

## Psychiatric Symptoms, Cognitive Stress and Vulnerability Factors A Study in a Remand Prison

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In a consecutive sample of 208 male prisoners interviewed on the tenth day (T1) after entry, high levels of psychiatric symptoms as measured by the GHQ were recorded. These GHQ scores were strongly correlated with perceived worries and concerns of the prisoners ('cognitive stress'). After 60 days of detention (T2), a significant fall in GHQ scores was observed, and they were still correlated with cognitive stress. A significant *negative* correlation between cognitive stress at T1 and GHQ scores at T2 was observed. The relationship between potential vulnerability factors (life experiences, social network, personality factors) and GHQ scores was not strong at either T1 or T2. Psychiatric symptoms are common during the early phase of imprisonment but are not durable.

A remand prison constitutes an environment with high levels of stress, resulting from abrupt changes in social support networks and uncertainty about the future. Our experience in the medical service of the Geneva remand prison shows that various forms of reactive states with both anxiety and depressive symptoms are common in prisoners, but are frequently of short duration and rarely take the form of a depressive illness (Harding, 1984). In a series of 53 suicide attempts at the prison, depressive illness was noted in only ten cases (Guignet, 1981).

In a research project on the effect of early stages of imprisonment on mental health, we have already described the high level of consultations and recourse to psychotropic medication in the early weeks of stay in the Geneva remand prison (Zimmermann & von Allmen, 1985). However, Mechanic (1978) would not accept that help-seeking is necessarily a good indicator of morbidity.

In this paper, we examine the relationship between vulnerability factors, cognitive stress, and psychiatric symptoms during the early weeks of imprisonment. Vulnerability factors were considered as a combination of early life events, recent social status, and abnormal personality traits, which might adversely affect the individual's capacity to cope with stress on entry to prison. Cognitive stress includes worries and concerns about the current situation, without necessarily associated unpleasant feelings of dysphoria or anxiety. The data come from two systematic, structured interviews carried out 10 (T1) and 60 days (T2) after entry into a remand prison, in a consecutive series of male prisoners.

Our aim was to identify the possible effect of a series of potential vulnerability factors on both cognitive stress and psychiatric symptoms, to test whether cognitive stress could be distinguished from

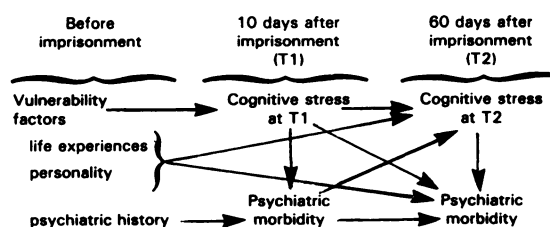


FIG. 1. Conceptual model of the research design. The arrows indicate the relationships examined in the analysis of results.

psychiatric symptoms, and to examine the relationship between cognitive stress and symptoms. The conceptual model of the research design is represented in Fig. 1.

### Method

Personal interviews were conducted by trained research workers with 208 remand prisoners at the Geneva prison at T1. Informed consent was obtained in the following way. Prisoners received a note from the director of the prison, inviting them to take part in a research interview designed to investigate the way people react to imprisonment, but assuring them that they were free to refuse. The research procedure was explained by the research worker before the structured interview. The interview was not carried out in the medical service. There were only three refusals. A further two cases were excluded because of language difficulties. Thus 208 subjects (98%) out of a consecutive series of 213 were included. Women prisoners were excluded from the study. Of these 208 prisoners, 91 were still present and were reinterviewed at T2 (which for practical reasons fell between the 58th and 62nd day). Due to the international character of the prison, personal interviews were conducted in four languages (French, German, English, and Spanish).

Data were collected using a number of standardised research instruments.

### Psychiatric symptoms

In order to measure psychiatric symptoms, we used Goldberg's (1978) 28-item General Health Questionnaire (GHQ) at both T1 and T2. The GHQ was not used as the first stage of a two-stage case-detection procedure, but rather as a measure of psychiatric symptoms at two points in time. Developments in scoring techniques for the GHQ allow an estimation not only of overall psychiatric symptoms, but also of anxiety, depression, psychosomatic symptoms, and social dysfunction.

### Cognitive stress

In order to evaluate cognitive stress, we asked the following question: "In your present situation, what are the things you are most worried about?". The aim was to identify the perceived level of worries and concerns. Based on responses to a pilot study, a check list of 24 items was presented, relating to three distinct areas:

- (a) the subject's personal relationships
- (b) the subject's professional and economic situation
- (c) the offence, the criminal procedure, and the likely sentence.

For each item, the subject could tick one of five possible answers: extremely, very much, quite, a little, not at all. Unlike the GHQ items referring to the ways the subject feels about himself, cognitive stress items were meant to measure the subject's worries about elements of the social environment.

All these items were then combined in a reliable summative scale for T1 ( $\alpha = 0.89$ ) and T2 ( $\alpha = 0.90$ ). This scale measures for each subject a subjective state, which we call 'cognitive stress'. A common-factor analysis of this measure yielded the following seven factors (66% explained variance at T1 and 72% at T2):

- (a) worries about the welfare of family members and of others in significant, close relationships (father, mother, brothers, and sisters)
- (b) worries about being rejected by the family and others in significant, close relationships
- (c) feelings of shame and guilt regarding offences
- (d) worries about the judge's hostility and lack of understanding
- (e) worries about professional and personal future
- (f) worries about length of remand and fear of a severe sentence
- (g) worries about being rejected by fellow prisoners and prison guards.

### Vulnerability factors

Three kinds of vulnerability factors are considered.

#### (a) Life experiences

Unhappy childhood, early separation from parents, and more generally the experience of numerous negative life events were measured by a series of structured interview questions. With regard to current life situation, we took into account educational level, employment over the 12 months preceding incarceration, and a measure of recidivism.

Finally, we investigated the subject's personal relationships in terms of (i) the presence or absence of a significant relationship (wife, steady girlfriend), and (ii) overall frequency of social contacts.

#### (b) Personality

Pathology of the personality has been evaluated on the basis of the Minnesota Multiphasic Personality Inventory (MMPI, in a short form called Minimult) (Hathaway & McKinley, 1981). Each subject's profile was established and then inspected by an experienced clinical psychologist. Each subject was classified into one of four categories: (i) 'normal'; (ii) 'neurotic traits without character disorder', (iii) 'neurotic traits with character disorder'; and (iv) 'severe personality disorders'. Levels of self-esteem were measured by four standard questionnaire items related to feelings about self worth.

#### (c) Medical history

Self-reported medical history data are limited to the presence of prior psychiatric problems, regular use of hypnotic and tranquillising medication, and drug and alcohol abuse.

## Results

The results are presented in a sequential manner, with psychiatric symptoms (GHQ scores) as the unifying theme. After describing the sample, we examine the evolution of GHQ scores between T1 and T2. There follows an analysis of the differentiation and associations between cognitive stress and psychiatric symptoms at T1 and T2. Finally, we examine the associations between various vulnerability factors and symptoms.

### The sample

About half of the sample were aged between 18 and 29 years; a minority were married. Fifty per cent had received no more than primary school education, and most held unskilled and unstable jobs, if any. Only about a third of interviewed subjects had been regularly employed during the year preceding imprisonment. More than half of the subjects had already been in prison. Offences were predominantly theft, house-breaking, or drug-related. Serious violent offences were reasons for imprisonment in about 15% of the cases. A third of the subjects were considered as socially well integrated before imprisonment on the basis of our initial interviews (i.e. stable work and social relationships).

The MMPI personality tests indicated that a third of the subjects were within the normal range regarding personality traits, 38% showed neurotic traits and/or character disorders, and 29% suffered from rather severe personality disorders (instability, impulsivity, low tolerance of frustration). As expected, lack of social integration and psychological impairment were strongly associated.

A minority of the subjects (25%) mentioned that they were not satisfied with their general health before imprisonment, while 35% estimated that they had problems

TABLE I  
GHQ scores at T1 (n<sub>1</sub> = 200)

GHQ scales	Mean	Median	95% confidence intervals	% high scoring subjects	Reliability ( $\alpha$ )
Somatic symptoms	3.4	3.5	(3.1– 3.7)	50	0.76
Anxiety and insomnia	4.3	4.9	(4.0– 4.7)	64	0.82
Social dysfunction	3.5	3.4	(3.2– 3.8)	48	0.76
Depression	2.5	2.1	(2.2– 2.9)	30	0.84
Total severity	13.8	14.4	(12.8–14.8)	57	0.90

1. GHQ28 '0-0-1-1' scoring method for % high-scoring subjects: scores >3.0, except for total severity, where scores >12.0.

regarding their psychological health, with 17% reporting at least one suicide attempt.

Present or past drug dependence (heroin, cocaine, morphine) was reported by 34% of the subjects; self-reported drinking habits indicated that 15% of the subjects had an alcohol-related problem. About a third of the sample were taking tranquillisers and/or hypnotics regularly during the three months before imprisonment.

#### GHQ symptom reports at T1

Adopting relatively high threshold scores, 57% of the subjects manifested high levels of psychiatric symptoms at T1 (Table I).

More than half of the subjects would therefore be considered as potential psychiatric cases, justifying a follow-up psychiatric diagnostic interview. For ethical and practical reasons, we were unable to conduct such in-depth investigations. Clinical experience at the Champ-Dollon medical service, however, indicates that serious depressive illness is rare in the prison population (Harding, 1984). We believe that the majority of high-scoring subjects suffer from reactive states that are often self-limiting in nature. The prison's medical service deals with such 'reactive states', typically with weekly consultations, and prescriptions of hypnotics and tranquillisers. Psychiatrists deal with about 10% of the total case load.

The high correlations of the four subscales with the total GHQ scale, shown in Table II, may indicate that global distress is reflected, as we would expect, in the reporting of relatively undifferentiated psychiatric symptoms. Moreover, total GHQ scores are most highly correlated with the scores on the anxiety subscales, which tends to substantiate that stress-induced psychic tension is the underlying phenomenon.

#### GHQ – change or stability

In comparing results between T1 and T2, we have considered scores at T1 only for those subjects who were still in prison at T2 (Table III).

Over the two-month period we observed a drop of the mean severity score in all GHQ scales. Drops are statistically significant ( $P < 0.05$ ) except for the depression scale. Decline of symptoms is most marked on 'social dysfunction'. An inspection of the individual scale items shows that psychosomatic symptoms decline most (e.g. headaches, cold spells, feeling sick, sleep disturbance), along with being able to keep busy and find some pleasure in various daily activities. The global level of psychiatric symptoms is quite strongly correlated over time ( $r_{T1-T2} = 0.61$ ).

Two explanations may be put forward.

- The decline of symptoms from T1 to T2 is not real. Subjects apply a different threshold to the standard 'more', 'less', and 'as usual' possible answers at T1 and T2, simply as a consequence of the 'chronicity' of the psychological distress – they grow to accept their psychological suffering as 'normal'. Furthermore, it is likely that the number of positive responses as an equivalent of help-seeking behaviour diminishes. By T2 the various sources of support are already mobilised, and some form of medical care is often underway.
- There is a real change. Symptoms decrease because subjects adapt to detention, the novelty of the stressful experience diminishes, and various forms of coping reduce psychological stress; consequently symptoms associated with such stress diminish.

There is no way of assessing the relative importance of each explanation, but it is likely that both contribute.

TABLE II  
Intercorrelations between the four scales and the total GHQ scores at T1 (n = 200) and T2 (n = 88)

	Anxiety and insomnia		Social dysfunction		Depression		Total GHQ score	
	T1	T2	T1	T2	T1	T2	T1	T2
Somatic symptoms	0.54	(0.54)	0.41	(0.42)	0.40	(0.54)	0.76	(0.74)
Anxiety and insomnia	-	-	0.53	(0.68)	0.45	(0.66)	0.82	(0.88)
Social dysfunction	-	-	-	-	0.42	(0.62)	0.76	(0.82)
Depression	-	-	-	-	-	-	0.75	(0.87)

TABLE III  
GHQ scores at T1 and T2 (n = 88)

GHQ scales	Mean	Median	95% confidence intervals	% high-scoring subjects	Reliability ( $\alpha$ )
Somatic symptoms					
T1	3.4	3.4	(3.0– 3.9)	49	0.68
T2	2.8	2.7	(2.3– 3.3)	40	0.77
Anxiety and insomnia					
T1	4.3	4.9	(3.8– 4.8)	64	0.83
T2	3.5	3.7	(2.9– 4.0)	52	0.87
Social dysfunction					
T1	3.6	3.5	(3.1– 4.0)	50	0.75
T2	2.6	2.2	(2.1– 3.0)	32	0.80
Depression					
T1	3.0	2.7	(2.4– 3.5)	39	0.87
T2	2.4	1.4	(1.9– 3.0)	30	0.87
Total severity					
T1	14.3	15.3	(12.8–15.7)	62	0.89
T2	11.3	9.7	(9.6–13.0)	43	0.93

GHQ28 '0-0-1-1' scoring method for % high-scoring subjects: scores > 3.0, except for total severity, where scores > 12.0.

#### Cognitive stress and GHQ symptoms

Correlations between indices of cognitive stress and the total GHQ scores (at T1 and T2) are statistically significant ( $P < 0.001$ ) and moderately high ( $r_{T1} = 0.46$ ;  $r_{T2} = 0.59$ ). This finding confirms the hypothesis about a positive relationship between subjective stress (existential worries) and reporting of psychiatric symptoms. But this finding also indicates that many subjects, although highly stressed, do not report psychiatric symptoms, and that others, although moderately stressed, report many symptoms.

At T1, the relationship between cognitive stress and individual symptoms is complex. Low levels of cognitive stress are generally protective in terms of symptoms, although 40% of low stressed subjects experienced sleeplessness. However, median levels of stress are more strongly associated with increased symptom

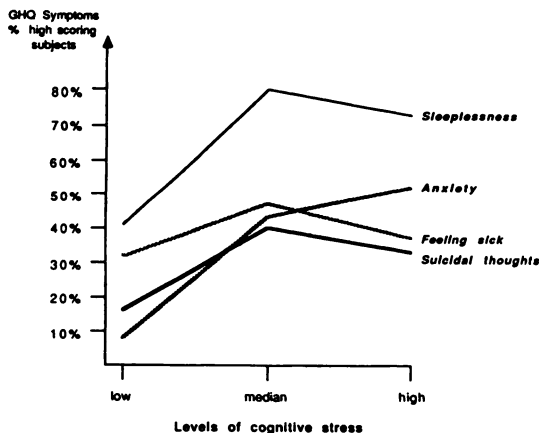


Fig. 2 Levels of cognitive stress and GHQ symptoms at T1.

levels than high levels, except in the case of anxiety (Fig. 2).

At T2, the relationship is more straightforward. As expected, low cognitive stress is definitely protective, while high levels of stress elicit the highest symptom levels (Fig. 3).

These observations lend some support to the idea of different phases in stress-induced reactions. In the acute phase, symptom patterns appear paradoxical, in relation to perceived stress, while in the subacute phase the relationship is more direct.

We have examined the relationship between cognitive stress and psychiatric symptoms at T1 and T2 respectively by the statistical technique of path analysis (Asher, 1982). The results (Fig. 4) show a strong 'carry-over' effect, despite the fact that overall levels of stress and symptomatology both tend to decline between T1 and T2. Furthermore, psychiatric symptoms at T2 are strongly predicted by corresponding symptoms at T1 and cognitive stress at T2. This result confirms the strong impact of cognitive stress on symptoms independently of initial symptom levels: existential worries (cognitive stress) resulting from the stressful situation are to a very significant extent responsible for psychiatric symptoms.

However, we observe that subjects who experience high levels of cognitive stress at T1 tend to have lower overall distress symptomatology at T2: being aware of the stressful reality early in their prison experience appears to have a prophylactic effect with regard to the appearance of symptoms later in time; this is especially true for subjects whose cognitive stress is not already associated with psychiatric symptoms at T1.

Symptoms reported at T1 have no statistically significant impact on later levels of cognitive stress. This tends to confirm our hypothesis that it is possible to measure cognitive stress separately from psychiatric symptoms. It remains, however, certain that suffering caused by such

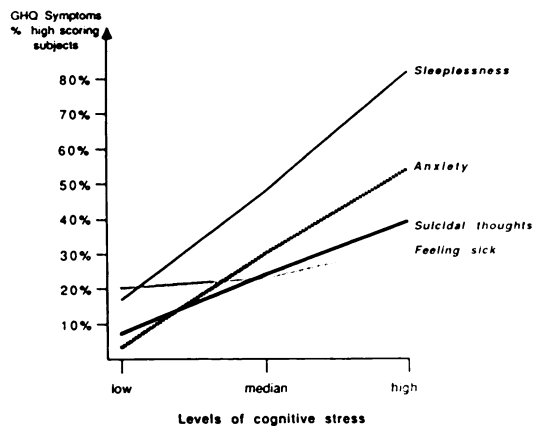


FIG. 3 Levels of cognitive stress and GHQ symptoms at T2.

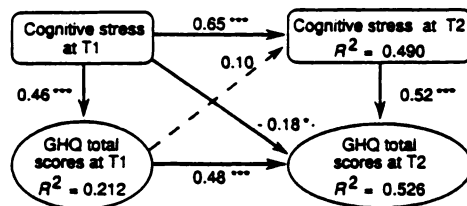


FIG. 4 Path analysis of cognitive stress and GHQ scores at T1 and T2 (path model results,  $n = 91$ ). Significance levels of standardised  $\beta$  coefficients: \* $P < 0.10$ , \*\* $P < 0.05$ , \*\*\* $P < 0.001$ .

stress results to a significant extent in distress as expressed by symptom reports.

Although stress tends to produce symptoms, it appears on the basis of these findings that it is profitable to view the two as distinct, but related phenomena.

#### Personality disorder and psychiatric symptoms

The relationship between personality typology and average GHQ scores is shown in Fig. 5.

- Subjects without personality disorders (type A in Fig. 5) experience significantly lower levels of distress.
- Levels of anxiety are significantly higher for subjects presenting neurotic traits (types B and C).
- Depressive symptoms are particularly severe among the subjects combining neurotic traits and character disorders (type C). Profound feelings of dissatisfaction with themselves and a propensity for acting out making these subjects at high risk for suicide.
- Subjects suffering from severe personality disorders (instability, aggression, impulsiveness) (type D) experience a relatively low level of distress and come close to the normal subjects.

Regardless of the presence or not of personality disorders, symptom severity declines between T1 and T2. As one would expect, 'normals' (type A) change relatively little given their low initial level of symptoms. The drop in

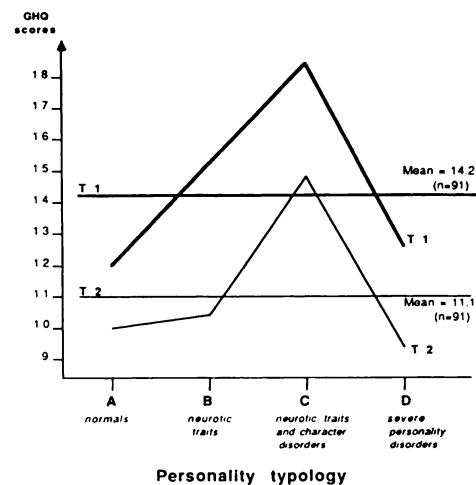


FIG. 5 Personality and GHQ scores

symptom severity is strongest among the subjects with neurotic traits only (type B).

#### Selected vulnerability factors and cognitive stress

From the large array of data on personal and medical history and personality, we have selected certain variables which seem *a priori* likely to influence cognitive stress and/or psychiatric symptoms. Nine such factors are shown in Fig. 6. At T1, a number of these factors have no significant relationship with cognitive stress: frequency of social contacts, happy childhood, neurotic personality traits, character disorders, and prior mental health problems. The strongest predictor of stress is a significant female relationship. In other circumstances such a relationship is protective, but clearly, on entry to prison, the loss of a close, intimate personal contact has an immediate effect on perceived stress in the acute phase, while subjects without such privileged relationships are protected. Subjects with low self-esteem, with alcohol dependency or prior drug abuse are also protected from cognitive stress. The acute prison experience is perhaps not perceived as so negative in terms of their general life experience.

#### Selected vulnerability factors and GHQ symptoms

In Table IV, we present  $\beta$  coefficients between selected vulnerability factors and GHQ symptoms at both T1 and T2, with the intervening variable cognitive stress controlled for. In general, we are impressed by the lack of apparent effect of potential vulnerability factors, especially at T1. Acute-phase stress reactions appear to be largely dependent on the 'here and now' experience, leading to cognitive stress and subsequently symptoms, especially anxiety. It is noteworthy that factors such as 'happy childhood', character disorders, and prior mental health problems have

TABLE IV

Selected vulnerability factors related to GHQ symptom scales controlling for cognitive stress (regression analysis results)

Independent variables	Somatic items		Anxiety items		Depression		Total GHQ severity	
	T1	T2	T1	T2	T1	T2	T1	T2
Cognitive stress	0.21*	-0.01	0.36**	0.41**	0.21*	0.24**	0.35***	0.30**
Happy childhood	0.01	-0.06	-0.05	0.02	-0.16*	-0.04	-0.03	0.02
Significant female relationship	0.01	0.15*	0.19*	0.30**	0.09	0.26**	0.15	0.35***
Neurotic personality traits	0.04	0.38**	0.09	0.25**	0.33***	0.36***	0.27**	0.39***
Character disorders	-0.08	0.30	-0.13	0.02	0.15	0.16*	-0.01	0.17*
Self-esteem	-0.10	-0.06	-0.12	-0.01	-0.21*	-0.07	-0.17	-0.05
Prior mental health problems	0.16	0.08	-0.12	0.07	-0.03	0.12	0.02	0.05
Drug abuse	0.28**	0.03	0.14	0.04	-0.02	0.06	0.10	0.08
Variance explained: R <sup>2</sup>	0.167	0.356	0.268	0.465	0.400	0.439	0.360	0.547
Variance explained (adjusted): R <sup>2</sup>	0.076	0.283	0.187	0.407	0.335	0.376	0.288	0.495
F value: F	1.8	4.9	3.3	7.9	6.1	7.0	4.9	10.6
Significance level: P	0.085	0.000	0.003	0.000	0.000	0.000	0.000	0.000
Number of cases: n	83	81	83	81	83	81	83	81

Note: Significance levels of standardised β coefficients: \*P<0.10, \*\*P<0.05, \*\*\*P<0.001.

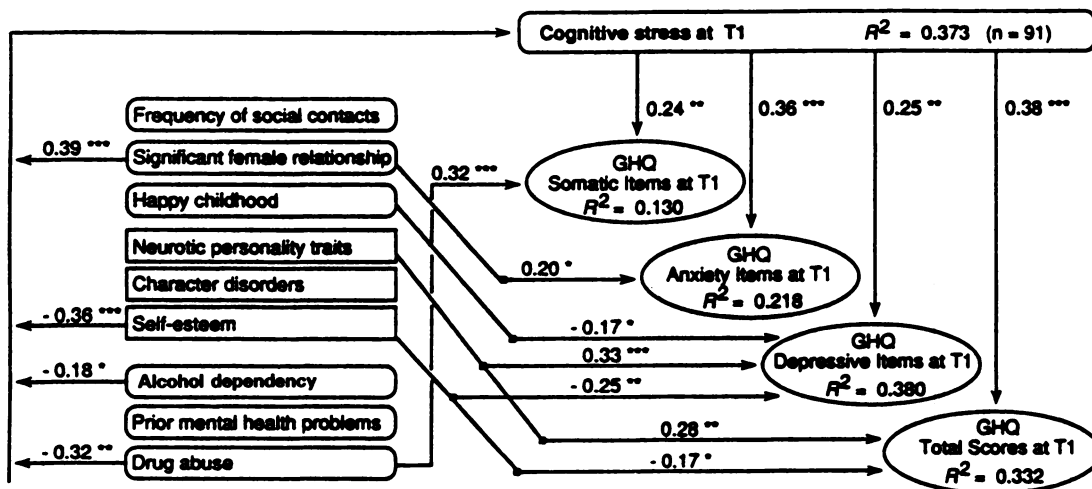


FIG. 6 Cognitive stress, vulnerability and GHQ symptoms at T1 – path-model results, showing standardised β coefficients (n = 91). Significance levels of standardised β coefficients: \*P<0.01, \*\*P<0.05, \*\*\*P<0.001.

little or no measurable effect on the occurrence of symptoms. However, neurotic personality traits and a significant female relationship do appear as risk factors, more markedly at T2 than T1.

In Fig. 6, standardised coefficients are also presented between vulnerability factors and GHQ symptoms at T1. Several factors appear to influence symptoms, without influencing cognitive stress. Notably, neurotic personality traits are associated with high scores on depression and high total GHQ scores.

The path-model analyses confirm that cognitive stress and psychiatric symptoms can be statistically differentiated, and that vulnerability factors act independently on the

two phenomena. The different nature of symptoms and of risk factors in the acute and subacute phases is also striking.

Discussion

If stressful life events are defined as any set of circumstances that requires changes in the basic life pattern of an individual (Holmes & Rahe, 1967), then imprisonment may be considered highly stressful. However, stressors such as separation from family and friends, loss of job, the promiscuity of prison life, and uncertainty about the future may have

different meanings for individuals. The stress experience depends on the individual's cognitive appraisal and his perception of his own capacities to cope with the situation (Lazarus, 1981). For example, a married middle-aged man in a steady job entering prison for the first time would probably experience more stress than a homeless, unemployed man who knows prison well. Stress should not therefore be taken for granted, but measured. This we have attempted to do in this study.

There is cumulative hard epidemiological evidence that stressful life situations are associated with increased psychological disturbance and a greater probability of psychopathological behaviour (Thoits, 1982). Depressive symptoms are perhaps the most common manifestation of psychological distress:

"vulnerability factors such as low self-esteem and social support, and also the severity of the stressor itself are likely to determine in most instances whether [distress] reaches the formal criteria of clinical depression." (Brown *et al.*, 1985)

There is, however, considerable debate and disagreement as to what extent such reactive depression should be labelled 'disease' rather than 'distress' (Brown *et al.*, 1985).

Our results suggest that entry into prison is a stressor, and that one can clearly distinguish cognitive stress, that is to say a perception of a state of existential worries and concerns from psychiatric symptoms, present in a high proportion of subjects and more so during the acute phase. Our results must however be placed in the context of previous observations on psychiatric disorders in prisoners, in view of the specificity of the prison experience, as illustrated by the increased risk for stress and symptoms in subjects with close female relationships before imprisonment. In normal circumstances such relationships would be protective.

Prisoners constitute a high-risk group for psychiatric disorders. The reasons have been succinctly stated by Gunn (1986):

". . . not only do prisons generate psychiatric problems but they also collect them inappropriately and act as unofficial mental hospitals for individuals who should be in health care. . .".

For the health professional working within the prison system, the two mechanisms of psychiatric pathogenesis among prisoners create serious ethical and clinical problems.

'Prison-generated' stress disorders, which can lead to seriously disabling states, self-mutilations, and suicide, are difficult to manage and even more difficult to prevent, since the origin of the stress is beyond the influence of the health professional.

Stress is not only related to the prison environment (deprivation of liberty, overcrowding, promiscuity, conflicts and tensions among inmates, and between guards and inmates) but also to the legal process (court appearances, interrogation, contacts with lawyers), and to the rupture in the prisoner's previous social network.

Coid (1984) has reviewed 11 studies on the prevalence of mental disorders among prisoners: high rates of mental retardation, alcoholism, and personality disorders were the outstanding features. Gunn *et al.* (1978) found high rates of anxiety and depression during the first phases of imprisonment, with a significant fall over the next six months. These conclusions are based on the results of questionnaires such as the GHQ. But what do such results mean within the prison setting? To feel sad and tense while in prison awaiting trial would seem to many people a 'normal' reaction. Is it unhealthy? Does the increased risk of suicidal acts indicate the 'tip of the iceberg' of a high prevalence of psychiatric morbidity? By measuring such phenomena, the researcher faces the same ethical dilemmas as the prison doctors who have to decide how to manage them. Whereas in normal medical practice, the health professional tries to modify stress factors within the environment, in prison the medical services are unable to do so, and have often little or no possibility of defining the stress factors operating on an individual. The result is that interventions are often ineffective and sometimes inappropriate, for example, the prescription of prolonged courses of benzodiazepines, leading to dependence.

Our results confirm the high rates of psychiatric symptoms among prisoners. They also show that symptoms, as well as levels of cognitive stress, tend to fall during the first two months of imprisonment. Coping mechanisms do seem to be available, at least to some prisoners. Zimmermann (1988) has shown that prisoners receive more support from other prisoners than they predict themselves at the tenth day. This implies that medical services within the prison should help prisoners to help themselves, rather than offering a blanket response to stress-induced symptoms by anxiolytic medication.

It would also seem important for medical staff to distinguish clearly between expressed worries and concerns ('cognitive stress') and psychiatric symptoms. Our finding that high levels of cognitive stress early in imprisonment are protective in terms of symptoms after two months would suggest that expressing concerns during the acute phase of stress should be encouraged, and that supportive interviews would be more appropriate than psychotropic

medication when cognitive stress is not accompanied by clear psychiatric symptoms.

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