.9	0.57	18	16.1	1.03

DSM-III-R-defined mental disorders (Fig 1), including MD (3.44%), phobias (1.67%), dysthymia (0.89%), generalized anxiety disorder ([GAD] 0.99%), and panic disorder ([PD] 0.17%).

Overlapping of NT With Other Psychiatric Conditions

Table 1 shows that 25 of 112 NT cases (22.3%) also had at least one current DSM-III-R diagnosis. Among these 25 mixed NT cases, 14 subjects had MD and one fulfilled the criteria for a diagnosis of dysthymia. When the two depressive conditions were combined, 15 cases (13.4%) were comorbid for current depressive and NT conditions. The other 10 cases (8.9%) were comorbid for one of the ADs; these include eight GADs and two phobias. It should be noted that some of these cases have more than one DSM-III-R diagnosis. Thus, if we count by diagnostic overlapping but not by principal diagnosis for individuals, the percentage of overlapping for certain categories will be larger than the numbers shown in Table 1. For example, four of these 14 MD cases also met the diagnostic criteria for dysthymia, manifested "double depression." If we counted by diagnoses instead of individual principal diagnosis, the overlapping of NT with dysthymia would be 4.5% (five of 112) instead of

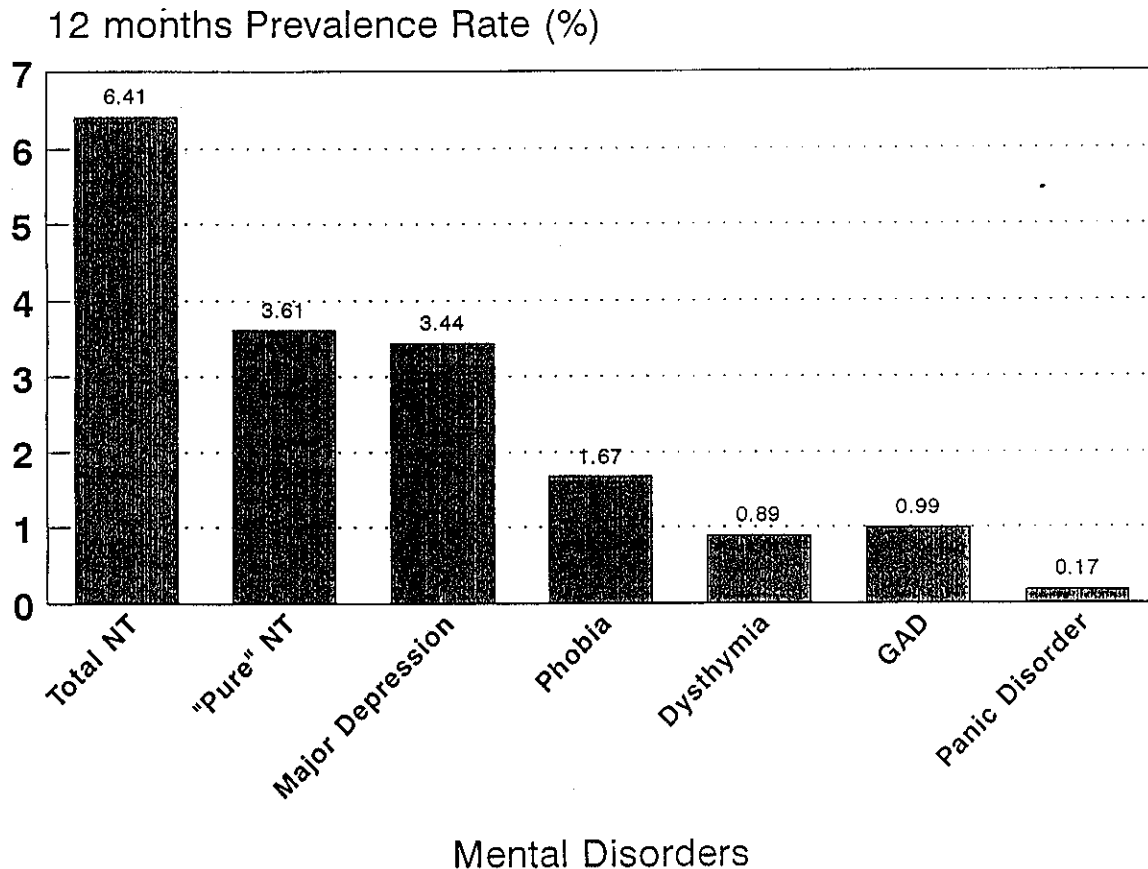


Fig 1. Prevalence of mental disorders in Chinese-Americans.

0.9% (one of 112). The left panel of Fig 2 represents these overlaps between NT and current diagnoses of both depression and ADs.

Some NT subjects without current diagnoses of depression or ADs nonetheless had suffered from these conditions in the past, suggesting that these cases could be regarded as manifestations of a residual phase of previously existing psychiatric conditions. If so, these cases would represent "false-positives" for the "pure" NT category. To minimize such a risk, we further defined "pure" NT as cases without lifetime DSM-III-R diagnoses. Table 1 shows that 63 of 112 (56.2%) were "pure" NT cases who had no lifetime DSM-III-R diagnosis and 49 of 112 (43.8%) NT cases had at least one lifetime diagnosis on the DSM-III-R. Among these mixed NT cases, 22 had MD and nine had dysthymia, yielding a total of 31 (27.7%) with lifetime diagnoses of one of the depressive disorders. Eighteen (16.1%) of these 49 mixed NT subjects had a lifetime diagnosis of AD. The right panel of Fig 2 shows this overlap between NT and lifetime diagnoses of both depression and ADs.

Comorbidity of Current DSM-III-R Psychiatric Conditions With NT

The total sample (N = 1,747) from this community survey included the following cases with current DSM-III-R principal diagnoses: 60 MD, five dysthymia (11 others overlapped with MD), 17 GAD, three PD, and 29 phobia. Among those diagnosed with current psychiatric conditions, 23.3% (14 of 60) of current MD patients and 47.1% (eight of 17) of current GAD patients exhibited symptoms compatible with a diagnosis of NT in terms of the ICD-10. In addition, 6.9% (two of 29)

of phobia patients and 20.0% (one of five) of dysthymia patients also manifested a full clinical picture of NT. In combination, the comorbidity for current depression (MD and/or dysthymia) with NT was 23.1% (15/[60 + 5]), and for all current ADs with NT it was 20.4% (10/[17 + 3 + 29]). In total, psychiatric conditions based on the DSM-III-R overlapped with NT of the ICD-10 was 21.9% (25/[65 + 49]).

Sociodemographic Characteristics of NT

"Pure" NT subjects who had no lifetime DSM-III-R diagnosis were typically middle-aged men or women, with no evident gender preference (Table 2). The majority of them were married and foreign-born, had been in the United States for more than 10 years, and had an education of more than 12 years. Sociodemographic characteristics were similar in the 63 "pure" NT subjects and normal subjects, pure depressives, and pure AD cases. Interestingly, the "pure" NT group had more subjects whose religion beliefs were Western culture-oriented (20.7% Protestant or Roman Catholic) compared with normal (37.4% traditional Chinese or Buddhist and 19.9% Protestant or Roman Catholic) and pure AD (37.5% traditional Chinese or Buddhist and 8.3% Roman Catholic) subjects.

SCL-90 Symptom Profiles and Psychosocial Correlates of NT

Table 3 and Fig 3 show that these 63 subjects with "pure" NT had significantly higher SCL-90 global severity index and factor scores than normal subjects ($P < .05$ or $.01$). As compared with pure depressive disorders and pure ADs, an elevated

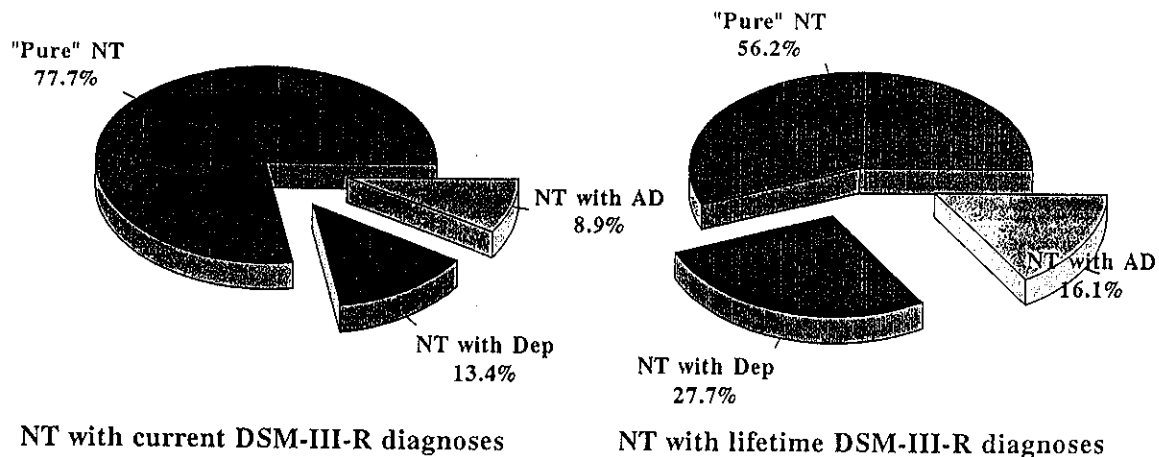


Fig 2. Overlap of NT with other psychiatric conditions.

Table 2. Demographic Information for Normal, Pure Depression, Pure AD, and "Pure" NT Subjects

Variable	Normal (n = 1,466)		Pure Depression (n = 48)		Pure AD (n = 24)		"Pure" NT (n = 63)	
	Cases	%	Cases	%	Cases	%	Cases	%
Age, yr (mean ± SD)	37.3 ± 12.2		39.1 ± 13.8		37.2 ± 17.5		38.2 ± 14.4	
Education (yr)								
≤11	286	19.5	13	27.8	10	41.7	8	12.7
12	305	20.8	11	22.6	2	8.3	12	19.0
13-15	314	21.4	8	17.6	4	16.7	17	27.0
≥16	561	38.3	16	32.1	8	33.3	26	41.3
Gender								
Female	721	49.2	14	29.9	18	75.0	29	46.0
Male	745	50.8	34	70.1	6	25.0	34	54.0
Marital status								
Married	961	65.6	26	54.2	11	45.8	40	63.5
W/S/D*	57	3.9	4	8.2	3	12.5	4	6.3
Single	448	30.6	18	37.6	10	41.7	19	30.2
Place of birth								
US	66	4.5	5	10.1	1	4.2	9	14.2
Foreign	1,400	95.5	43	89.9	23	95.8	54	85.8
Length of stay in US (yr)								
<5	334	22.8	10	20.8	9	37.5	17	27.0
5-10	437	29.8	12	25.0	4	16.7	11	17.5
>10	695	47.4	26	54.2	11	45.8	35	55.6
Religion								
Traditional	119	8.1†	1	2.1	4	16.7‡	2	3.2
Buddhist	430	29.3	19	39.6	5	20.8	11	17.5
Protestant	238	16.2	7	14.6	0	0.0	21	33.3
Roman Catholic	54	3.7	1	2.1	2	8.3	4	6.3
None	591	40.3	16	33.3	11	45.8	24	38.1
Other	34	2.3	4	8.3	2	8.3	1	1.6

NOTE. †t test was used for continuous variables, and chi-square test was used for categorical variables. When the expected number in a cell is <5, Fisher's exact test was performed using unweighted data.

*Widowed/separated/divorced.

†"Pure" NT was significantly different from pure normals (chi-square = 16.14, $P < .01$).

‡"Pure" NT was significantly different from pure anxiety (2-tailed Fisher's exact test, $P < .05$).

somatization factor score in "pure" NT was similar to that in pure depressives but significantly lower than in the pure AD group ($P < .05$). Most psychological dysfunction factor scores and the global severity index were significantly lower in "pure" NTs compared with pure depressives and pure ADs ($P < .05$ or $.01$). Compared with normal subjects, subjects with all three clinical conditions reported more life events, experienced significantly higher stress levels in job hassles and other hassles, and perceived less satisfactory social support ($P < .05$ or $.01$). Except for the finding that pure depressives reported less social support from relatives than "pure" NTs, there were no significant differences among the three conditions in regard to all other psychosocial factors ($P_s > .05$).

DISCUSSION

The results from this study, especially the high prevalence rate of "pure" NT (3.61%), represent a major surprise that deserves careful scrutiny. In the

early 1980s, a number of researchers⁵⁻⁸ clearly demonstrated that NT as a diagnostic term had been vastly overused in China, and many patients previously labeled as NT could be reclassified with one of the DSM-III diagnoses. These findings cast serious doubts about the distinctiveness and validity of the concept of NT, and led to a widely held assumption that previous reports of the high prevalence of NT were predominantly the result of the ambiguity and lack of operational diagnostic criteria for this condition. If such an assumption were correct, the prevalence of "pure" NT should become relatively minuscule when well-defined operationalized diagnostic criteria and structured interviews are used as in this study. In contrast to this prediction, our data demonstrated that even with the well-defined criteria and structured interview, "pure" NT remained the most prevalent condition, with a substantially higher prevalence rate in comparison to all the other conditions included in the study. In other words, without application of

Table 3. Symptom Profile of SCL-90-R Between "Pure" NT and Normal, Pure Depression, and Pure AD

Parameter	NM (n = 1,466)	DEP (n = 48)	ANX (n = 24)	NT (n = 63)	Tow Group Comparisons
SCL-90-R scale scores					
Global Severity Index	0.16 ± 0.18†	0.54 ± 0.47†	0.53 ± 0.34†	0.30 ± 0.22	NM < NT < DEP & ANX
Somatization	0.16 ± 0.26†	0.42 ± 0.38	0.59 ± 0.61*	0.40 ± 0.35	NM < NT < ANX
Obsessive-compulsive	0.29 ± 0.33†	0.86 ± 0.73†	0.76 ± 0.48†	0.48 ± 0.41	NM < NT < DEP & ANX
Interpersonal sensitivity	0.16 ± 0.25†	0.53 ± 0.53†	0.50 ± 0.53†	0.27 ± 0.29	NM < NT < DEP & ANX
Depression	0.20 ± 0.27†	0.84 ± 0.78†	0.58 ± 0.43*	0.38 ± 0.36	NM < NT < DEP & ANX
Anxiety	0.09 ± 0.18†	0.50 ± 0.73†	0.55 ± 0.53†	0.22 ± 0.30	NM < NT < DEP & ANX
Hostility	0.15 ± 0.24†	0.44 ± 0.62	0.29 ± 0.33	0.27 ± 0.35	NM < NT
Phobic anxiety	0.09 ± 0.18†	0.20 ± 0.33	0.50 ± 0.56†	0.20 ± 0.27	NM < NT < ANX
Paranoid ideation	0.17 ± 0.27†	0.43 ± 0.58	0.50 ± 0.58*	0.27 ± 0.39	NM < NT < ANX
Psychoticism	0.08 ± 0.17*	0.28 ± 0.45†	0.32 ± 0.39†	0.12 ± 0.15	NM < NT < DEP & ANX
Level of stress					
No. of life events	0.39 ± 0.69†	0.83 ± 1.07	0.77 ± 1.09	0.70 ± 0.81	NM < NT
Job hassles	1.81 ± 2.09†	3.06 ± 3.81	3.02 ± 3.53	3.07 ± 2.73	NM < NT
Other hassles	3.95 ± 3.46†	3.20 ± 3.10	5.41 ± 4.37	5.33 ± 3.68	NT > DEP & NM
Social support factor scores					
Spouse	0.78 ± 0.14†	0.64 ± 0.31	0.73 ± 0.24	0.69 ± 0.18	NT < NM
Relatives	0.65 ± 0.19	0.51 ± 0.25*	0.55 ± 0.21	0.61 ± 0.17	NT > DEP
Friends	0.66 ± 0.18	0.60 ± 0.23	0.68 ± 0.13	0.61 ± 0.18	NT < NM

NOTE. "Pure" NT was compared with the other 3 groups.

Abbreviations: NM, normal; DEP, pure depression; ANX, pure CAD; NT, "pure" NT.

*P < .05.

†P < .01.

ICD-10 NT criteria in this epidemiological study, these "pure" NT subjects would be classified either normal subjects or one of the somatoform disorders, such as undifferentiated somatoform disorder

(USD), according to the DSM-III-R. The results strongly suggested that the DSM-III-R and current DSM-IV may not fully cover the psychiatric conditions and may misdiagnose a significant proportion

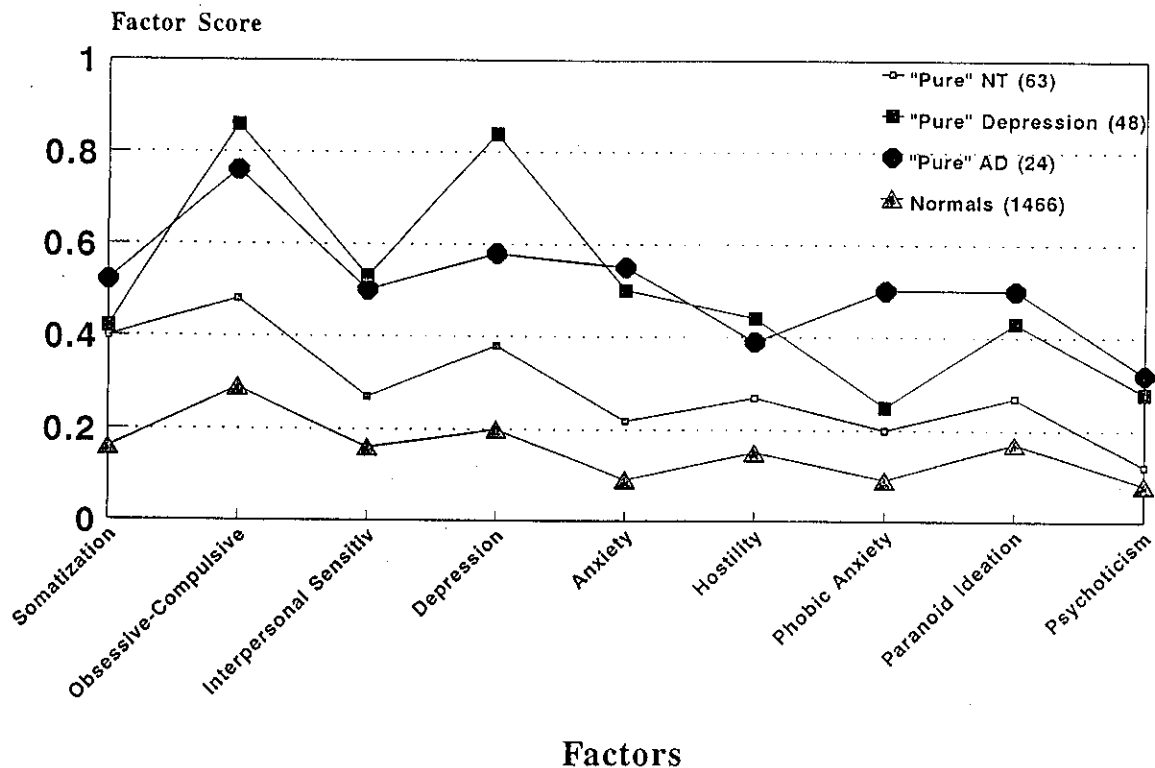


Fig 3. Symptom profile of SCL-90 among "pure" NT, pure depression, pure AD, and normal subjects.

of subjects with the NT clinical pattern, at least in Chinese communities as shown in this study.

Another prevailing assumption in the field has been that NT is largely a "somatized" form of depression or other better-characterized psychiatric syndromes. Following this assumption, we initially hypothesized extensive overlap between NT and other diagnoses as defined by the DSM-III-R. In contrast, the data showed that the extent of such overlap was not as apparent as reported.⁵⁻⁷ Current and lifetime diagnosis of MD occurred in only 12.5% and 19.6% of NT patients, respectively (Table 1). When all major DSM-III diagnoses were considered, these figures increased to 22.3% and 43.8%, respectively. Thus, the majority of NT patients (77.7%) were distinctively separate from any of the DSM-III-R psychiatric syndromes when current symptom profiles were considered, and more than half of them (56.2%) did not overlap with any of these diagnoses, even when current and past history were taken into consideration (Table 1 and Fig 2).

Interestingly, when the degree of overlap was examined from another angle of the other diagnoses, the degree of overlap of psychiatric conditions with NT is even higher. For example, although 13.4% of NT cases also suffered from MD and/or dysthymia, 23.1% of current depressives manifested a NT symptom profile that would also allow them to be classified as having NT. Also, only 8.9% of NT cases exhibited ADs. In contrast, 20.4% of subjects with current ADs manifested NT. This finding indicated that (1) the overlap between NT and depressive disorders and ADs was not too large to be undifferentiable and (2) the proportion of the overlap will be changed if the diagnostic group of the study is changed.

NT patients had the highest factor score in somatization. They are relatively more distressed by somatic symptoms such as sleep disturbance, fatigue, and pains. This leads them to be more likely to seek help from primary care instead of mental health clinics. It might be one of the reasons that most psychiatrists and mental health professionals believe that NT is rarely seen these days and therefore is no longer valid in mental health classification. In contrast, patients with depression and/or anxiety disturbances are more likely to see mental health professionals. When they manifested the NT symptom pattern, they were considered to

be "masked" depression or "somatized" ADs. Such sampling bias may mislead psychiatrists to believe that NT was largely reclassifiable in the context of the DSM-III-R system, exaggerating the impression of the nonspecificity of NT as a syndrome only.

In the current DSM schema (DSM-III-R and DSM-IV), NT patients are lumped into the category of USD, a condition that is below the threshold for somatization disorder.³ Although the definition of this diagnosis certainly is loose enough to accommodate all cases of NT, it is doubtful if the use of such a term does justice to a large number of "pure" NT cases. As conceptualized, USD is clearly a residual category that lacks the specificity and respectability of other, more fully elaborated diagnoses, including somatization disorder, pain disorder, and body dysmorphic disorder. Its vagueness discourages serious attention from researchers and clinicians. Indeed, at least partly because of this, little research has been performed on such a condition.

Due to its close link with somatization disorder (hysteria or Briquet's syndrome), USD is commonly regarded as an "abortive" or "minor" form of the former. Thus, characteristics commonly associated with somatization disorder, such as resistance to intervention, histrionic behavioral patterns, and inappropriate and frequent use of medical resources,^{3,32,33} may be automatically assumed to also exist in patients labeled as USD. The literature on NT^{6-9,13} and our findings from a clinical and anthropological study of NT¹² painted a very different picture. Unless convincing data emerge in the future to suggest differently, it may be misleading to artificially link NT with somatization disorders as currently defined in DSM-IV.

The term somatization implies the transformation of psychological suffering into somatic manifestations and, at the same time, the existence of an unconscious effort in replacing the former with the latter. Rooted in earlier psychoanalytic thinking, such speculations have never been empirically tested. Findings derived from this study, augmented by our clinical experiences, indicate that those NT patients (as well as practically all other psychiatric diagnoses) concurrently experience somatic and psychological symptoms, and there is no evidence of a process of transformation or conversion that is implied by the term somatization. To

diagnose these cases as somatization would thus be misleading and potentially damaging to the doctor-patient relationship.

To what extent are this study's findings applicable to other cultural groups? To the best of our knowledge, no research comparable to this in its design has yet been conducted outside of Chinese populations. However, persistent and medically unexplained fatigue is an extremely common complaint in community surveys conducted in many Western communities, with prevalence rates ranging from 7% to 30%. Since persistent fatigue is one of the main criteria for NT as defined by the ICD-10,¹¹ it is reasonable to believe that ICD-10 NT would also be highly prevalent in other Western and non-Western cultural groups. Such cross-cultural validation would argue strongly against regarding NT as a "culture-bound syndrome," as currently reflected in the DSM-IV manual.

Similarly, our findings of limited overlap between NT and other psychiatric syndromes and the relative distinctness of NT should also be examined in other cross-cultural boundaries. Such comparisons would provide us with valuable information regarding if and to what extent this is true in cultural groups other than Chinese. Previous stud-

ies on chronic fatigue syndrome (CFS), a condition conceptually related to NT, reported a higher degree of overlap between CFS and other psychiatric diagnoses, especially MD.³⁴ However, those studies were conducted on patient populations. In addition, the definition of CFS as proposed by the Centers for Disease Control is stricter than NT. Thus, by definition, CFS patients tend to be sicker than those identified by ICD-10 NT criteria, and may be more likely to be comorbid with other psychiatric syndromes.

The relatively high prevalence and distinctiveness of NT in contrast to other psychiatric syndromes argues for the inclusion of NT into our official classification system, such as has been accomplished in the ICD-10. As has happened with other diagnostic categories (e.g., PD in the early 1980s), such recognition would greatly facilitate research efforts that are important for the optimal care of these patients. These future research efforts should include studies that elucidate the temporal stability, long-term outcome, family morbidity pattern, and neurobiological correlates of the condition, and examine the effect of various treatment methods that might provide substantial relief for these patients.

Appendix: ICD-10 Diagnostic Criteria of NT

F48	Other neurotic disorders
F48.0	Neurasthenia
	Considerable cultural variations occur in the presentation of this disorder; two main types occur, with substantial overlap. In one type, the main feature is a complaint of increased fatigue after mental effort, often associated with some decrease in occupational performance or coping efficiency in daily tasks. The mental fatigability is typically described as an unpleasant intrusion of distracting associations or recollections, difficulty in concentrating, and generally inefficient thinking. In the other type, the emphasis is on feelings of bodily or physical weakness and exhaustion after only minimal effort, accompanied by a feeling of muscular aches and pains and inability to relax. In both types, a variety of other unpleasant physical feelings, such as dizziness, tension headaches, and a sense of general instability, is common. Worry about decreasing mental and bodily well-being, irritability, anhedonia, and varying minor degrees of both depression and anxiety are all common. Sleep is often disturbed in its initial and middle phases but hypersomnia may also be prominent.
	<i>Diagnostic guidelines</i>
	Definite diagnosis requires the following:
(a)	either persistent and distressing complaints of increased fatigue after mental effort, or persistent and distressing complaints of bodily weakness and exhaustion after minimal effort;
(b)	at least two of the following: <ul style="list-style-type: none"> —feelings of muscular aches and pains —dizziness —tension headaches —sleep disturbance —inability to relax —irritability —dyspepsia;
(c)	any autonomic or depressive symptoms present are not sufficiently persistent and severe to fulfill the criteria for any of the more specific disorders in this classification.

Appendix: ICD-10 Diagnostic Criteria of NT (Cont'd)

Includes: fatigue syndrome

Differential diagnosis. In many countries neurasthenia is not generally used as a diagnostic category. Many of the cases so diagnosed in the past would meet the current criteria for depressive disorder or anxiety disorder. There are, however, cases that fit the description of neurasthenia better than that of any other neurotic syndrome, and such cases seem to be more frequent in some cultures than in others. If the diagnostic category of neurasthenia is used, an attempt should be made first to rule out a depressive illness or an anxiety disorder. Hallmarks of the syndrome are the patient's emphasis on fatigability and weakness and concern about lowered mental and physical efficiency (in contrast to the somatoform disorders, where bodily complaints and preoccupation with physical disease dominate the picture). If the neurasthenic syndrome develops in the aftermath of a physical illness (particularly influenza, viral hepatitis, or infectious mononucleosis), the diagnosis of the latter should also be recorded.

Excludes: asthenia NOS (R53)

burn-out (Z73.0)

malaise and fatigue (R53)

postviral fatigue syndrome (G93-3)

psychasthenia (F48.8)

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