

Mental and Somatic Health and Need for Care in Octo- and Nonagenarians

An Epidemiological Community Study

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Summary. Mental and somatic illness, utilization of psychosocial facilities and need for care in persons aged 85 years and older were examined. Data were based on a representative community sample ($n = 402$) of Munich city. A total of 358 (89%) subjects of the sample were interviewed, 42 subjects (10.5%) refused, and 2 persons could not be traced. Dementia and depression had the highest prevalence of mental disorders according to the AGE-CAT (automated geriatric examination for computer assisted taxonomy) computer program of the Geriatric Mental State Interview. In all, 23.6% of the interviewees fulfilled criteria for depression, 25.4% for dementia. We analysed somatic illness according to mental status, the utilization of psychosocial facilities and need for care with regard to mental and somatic illness.

Key words: Depression and dementia in the general population – Utilization of psychosocial facilities – Octo- and nonagenarians – Psychiatric epidemiology – Need for care

Introduction

With the increasing longevity of the population in western society, in future years health problems will make an increasing impact on public health. Since psychiatric patients are not representative of the population in the community, general conclusions can only be drawn from results of studies in the general population. Therefore, epidemiological studies in the community are needed to detect the true prevalence of mental illness in aged people. Many epidemiological community studies which address themselves to the issue of mental health have covered relatively wide age ranges and contained only

very small samples of very old people (Essen-Möller 1956; Nielsen 1962; Akesson 1969; Kay et al. 1970; Magnusson and Helgason 1981; Mölsä et al. 1982; Cooper and Sosna 1983). Dementia is most common in the very old (Campbell et al. 1983; Copeland and Gurland 1985; Kay et al. 1985; Cooper 1986; Hasegawa et al. 1986; Hendersson 1986; Jorm et al. 1987; Magnusson 1989; Häfner und Löffler 1991; Copeland et al. 1992). Nearly 80% of demented people live in the community (Cooper 1986). For the determination of risk groups and the planning of mental health service facilities, longitudinal studies dealing with treated and untreated cases of the very old are necessary. The present paper presents data about mental and somatic illness, the utilization of psychosocial facilities and the need for care in a community sample aged 85 years and above.

Methods

Sample

The sample was drawn from the community register of the city of Munich. On 5 June 1990, 20415 persons living in Munich were aged 85 years and above. The name and address of 2052 persons of this population could not be obtained because the data requested of subjects was not forwarded (for security reasons). The remaining population consisted of 18363 persons aged 85 years and above who were registered as residents of the city of Munich. This includes persons living in homes for the elderly. A sample of 402 persons was randomly drawn and approached for assessment. The drawn sample of 402 subjects correlated very well to the remaining population of 18363 persons according to sex, age and living situation. Nevertheless the problem exists that we have no information about 2052 persons of the population 85 years and older. Possible security reasons could include mental illness, biasing the representativity of our sample. Of the 402 persons, 358 (89%) were assessed in an examination conducted by physicians trained in psychiatry. Two persons (0.5%) could not be traced; 42 persons (10.5%) refused to participate. A reassessment of the sample 1

Table 1. Sociodemographic characteristics of the sample assessed

		<i>n</i> (358)	%
Sex	Female	276	77.1
	Male	82	22.9
Marital status	Single	51	14.3
	Married	66	18.5
	Widowed	224	62.9
	Divorced	15	4.2
Number of children	0	120	33.6
	1	87	24.4
	2	73	20.4
	≥3	77	21.5
Living situation	Own household	220	61.5
	With relatives	35	9.8
	With acquaintance	2	0.6
	Home	61	17.0
	Nursing ward	40	11.2
Age	Year of birth		
	1891–1899	91	25.4
	1900–1905	267	74.6

year later is currently in progress. Table 1 shows the sociodemographic characteristics of the persons assessed.

Instruments

The main instrument used to assess psychopathology was the Geriatric Mental State Interview (GMS-A by Copeland et al. 1976, 1986, 1987). This semi-structured psychiatric interview covering the whole of psychopathology was designed for the assessment of the elderly. A high sensitivity and specificity for organic as well as depressive disorders in the elderly has been reported. Results were analysed using the AGE CAT ("automated geriatric examination for computer assisted taxonomy") computer program developed by Copeland et al. (1987). The following diagnoses can be derived (with severity scores ranging from 1 to 5) on the basis of the AGE CAT computer program: organic mental illness (dementia), depression (undifferentiated), depressive neurosis, depressive psychosis, hypochondriasis, anxiety neurosis, obsessive compulsive neurosis, phobia and schizophrenia. The GMS offers only one main diagnosis at the syndrome level. Cosyndromes are not taken into account in this paper. In addition, the History and Aetiology Scale (HAS by Copeland and Dewey 1991) was used to interview a close relative or a significant other person if a complete interview with the subjects was not possible. Our aim was to interview a key informant of every demented person on the condition that the interviewee agreed and a key informant was available. The HAS was performed on 44 subjects of the sample. It contains variables concerning onset of first symptoms, development and course of illness, mental illness in the subject's family, use of medication and alcohol and serve life-events. In addition the Structured Interview of the Diagnosis of Dementia of Alzheimer Type, Multiinfarct Dementia and Dementias of Other Aetiology according to DSM-III-R and ICD 10 (SIDAM by Zaudig et al. 1989, 1990) was assessed.

The SIDAM is an extensive instrument for the assessment of cognitive impairment and dementia which includes neuropsychological tests for the assessment of cognitive functioning. The Mini Mental State Exam (Folstein et al. 1975) constitutes a small part of the SIDAM as well as the Hachinski Scale (Hachinski et al. 1975) and the modified Ischaemia Score (Rosen et al. 1979). Questionnaires were used to assess sociodemographic and biographic data, instrumental social support, and illness behaviour in the psychiatrically ill. The necessity for and the cause of the possible need for special care were analysed. Subjects received a physical examina-

tion. The research physician filled out a checklist concerning somatic health problems within the last 7 days and the last 12 months. Diagnoses for somatic illness according to ICD 9 were used. In addition to GMS-AGECAT computer diagnoses, cases with mental disorders were classified according to ICD 10 and DSM-III-R by the research physicians trained in psychiatry.

In this paper we refer to the GMS-AGECAT computer diagnosis only. A comparison of the different diagnostic schedules and differences in prevalence rates is being prepared by Fichter et al.

Results

Prevalence Rates of Mental Disorders According to the AGE CAT Computer Diagnoses (GMS-A)

Of 358 subjects interviewed, 11 (3.1%) could not fulfil the criteria for the AGE CAT computer program because of missing data. The data on the AGE CAT computer diagnoses refer to 347 subjects.

Of the sample assessed, 25.4% fulfilled criteria for dementia according to the AGE CAT algorithm for GMS-A; 23.6% fulfilled criteria for depression, 3.2% for other psychiatric diseases; 47.8% of the sample assessed had neither dementia nor depression nor any other illness.

As regards the degree of severity of mental illness the GMS offers three different levels within the case category: mild (level 3), moderate (level 4), severe (level 5). Out of the 25.4% demented persons, 64.8% suffered from mild (level 3), 26.1% from moderate (level 4) and 9.1% from severe (level 5) dementia.

With regard to the diagnosis of depression the GMS offers three different kinds: depression undifferentiated, depressive neurosis and depressive psychosis. Out of the 23.6% depressed persons, 54.9% suffered from depressive neurosis, 45.1% from depressive psychosis.

The AGE CAT computer program does not deliver a possible mixed group (depression and dementia) or a second diagnosis. Comorbidity will be treated in a further paper by Fichter et al. (in preparation).

Sixty-nine (25.7%) of the women ($n = 269$) and 19 (24.4%) of the men ($n = 78$) fulfilled criteria for dementia, 22.3% ($n = 60$) of the women and 28.2% ($n = 22$) of the men for depression. None of the men, but 4.1% of the women suffered from other mental disorders ($P = \text{n.s.}$). The dementia rate showed a rise with age. The younger cohort aged 85–89 years ($n = 261$) had a prevalence rate of 23.4%. The older cohort, aged 90 years and older ($n = 86$), showed a GMS-AGECAT dementia rate of 31.4%. The depression rate decreased with age. The younger cohort showed a depression rate of 25.3%, the older one of 18.6%. Other mental disorders were detected in 2.7% of the younger and in 4.7% of the older cohort ($P = \text{n.s.}$).

Categorizing according to more differentiated age cohorts (year of birth 1901–1905, $n = 261$; 1896–1900, $n = 65$; 1891–1895, $n = 21$) we found a significant increase of dementia (Fig. 1). In the youngest age group (1901–1905) 23.4% ($n = 61$), in the middle age group (1896–1900) 23.1% ($n = 15$) and in the oldest age group (1891–1895) 57.1% ($n = 12$) suffered from dementia ($\chi^2 = 11.93$, $df = 2$, $P = 0.003$). Combining the middle

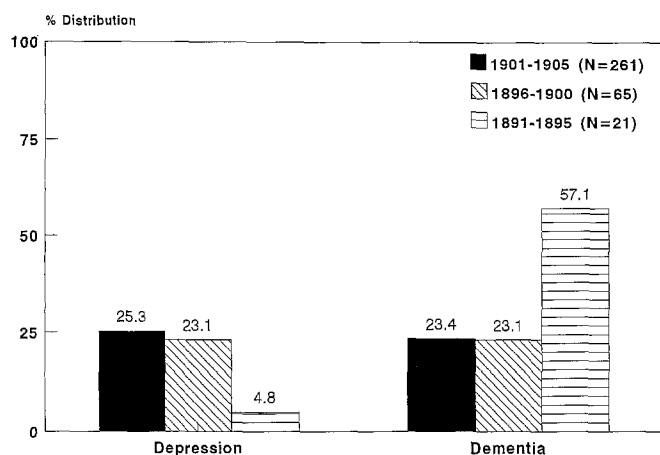


Fig. 1. Dementia and depression according to age (GMS diagnosis)

age group with the oldest group made the significant association between age and dementia rate less visible.

The depression rate decreased with age: (1901–1905: 25.3%, $n = 66$; 1896–1900: 23.1%, $n = 15$; 1891–1895: 4.8%, $n = 1$ – $\chi^2 = 4.55$, $df 2$, $P = 0.10$).

Prevalence Rate of Mental Disorder and Living Situation

We found that 76.7% of the mentally healthy women and 89.2% of the mentally healthy men lived in private households. This rate decreased for subjects suffering from mental disorders. Independent of mental status, a higher percentage of males were in private households. Of those with a GMS-AGECAT diagnosis of dementia fewer but still remarkably many (females 56.5%, males 84.2%) lived in a private surrounding and not homes for the elderly or nursery units; 21.7% of the demented women and 5.3% of the demented men lived in homes for the elderly; 21.7% of the demented females and 10.5% of the demented men lived in nursery units; 21.7% of the depressed women and 18.2% of the depressed men lived in homes for the elderly, and 11.7% of depressed women and 4.5% of depressed men lived in nursery wards.

Comorbidity of Mental and Somatic Illness

Somatic illnesses were diagnosed by the physician according to ICD 9 by considering the history of physical diseases and the physical examination. Somatic diseases were classified in the following categories: cardiovascular disorders (comprising angina pectoris, myocardial infarction and rhythm disorders), myocardial insufficiency, hypertension, cerebrovascular diseases, disorders of vision, disorders of hearing and movement disorders. This categorization was carried out because of the high frequency and the special impairment for mobility and social life (Table 2). In comparison with mentally healthy subjects demented and depressed persons were not significantly suffering from special somatic diseases. Worthwhile mentioning is the fact that only 2 persons (22.2%) without somatic illness ($n = 9$) suffered from mental disorders, but because of the small number of persons without somatic illness these results are not significant.

Depressed subjects suffered more often, but not significantly more often, from cardiovascular diseases, hypertension and movement disorders, demented persons from hearing disorders ($P = \text{n.s.}$). None of the somatic diagnoses was associated significantly with mental disorders.

Persons diagnosed as depressed suffered from a higher number of somatic diseases, on average 3.9, followed by the demented subjects (3.4). Mentally healthy people had fewer somatic diseases – on average 3.1 ($P = \text{n.s.}$).

Use of Psychiatric Facilities

In the past 12 months, 3.7% of the depressed and 2.4% of the demented subjects had consulted psychiatric facilities on an outpatient basis ($P = \text{n.s.}$); no depressed and no demented person had been inpatients during the last 12 months in a psychiatric or psychotherapeutic hospital ($P = \text{n.s.}$); psychotherapists and psychosocial services were rarely used. Only one depressed person consulted a psychotherapist ($P = \text{n.s.}$). Considering the life-

Table 2. Mental and somatic illness

Somatic illness	Case according to GMS-A								Total	
	No diagnosis		Dementia		Depression		Other mental disorders		%	n
	%	n	%	n	%	n	%	n		
None of the following	77.8	(7)	11.1	(1)	11.1	(1)	0.0		100%	(9)
Cardiovascular	43.1	(53)	25.2	(31)	27.6	(34)	4.1	(5)	100%	(123)
Myocardial insufficiency	44.6	(91)	26.0	(53)	25.5	(52)	3.9	(8)	100%	(204)
Hypertension	46.8	(59)	20.6	(26)	27.8	(35)	4.8	(6)	100%	(126)
Cerebrovascular	50.0	(34)	25.0	(17)	22.1	(15)	2.9	(2)	100%	(68)
Visual disorders	45.0	(117)	25.8	(67)	25.8	(67)	3.5	(9)	100%	(260)
Hearing disorders	41.6	(67)	31.1	(50)	23.6	(38)	3.7	(6)	100%	(161)
Movement disorders	45.6	(78)	23.4	(40)	26.9	(46)	4.1	(7)	100%	(171)
Total	47.8	(166)	25.4	(88)	23.6	(82)	3.2	(11)	100%	(347)

$n = 358$; missing data: GMS-A diagnosis 11 (3.1%)

Table 3. Life-time utilization of psychiatric facilities

Utilization of psychiatric facilities	Case according to GMS-A								Total	
	No diagnosis		Dementia		Depression		Other mental disorders		%	n
	%	n	%	n	%	n	%	n		
No	96.9	(155)	97.6	(83)	90.1	(73)	81.8	(9)	95	(320)
Yes	3.1	(5)	2.4	(2)	9.9	(8)	18.2	(2)	5	(17)
Total	100	(160)	100	(85)	100	(81)	100	(11)	100	(337)

$n = 358$; missing data: GMS-A diagnosis (11), utilization of psychiatric facilities (14)

Table 4. Need of care according to mental status

Case according to GMS-A	Need of care					
	None		Several times/week		Daily (12–24 h)	
	%	n	%	n	%	n
No diagnosis	65.9	(122)	40.7	(24)	19.4	(20)
Dementia	11.9	(22)	25.4	(15)	49.5	(51)
Depression	19.5	(36)	32.2	(19)	26.2	(27)
Other mental disorders	2.7	(5)	1.7	(1)	4.9	(5)
Total	100	(185)	100	(59)	100	(103)

$n = 358$; missing data: GMS-A diagnosis (11)

time utilization of psychiatric facilities 5% of the whole sample (Table 3) had consulted a psychiatrist/psychologist, at least once in their life, whereas 9.9% of all actually depressed persons, 2.4% of the actually demented ones and 3.1% of the subjects in good mental health at the time were users ($\chi^2 = 10.43$, $df3$, $P = 0.02$).

Need for Care

Evaluation of the need for care was a global medical judgement, being defined as basic care required because of somatic illness, mental disorder or a combination of mental and somatic disorder, categorized according to the time required for support, which may be for medical aid or psychological or social support. Daily (12–24 h) care was needed in 31% of all interviewees (daily: 20.1%; 24 h: 10.9%). Of the subjects, 52.2% were in no need of care, 9.2% needed support for 1–2 days/week, 3.6% for 3–4 days/week and 3.9% for 5–6 days/week.

One hundred and forty (50.7%) of the women and 47 (57.3%) of the men were in no need of care. Eighty-nine (32.3%) of the women and 22 (26.9%) of the men were in daily (12–24 h) need of care ($P = \text{n.s.}$). The older cohort (born 1891–1900) proved to have an increasing daily need of care in 46.2% ($n = 42$), whilst 25.9% of the younger cohort was in need of daily care ($n = 69$) – ($\chi^2 = 19.06$, $df5$, $P = 0.001$).

No need for care was attested in 37.4% of the older and 57.3% of the younger cohort. The percentage of persons not in need of care at all amounted in subjects living in private households to 60.7%, in subjects living in homes to 30.7%; daily care was required in private households for 21%, in homes for 56.4% of the subjects ($\chi^2 = 43.11$, $df2$, $P = 0.001$).

Need for Care and Mental Disorders

Of the subjects not in need of care, 65.9% were mentally healthy. Of all elderly persons assessed who were in need of daily care, 49.5% were demented and 26.2% suffered from depression. The depressed subjects were less independent than the mentally healthy subjects, but less in need of care than the demented ones (Table 4) ($\chi^2 = 72.57$, $df6$, $P = 0.001$).

Need for Care and Somatic Illness

Considering somatic illness, subjects with cerebrovascular disorders required a high degree of attention; 47.1% of these patients required daily care ($\chi^2 = 13.79$, $df5$, $P = 0.01$). With an increase in the numbers of somatic illnesses, there was an increase in the need for nursing ($\chi^2 = 34.95$, $df14$, $P = 0.0015$).

Subjects suffering from cerebrovascular diseases and movement disorders stayed more often in nursing units. The number of somatic diseases did not increase significantly in patients living in nursing wards ($P = \text{n.s.}$).

Causes of Need for Care

The physicians differentiated between the causes of need for care, namely somatic illness, mental disorder, or a combination of somatic and mental disorder: 20.9% of the persons were in need of care because of somatic illness, 6.1% only because of mental disorders, and 20.7% because of a combination of somatic and mental illness. Considering only persons in need of care ($n = 171$), the distribution showed physical reasons in 43.9% ($n = 75$), only mental disorders in 12.9% ($n = 22$) and a combina-

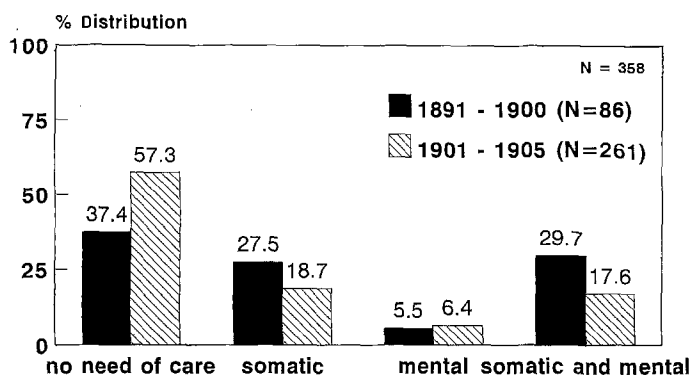


Fig. 2. Causes of need for care according to age

tion of mental and somatic illness in 43.3% ($n = 74$). Whereas 21.0% of the women and 20.7% of the men were in need of care because of somatic illness, only 7.2% of the women and 2.4% of the men were so because of only mental disorders, and 21% of the women and 19.5% of the men because of a combination of somatic and mental disorders.

Referring only to persons in need of care, 42.6% ($n = 58$) of those women and 48.6% ($n = 17$) of those men were in need of care because of somatic illness, 14.7% ($n = 20$) of the women and 5.7% ($n = 2$) of the men because of only mental disorders and 42.6% ($n = 58$) of the women and 45.7% ($n = 16$) of the men because of a combination of somatic and mental illness ($P = \text{n.s.}$).

Of the older cohort 29.7% (Fig. 2) had to be looked after because of mental and somatic illness. Referring only to persons in need of care in the younger cohort (year of birth 1901–1905, $n = 114$) 43.9% ($n = 50$) were in need of care because of somatic illness, 14.9% ($n = 17$) because of mental illness and 41.2% ($n = 47$) because of a combination of the two. In the older cohort (year of birth 1891–1900, $n = 57$) 43.9% ($n = 25$) were in need of care because of somatic illness, 8.8% ($n = 5$) because of mental disorder and 47.4% ($n = 27$) because of combination of mental and somatic illness ($P = \text{n.s.}$).

Discussion

The distribution of patients undergoing psychiatric treatment does not enable conclusions to be drawn as far as the distribution of the mentally ill among the general population is concerned. Epidemiological studies of representative community samples are necessary to detect the true prevalence. The comparison of different epidemiological studies is complicated by the use of different diagnostic instruments and different case identification. In addition, sociocultural differences, differences in health care systems and different attitudes towards mental illness and treatment limit direct comparisons. Differing from many psychiatric epidemiological studies, interview and examination in our present study were conducted only by medical doctors trained in psychiatry. The rate of participation was high (89%) in our sample. Nevertheless the methodological problem of not includ-

ing people because of security reasons and refusal remains. Maybe those not investigated have more paranoid traits, for example. Therefore our results can only be considered as representative for the population assessed. In agreement with the literature (Kay et al. 1970; Gurland 1980; Copeland and Gurland 1985; Cooper 1986; Hendersson et al. 1986; Jorm et al. 1987; Häfner and Löffler 1991), dementia is the most common mental illness in the very old subjects in our study. Depending on sample characteristics, instruments used and case definition of dementia the reported prevalence rates vary between studies ranging between 6.8% (Schoenberg et al. 1985) and 47.2% (Evans et al. 1989). Usually the differences in the prevalence of dementia are due to differences in the numbers of mild cases. Comparable with our results Hasegawa et al. (1986) found a prevalence of dementia of 20.8% and Heeren et al. (1991) a prevalence of 22.7% in a general population aged 85 years and older. Depressive symptoms and associated cognitive impairment may lead to a false diagnosis of dementia. Since the design of our study is longitudinal perhaps we will be able to report at a later date about changing diagnoses. The prevalence of moderate and severe cases of dementia showed a rise from initial prevalence rates of 2–3% of the population aged 65–70 years to over 20% of those aged 80–89 years and to over 30% for those aged 90 years and over (Essen-Möller 1956; Nielsen 1962; Kaneko 1969; Kay et al. 1970; Hagnell et al. 1981; Mortimer et al. 1981; Mölsä et al. 1982; Jorm et al. 1987; Evans et al. 1989).

In several studies an exponential increase of dementia has been shown with increasing age (Sulkava et al. 1985; Hasegawa et al. 1986; Cooper and Bickel 1989; Häfner and Löffler 1991). In our study the same trend was found, but the increase in our very old age group (≥ 85 years) was not exponential. Comparable with our study of dementia, in the study of Heeren et al. (1991) the prevalence rate increased with age from 19% in the group aged 85–89 years to 32% in the group aged 90–94 years to 41% in group aged 95 years and over.

Magnusson (1989) assessed all Icelanders born in the years 1895–1897. While the prevalence of affective disorders did not change significantly with age from 81.5 to 87 years (8–9%) the dementia rate doubled in this age span (7.8% at 81.5 years, 15.1% at 87 years).

While Sosna (1983) found a significant correlation between mental disorders and certain somatic disorders such as hearing disorder, visual disorder and impairment of mobility in an epidemiological study in persons aged 65 years and older, we found no significant correlation between certain somatic disorders and mental disorders. Depressed subjects in our sample suffered slightly more often from hypertension and movement disorders; demented persons suffered more often from hearing disorders. However, these associations were statistically not significant. In agreement with our results, Horgan (1985), Schurman et al. (1985) and Meller et al. (1986, 1989) demonstrated that the likelihood of receiving mental health care in the general medical sector increased directly with age and conversely the likelihood of using the specialist services declined with increasing age.

Elderly people were less likely to be referred to psychological services than younger people with a similar level of psychic distress (Lazarus and Weinberg 1980; Coulton and Frost 1982; German et al. 1985). There is often confusion because of comorbidity (mental and somatic), less mobility and knowledge about availability of other institutions among the elderly. Psychiatric facilities were rarely used in our sample by persons aged 85 years and older. Only 3.7% of all depressed and 2.5% of our demented subjects had received psychiatric treatment in the last 12 months. Psychosocial services were hardly consulted at all by this age group. Even the lifetime utilization of psychiatric facilities in this generation is minor in comparison with younger ones. Reasons could be a different attitude towards seeking help from psychiatrists because of the fear of being stigmatized. It may also be that the general practitioners playing the most important role in the treatment of the elderly are of the opinion that specialists are not fond of and not dedicated to the treatment of the elderly.

There are nearly no data on the need for care in epidemiological studies on older persons. With increasing age we found an increasing need for care. Subjects suffering from mental disorders, mainly from dementia, required most attention and the combination of mental and somatic disorder indicated a high risk group as regards need for care. A large proportion of this burden has so far been carried by private persons and this point has to be considered in planning health services, in view of the increasing longevity of the population and the decreasing possibilities for private care in western societies.

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