

Burnout and self-perceived health among Finnish psychiatrists and child psychiatrists: a national survey

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Aims: This study investigated burnout and related health matters among a sample of Finnish physicians working within the field of psychiatry. *Methods:* A postal questionnaire was sent to one in three licensed physicians randomly selected from the register of the Finnish Medical Association (FMA). The response rate was 74% ($n=3133$). *Results:* Psychiatrists and child psychiatrists reported burnout, threat of severe burnout, depression, and mental disorder more commonly than other physicians. Moreover, psychiatrists and child psychiatrists reported less often “good” or “rather good” self-perceived health. Depression had a moderate positive correlation with overall MBI score. Lack of possibilities to consult a colleague, and supervision of work, experience of threat of violence, and self-reported depression were significantly associated with overall burnout level and emotional exhaustion. *Conclusions:* Emotional exhaustion as a symptom of burnout was common among psychiatrists, especially among those working in community care, and child psychiatrists. Problems of general health, as well as mental health, among psychiatrists and child psychiatrists are in need of attention.

Key words: burnout, child psychiatrist, cross-sectional study, psychiatrist, self-perceived health.

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BACKGROUND

Burnout has been defined as a syndrome that includes emotional exhaustion (feeling emotionally overloaded with work), depersonalization (an unfeeling and impersonal response towards people) and decreased occupational accomplishment (decreased feelings of competence and achievement at work) (1). Burnout results when there is an imbalance between the demands at work, personal ideals, and resources. Burnout has been conceptualized more as a process than as a state (2).

Previous studies have suggested that burnout may be at a high level among physicians (3, 4). Likewise, the mental health status of physicians has raised concern (3, 5, 6). A study of physicians in Finland in the mid-1980s found a polarization between medical fields into “low burnout” and “high burnout” specialities. Psychiatry and child psychiatry were identified as “high burnout” specialities; the highest levels were found among general practitioners and occupational health

doctors. Suicidal tendencies were also quite common with 26% of female physicians and 22% of male physicians reporting suicidal thoughts (7).

Caplan (3) found that stress, anxiety, and depression were more common among doctors than among managers and at a higher level than expected, with 29% being likely to experience clinically measurable symptoms. A survey among female physicians in the USA reported a history of depression in 19.5% of the subjects, comparable to that of the general population. However, among psychiatrists (34.6%) a history of depression was significantly more common ($p<0.0001$) than among other physicians or the general population (6). The estimated prevalence of psychiatric morbidity measured by GHQ-12 was 27% among hospital consultants in the UK (5). Deary et al. (8) also reported high burnout and depression levels among psychiatrists in the UK. The suicide rate of physicians has usually been found to be at a higher level than in the general population (9).

AIMS

We set out to study possible differences in self-reported health, self-reported depression and mental disorder, use of treatments, satisfaction with life in general, job satisfaction, emotional exhaustion, and overall burnout as measured by the Maslach Burnout Inventory (MBI) between psychiatrists, child psychiatrists, and other doctors.

MATERIAL AND METHODS

This study is based on a random sample collected in October–December 1997 of licensed Finnish physicians under 66 years of age. Altogether 74% ($n=3313$) of all physicians, 86% ($n=48$) of child psychiatrists, and 73% ($n=170$) of psychiatrists responded to the nationwide survey. The total sample has been presented elsewhere (10). A postal questionnaire was sent to one in three licensed physicians ($n=4477$) randomly selected from the register of the Finnish Medical Association (FMA). To ensure anonymity, the FMA sent the questionnaires, which were then returned directly to the Finnish Institute of Occupational Health. The sample was representative of Finnish physicians according to age, sex, speciality, and employment location (11). The present study focuses on physicians working within the field of psychiatry, comparing them with other physicians (for details, see Table I). The sample consisted of altogether 218 specialists (of these 66 worked in outpatient care) and, in addition, 76 physicians specializing within the field of psychiatry (senior house officers were included only in the stepwise logistic regression analyses). The sample represents 21% of the working-aged psychiatrists and 27% of the working-aged child psychiatrists in Finland.

Most of the questions in the survey inquiring about health status and the use of health services were the same as those used in annual national health studies of the Finnish adult population (e.g. 12). Perceived health was assessed by asking the subjects whether they

considered their health to be “good”, “rather good”, “moderate”, “rather poor”, or “poor”. Below, we present verbatim the questions used in the survey, the response alternatives being given in parentheses. Depression was assessed in the survey by asking the subjects “has depression bothered you during the last year and if ‘yes’, to what extent?” (“never” or “rarely”, “sometimes”, “quite often”, and “often/continuously”). The presence of mental disorders was studied by asking the subjects “during the last year, have you had a mental disorder?” (“yes” or “no”). Suicide ideation was probed by asking the subjects “have you ever seriously considered suicide or made plans to commit suicide?” (“Never”, “I have thought about suicide”, “I have seriously planned suicide”, or “I have attempted suicide”). Use of psychotropics was studied by asking the subjects, “have you often or regularly used medication because of symptoms of mental disorder or insomnia?” (“yes” or “no”). Medical consultations were probed by asking “how many times during the past year have you visited a physician’s surgery?” (“none”, “once”, “2–3 times”, or “more than 3 times”). The subjects were also asked “how many times during the last 3 years have you consulted the occupational health services provided by your employer because of your own illness?” (“none” or “at least once”).

The Maslach Burnout Inventory (MBI) (13) was used as the measure of burnout. The survey instrument also included items on experience of threat at work, and we chose to study the following of these items: “threat of violence”, “threat of insanity or severe emotional imbalance”, “threat of severe burnout”, and “being target of violence or threats”. Job satisfaction was assessed by asking the subjects “do you feel that your job gives you satisfaction?” (“never”, “sometimes”, “often”, and “nearly every day”).

Psychiatrists and child psychiatrists working in outpatient care were compared separately with other physicians concerning threat of severe burnout, overall

Table I. Characteristics of study groups, mean age by sex and medical speciality

	Total <i>n</i>	Men <i>n</i> (%)	Women <i>n</i> (%)	Mean age, y (SD)	Mean age, y (SD) Men	Mean age, y (SD) Women
Psychiatrists	170	77 (45)	93 (55)	46.0 (7.7)	47.0 (8.7)	45.1 (6.7)
Child psychiatrists	48	5 (10)	43 (90)	46.5 (7.1)	52.8 (2.8)	45.7 (7.1)
Outpatient psychiatrists*	66	19 (29)	47 (71)	44.0 (6.6)	44.5 (7.9)	43.8 (6.1)
Senior house officers**	76	23 (30)	53 (70)	34.2 (4.6)	34.3 (5.1)	34.2 (4.4)
Other physicians***	3,095	1,552 (50)	1,541 (50)	42.1 (8.8)	44.4 (8.8)	39.8 (8.1)
Total***	3,313	1,634 (49)	1,677 (51)	42.3 (8.7)	44.5 (8.8)	40.3 (8.2)

*Psychiatrists and child psychiatrists working in outpatient care; cases included also in psychiatry or child psychiatry groups.

**Physicians specializing within the field of psychiatry or child psychiatry; cases included also in the group of “other physicians”.

***Sex was not reported by two physicians.

burnout score, and emotional exhaustion. This group is from now on, for the sake of clarity, referred to as "outpatient psychiatrists". We studied whether certain work-related factors, self-reported depression, gender, and age would be associated with the level of the overall MBI score and the sub-score of emotional exhaustion (Table II). We also studied whether the same factors, excluding depression and including overall MBI score, would be associated with self-reported depression. These factors were chosen on the basis of two-way frequency tables. Some other factors, e.g. family type, did not imply any significant relationship to burnout. The links between MBI score and depression, emotional exhaustion, and depression were investigated to

further understand the interrelationships among these variables.

The SAS program package (version 6.12; SAS Institute Inc., Cary, NC) was used for the calculations. We used chi-square tests to compare psychiatrists, child psychiatrists, and outpatient psychiatrists with the group of other physicians. In the stepwise logistic regression models we used job commitment, feedback from patients, experience of loneliness at work, possibility to consult colleagues, supervision of work, increase of workload, threat of violence, being the target of violence or threats, gender, age, status of specialization (senior house officer and consultant), and self-reported depression as independent variables. We added overall burnout score as an independent variable to the model for the study of factors associated with self-reported depression. For our stepwise models, we dichotomized the variables as presented in Table II.

Table II. *The dichotomized variables*

Variables	Dichotomized classes
Job commitment	1. Not suitable, too much 2. Not enough or suitable
Feedback from patients	1. Mostly negative 2. Other options (mostly positive, equally both) No patient contacts, excluded from analysis
Experience of loneliness at work	1. Often or always 2. Sometimes or never
Possibility to consult a colleague	1. Too little or no possibilities 2. Enough possibilities
Supervision of work	1. Not available 2. Participate currently; have participated previously; no reported need of supervision
Increase of workload	1. Marked increase 2. Somewhat increased; as previously; decrease of workload; marked decrease of workload
Threat of violence	1. Clear danger, think of it sometimes 2. No threat
Being the target of violence and threats during the past 12 months	1. Either threat or actual violence 2. No incidences of either
Gender	1. Female 2. Male
Age	1. Over 35 years of age 2. 35 or younger
Status of specialization	1. Senior house officer 2. Specialist in psychiatry/child psychiatry
Self-reported depression	1. Often or always 2. Never or sometimes

RESULTS

Psychiatrists (89%), child psychiatrists (96%), and outpatient psychiatrists (97%) expressed significantly more commonly than other doctors (73%) that they had either thought about severe burnout or that they had experienced a clear threat of severe burnout (chi-squared $p = 0.001$, test pair wise). There was a slight tendency for psychiatrists to report either moderate or severe burnout more commonly than other doctors (55% vs. 47%, chi-squared $p = 0.06$), whereas outpatient psychiatrists reported significantly more commonly moderate or severe burnout than other doctors (69% vs. 47%, chi-squared $p = 0.001$). As to severe burnout, there were no statistically significant differences between the groups (psychiatrists 4.0%, child psychiatrists 2.4%, and other physicians 2.7%). Psychiatrists (72%), child psychiatrists (81%), and outpatient psychiatrists (84%) significantly more often reported symptoms on the exhaustion dimensions of the MBI than other doctors (60%, chi-squared $p = 0.001$, test pair wise). Psychiatrists (23%) expressed a large number of symptoms of emotional exhaustion significantly more often than other physicians (13%, chi-squared $p = 0.001$).

Psychiatrists and child psychiatrists rated their health as good or rather good significantly less often than other doctors. Psychiatrists and child psychiatrists reported depression, mental disorder, and experienced threat of mental ill health during the previous 12 months significantly more commonly than other doctors. Although psychiatrists expressed more suicidal thoughts than child psychiatrists and other physicians, child psychiatrists had the highest prevalence of attempted suicide among all physicians (Table III).

Table III. Comparison of self-reported health measures between psychiatrists (n=170), child psychiatrists (n=48), and other physicians (n=3,095) in Finland

Characteristic	Categories	Psychiatrists (%)	Child psychiatrists (%)	Other physicians (%)
Self-perceived health	Good/rather good	63.9*	60.4*	78.7
Depression during the past 12 months	Quite often or Often/continuously	14.4*	19.2*	8.4
Mental disorder during the past 12 months	Yes	12.5*	17.0*	6.6
Experience or threat of mental ill health	Think of it sometimes or clear threat	57.4*	60.4*	38.5
Suicidal thoughts	I have thought about or I have seriously planned	37.1*	22.9	22.3
Suicide attempts	Yes	0.6	8.3*	0.7

*The proportions are significantly different at the 95% CI (psychiatrists and child psychiatrists were compared with other physicians, test pair wise).

There were no significant differences in the level of job satisfaction between the groups studied. Psychiatrists (13.8%) expressed a high level of life satisfaction significantly less often than other doctors (19.9%) ($p < 0.05$, test pair wise).

Psychiatrists (14.7%) and child psychiatrists (12.8%) reported regular use of psychotropics because of symptoms of mental disorder or insomnia significantly more commonly than other physicians (8.5%, chi-squared p -value 0.013, test pair wise). Psychiatrists (14.7%) and child psychiatrists (29.2%) reported frequent visits (more than three visits in a year) to a physician's surgery more often than other physicians (8.3%, chi-squared p -value 0.001, test pair wise). In addition, psychiatrists (49.1%) and child psychiatrists (65.9%) had visited the occupational health clinics due to illness during the previous three years more often than other physicians (16.1%, chi-squared p -value 0.001, test pair wise).

Depression and burnout had a moderate positive correlation among specialists within the field of psychiatry ($R=0.41$, $p < 0.001$). There was a low positive correlation between depression and visits to a physician's surgery ($R=0.19$, $p=0.005$). Furthermore, there was a moderate positive correlation between moderate, rather poor, or poor self-perceived health and burnout ($R=0.34$, $p < 0.001$).

In the stepwise logistic regression models, we found factors that were significantly associated with overall burnout, with emotional exhaustion as a symptom of burnout and with self-reported depression. Lack of possibilities to consult a colleague, threat of violence, lack of supervision of work, and self-reported depression were significantly associated with overall MBI score and emotional exhaustion. Additionally, job

commitment was significantly associated with emotional exhaustion. Self-reported depression was significantly associated with age over 35 years, increased workload and overall MBI score (Table IV).

DISCUSSION

Compared with the previous study by Olkinuora et al. (7) from 1986, psychiatry and child psychiatry have remained "high burnout" specialities, although it may be difficult to compare the results as the previous study used a different measure for burnout and compared groups of specialists different from those in our study. The decision to use the MBI instead of the BOI in this

Table IV. Factors predicting overall MBI score, emotional exhaustion and self-reported depression among psychiatrists (n=170), child psychiatrists (n=48), and senior house officers within the field of psychiatry (n=76) in Finland

Factor	OR	95% CI
Factors associated with overall MBI score:		
Lack of possibility to consult a colleague	2.5	1.5– 4.4
Lack of supervision of work	4.1	1.3–13.0
Threat of violence	1.8	1.1– 3.1
Self-reported depression	5.8	2.1–15.9
Factors associated with high level of emotional exhaustion:		
High level of job commitment	4.0	2.0– 7.9
Lack of possibility to consult a colleague	2.4	1.2– 4.6
Lack of supervision of work	9.5	1.1–81.9
Threat of violence	5.5	2.3–13.2
Self-reported depression	6.9	1.4–34.1
Factors associated with self-reported depression:		
Age >35 years	5.2	1.1–23.7
Increased workload	2.7	1.2– 6.0
Overall MBI score	5.0	2.2–11.3

study was originally motivated by a plea to have the best available measure for burnout.

According to Kalimo et al. (14), using a Finnish version of the MBI suitable for people who work in all professions as a measure, up to 47.6% of working-aged people in Finland suffered from mild burnout and 7.3% severe burnout. In our sample, the figures concerning severe burnout for other physicians, psychiatrists, and child psychiatrists were clearly lower than among the general working-aged population. Among the general population 61.3% reported symptoms of emotional exhaustion and almost a fifth of the general population reported a high level of emotional exhaustion. The corresponding figures in our study reported were even higher for psychiatrists, but lower for the other physicians.

It is more common nowadays for a physician to experience less job control than previously. Could it be that this would be the case especially for psychiatrists and child psychiatrists? Recent studies of the Swedish working population found that physicians reported high demands and little ability to control their work in comparison with other professionals (15). A similar finding was also reported in Finland, especially among women physicians (16). Although in our sample, among psychiatrists and child psychiatrists, sex was not associated with the MBI score or emotional exhaustion, it may, however, be an important factor as there were more women than men among outpatient psychiatrists and child psychiatrists, both of whom had higher levels of moderate burnout and emotional exhaustion. Women have been found to be more sensitive than men to the emotional demands made on physicians (4). It is, however, problematic to analyse our sample according to sex for three reasons: (1) nearly all child psychiatrists were women, (2) half of female psychiatrists but only a quarter of male psychiatrists work in outpatient care, (3) experience at work is related to sex, because female psychiatrists tend to be somewhat younger than male psychiatrists (above 60% of psychiatrists aged less than 40 years are women). The differences between the sexes in the factors associated with measures of burnout and self-reported depression would also be dependent on the different settings where men and women tend to work.

Our results indicate that in particular those who are short of possibilities to consult other colleagues or to participate in supervision of work may be at risk of burnout. The common denominator behind these variables is patient work. As outpatient psychiatrists especially were a group with high levels of burnout it would be interesting to find out whether the type of patients these physicians treat has anything to do with their burnout. Depressive symptoms and patients satisfying the diagnostic criteria for depressions form the

largest group of patients in outpatient care. There is evidence from previous studies that depressive symptoms, in particular depressive mood, may to some extent be "contagious" (17).

Our finding of measures of burnout among outpatient psychiatrists is in line with those made by other researchers. Prosser et al. (18) reported using the MBI as a measure that staff in community mental health scored higher on the emotional exhaustion component than hospital-based staff. Community work may be inherently more stressful than hospital work. The community services may lack the necessary amount of resources, training, and supervision (18). Contacts with patients are experienced as rewarding in mental health care, whereas especially within community services, the employees are burdened by constant responsibility for their clients' well-being and behaviour and staff in psychiatric inpatient settings seem to experience a lack of autonomy (19).

A high level of burnout correlated positively with self-reported depression and "moderate, rather poor, or poor" self-perceived health. Burnout is, thus, related to other very important health issues in the lives of psychiatrists and child psychiatrists. Male doctors (76%) were recently found to report similar rates of good or rather good self-perceived health to men in the general population (72%), whereas women physicians (79%) reported more commonly good or rather good self-perceived health, and better self-perceived health than other women (69%) (10). Use of health services and ratings on more extensive scales have correlated strongly with ratings of self-perceived health (20). Self-perceived health is also a composite assessment of physical and mental health (21) and it predicts future mortality (22). Furthermore, people in upper social classes are more commonly in better health than people in the general population or lower social classes (23, 24). Psychiatrists and child psychiatrist seem to lose the benefit of their social class concerning their health.

The psychiatrists and child psychiatrists had a substantially higher prevalence of self-reported depression than the prevalence of major depression found in the recent Finnish nationwide TERVA study of the adult population (9.3%) (25). Self-reported depression is, however, likely to include other phenomena besides DSM-III-R major depression, such as depression as an emotion, subsyndromal depression, and dysthymia. It is impossible here to state for sure how accurate the self-diagnoses made by the psychiatrists and child psychiatrists have been, but the figures do give cause for concern. Our finding is in line with the study by Frank and Dingle (6), as a history of depression was reported much more commonly by psychiatrists than by other physicians.

The prevalence of suicide attempts was lower for psychiatrists than the 1.5% found by Frank and Dingle (6). The high prevalence of 8.5% suicide attempts among child psychiatrists is disconcerting, but the group was rather small. Lifetime prevalence of suicidal ideation has ranged from 10% to 18%, and of suicidal attempts from 3% to 5% in the general population (26). Psychiatrists considerably more often reported suicidal ideation, but fewer attempts. In the study by Frank and Dingle (6), women physicians reported fewer suicide attempts than other women. However, attempts were more common among those who reported depression. Suicide is an important problem among the physicians. This may even be a more extensive predicament for psychiatrists than for physicians in some other specialities. The suicide rate has been found to vary significantly between the medical specialities. In the UK, anaesthetists and psychiatrists for example had significantly increased rates compared with doctors in other specialities (27).

People's concept of mental health influences their perception of their own mental health. The higher the education level, the more commonly an individual tends to have a complex model of mental health, which leads to increased awareness of higher level of needs. This is associated with decrease of the mental health status self-rating (28). In contrast with the reported prevalence of depression in our sample, the psychiatrists and child psychiatrists reported higher or similar levels of depression compared with those of mental disorder. There seems to be a bias in reporting depression based either on being an expert in the field or possibly on the level of burnout. In epidemiological studies the 12-month prevalence of mental disorders has been at a considerably higher level, e.g. 23% (29), than the self-reported mental disorder among psychiatrists and child psychiatrists in our study.

As our study had a cross-sectional design, it is not possible to conclude whether depression precedes burnout or vice versa, although there was a significant association between the self-reported depression and emotional exhaustion. According to Schaufeli and Enzmann (2), emotional exhaustion and depression explain from 20% to 25% of the statistical variance of each other. However, by definition, burnout should preclude previous psychopathology (2). Schaufeli and Enzmann state in their review (2) that burnout as a concept would resemble mostly the diagnostic category of neurasthenia in the ICD-10. Nonetheless, a small proportion of the symptoms of burnout have been found to be severe. Among these cases there are most likely those who would satisfy the criteria for major depression. The present study did not include any objective diagnostic criteria for depression to further clarify the issue. It is evident that, if approximately

half of the general population and physicians report symptoms of burnout, all of them do not suffer from a mental disorder.

In a previous study of the same sample, Töyry et al. (10) found that two-thirds of the mental disorders of physicians were self-treated. In the present study, the psychiatrists reported depression more often than other physicians and, likewise, practised self-treatment. This is clearly a problem for the profession. However, psychiatrists and child psychiatrists had medical consultations more often than other doctors. There was also a small positive correlation between self-reported depression and visits to a physician's surgery. This is comforting considering our findings. At least the psychiatrists and child psychiatrists take some action to solve their problems.

Enhancing job satisfaction has been suggested to be a key factor in increasing protection against the high demands of the medical profession (5). Training in communication and management skills seems to be effective as well. Informal contacts with colleagues have been found the most commonly mentioned method of coping with the difficult and demanding aspects of one's work (30). The lack of possibilities to consult and the lack of supervision found in our study point in the same direction. Individual supervision and staff support groups have been emphasized as beneficial in terms of increasing job control among the staff within mental health care (18, 30). In Finland, there is an increasing lack of psychiatrists and child psychiatrists working in the public healthcare system. Prompt measures along these lines are vital to guarantee the number of required work force.

For issues of mental health, psychiatrists and child psychiatrists should seek more suitable options than self-treatment. Rehabilitation services organized specially for them may be needed to avoid stigmatization. Measures should be taken to lower the threshold for seeking care for mental health problems from other psychiatrists. The FMA has recently formed a confidence network of physicians from different specialities. Physicians within the field of psychiatry are by no means protected from mental disorders. On the contrary, working in a "high burnout" profession may be considered a hazard in their lives. Psychiatrists and child psychiatrists should have every possibility to be treated and cared for just like any other patients, as sufferers, not as specialists.

The limitations of this study consist of the common biases of self-reporting including non-response to some items, various interpretations of meaning, and non-disclosure. As stated previously, the survey lacked standardized items for making psychiatric diagnoses. Due to the limited size of the sample, there are also problems in comparing rare events, such as suicide

attempts. However, the general response rate among all physicians and physicians working in the field of psychiatry is highly acceptable.

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REFERENCES

- Maslach C, Leiter MP. The truth about burnout. How organizations cause personal stress and what to do about it. San Francisco: Jossey-Bass, 1997.
- Schaufeli W, Enzmann D. The burnout companion to study & practice: a critical analysis. London: Taylor & Francis, 1998.
- Caplan RP. Stress, anxiety and depression in hospital consultants, general practitioners, and senior health service managers. *Br Med J* 1994; 309: 1261–3.
- Theorell T. Changing society: changing role of doctors. The stress must not be allowed to get too great. *Br Med J* 2000; 320: 1417–18.
- Ramirez AJ, Graham J, Richards MA, Cull A, Gregory WM. Mental health of hospital consultants: the effects of stress and satisfaction at work. *Lancet* 1996; 347: 724–8.
- Frank E, Dingle AD. Self-reported depression and suicide attempts among US women physicians. *Am J Psychiatry* 1999; 156: 1887–94.
- Olkinuora M, Asp S, Juntunen J, Kauttu K, Strid L, Äärämaa M. Stress symptoms, burnout and suicidal thoughts in Finnish physicians. *Soc Psychiatry Psychiatr Epidemiol* 1990; 25: 81–6.
- Deary IJ, Agius RM, Sadler A. Personality and stress in consultant psychiatrists. *Int J Soc Psychiatry* 1996; 42: 112–23.
- Lindeman S, Läärä E, Hakko H, Lönnqvist J. A systematic review on gender-specific suicide mortality in medical doctors. *Br J Psychiatry* 1996; 168: 274–9.
- Töyry S, Räsänen K, Kujala S et al. Self-reported health, illness and self-care among Finnish physicians. A national survey. *Arch Fam Med* 2000; 9: 1079–85.
- Töyry S, Räsänen K, Kujala S et al. Lääkärien työolot ja kuormittuneisuus -tutkimus (Working conditions and work strain among physicians: a questionnaire survey). *Suom Lääkäril* 1999; 54: 2423–30.
- Helakorpi S, Uutela A, Prättälä R, Berg M-A, Puska P. Health behaviour among Finnish adult population, spring 1997. Helsinki, Finland: National Public Health Institute, 1997.
- Maslach C, Jackson SE. Maslach Burnout Inventory, Manual, 2nd ed. Palo Alto, CA: Consulting Psychologists Press, 1986.
- Kälimo R, Toppinen S. Työuupumus Suomen työikäisellä väestöllä (in Finnish, title in English: Burnout in the Finnish working aged population). Helsinki: Finnish Institute of Occupational Health, 1997.
- Statistics Sweden. Negativ stress I arbetet. De mest utsatta yrkena (Negative stress at work. The most exposed occupation). Information om Utbildning och Arbetsmarknad 1997: 1. Cited by Theorell 2000.
- Vahtera J, Pentti J. Uhkia vai mahdollisuuksia? Psykososiaalisten työolojen kehitys 1990-luvun alkupuolella (Threats or possibilities? Development of the psychosocial working conditions in the first half of the 1990s). Helsinki: Finnish Institute of Occupational Health and Occupational Safety and Health Administration, 1997.
- Segrin C. Depression. In: Interpersonal processes in psychological problems. London: Guilford Press, 2001: 15–43.
- Prosser D, Johnson S, Kuipers E, Szmukler G, Bebbington P, Thornicroft G. Mental health, “burnout” and job satisfaction among hospital and community-based mental health staff. *Br J Psychiatry* 1996; 169: 334–7.
- Reid Y, Johnson S, Morant N et al. Explanations for stress and satisfaction in mental health professionals: a qualitative study. *Soc Psychiatry Psychiatr Epidemiol* 1999; 34: 301–8.
- Mackenbach JP, van den Bos J, Joung IM, van de Mheen H, Stronks K. The determinants of excellent health: different from the determinants of ill-health? *Int J Epidemiol* 1994; 23: 1273–81.
- Singer E, Garfinkel R, Cohen SM. et al. Mortality and mental health: evidence from the Midtown Manhattan restudy. *Soc Sci Med* 1976; 10: 517–25.
- Idler, EL, Angel, RJ. Self-rated health and mortality in the NHANES-I epidemiologic follow-up study. *Am J Public Health* 1990; 80: 446–52.
- Mackenbach JP, van de Mheen H, Stronks KA. Prospective cohort study investigating the explanation of socio-economic inequalities in health in the Netherlands. *Soc Sci Med* 1994; 38: 2999–308.
- Bosma H, van de Mheen D, Mackenbach JP. Social class in childhood and general health in adulthood: questionnaire study of contribution of psychological attributes. *Br Med J* 1999; 318: 18–22.
- Lindeman S, Hämäläinen J, Isometsä E et al. The 12-month prevalence and risk factors for major depressive episode in Finland: representative sample of 5993 adults. *Acta Psychiatr Scand* 2000; 102: 178–84.
- Isometsä E. Suicide. *Curr Opin Psychiatry* 2000; 13: 143–7.
- Hawton K, Clements A, Sakarovich C, Simkin S, Deeks JJ. Suicide in doctors: a study of risk according to gender, seniority and specialty in medical practitioners in England and Wales, 1979–1995. *J Epidemiol Community Health* 2001; 55: 296–300.
- Hourani LL, Khlaf M. Determinants of perceived mental health status and help-seeking behavior: preliminary testing of a conceptual model. *Soc Sci Med* 1986; 22: 1081–6.
- Bijl R, Ravelli A, van Zessen G. Prevalence of psychiatric disorder in the general population: results of the Netherlands Mental Health Survey and Incidence Study (NEMESIS). *Soc Psychiatry Psychiatr Epidemiol* 1998; 33: 587–95.
- Reid Y, Johnson S, Morant N et al. Improving support for mental health staff: a qualitative study. *Soc Psychiatry Psychiatr Epidemiol* 1999; 34: 309–15.

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