Prevalence of Common Mental Disorders at a General Health Clinic in a Corporate Hospital

Dr. Sanjoy Sen[1], Dr. Bhaskar Mukherjee[2]

[1]Consultant Psychiatrist, Hexham Community Mental Health Hexham General Hospital Hexham, NE 46 1QS UK
[2]RMO Malda Medical College

INTRODUCTION

Western studies show there is a high proportion of somatization of psychiatric disorders among presenters in medical outpatients. Many of these patients go through unnecessary investigations and remain undiagnosed for a significant length of time. These not only add to the suffering of the patients, but also lead to wastage of important resources and manpower. Similar studies have not been replicated in Indian corporate hospital set up using validated questionnaires. In fact, there is dearth of well organized integrated mental health units in corporate hospital setting in India.

Our whole idea was to explore the prevalence of psychiatric illnesses presenting in the general health clinics, both somatoform disorders, and other psychiatric illnesses comorbid with physical illness.

For any given population, a significant proportion will suffer from some kind of psychological illness and disability. The prevalence of common mental disorder in general population was assessed by one household survey based study in London.The results are depicted with a pie chart (Fig.1).

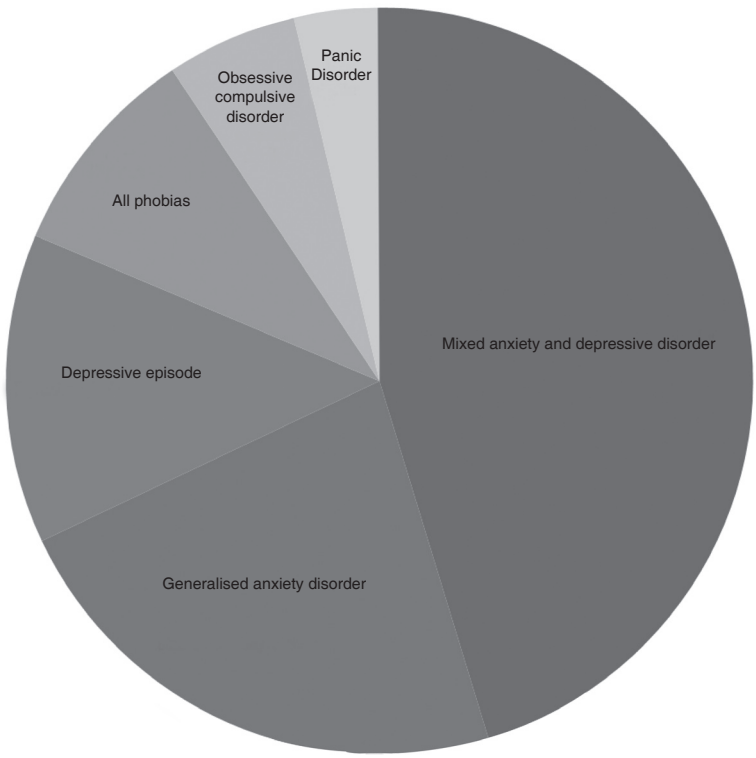

Fig. : Disposition according to prevalence of different types of Common Mental Disorders in a House-hold survey[1].

The existence of co-morbid psychotic illnesses associated with major physical disease forms are given in a table (Table 1).

Table 1. : CMDs associated with Medical Conditions

System	Disease	Associated Common Mental Disorder	Ref
Cardiovascular	Arrhythmias	Psychosocial stress, Depression	[2]
	Myocardial Infarction	Stress, Depression (31%) & Major Depressive Disorder, Type-A personality, Type-D personality	[3-6] [7-9]
	Essential Hypertension	Stress	[10]
Respiratory System	Asthma	Major Depressive Disorder, Panic Attacks, General Anxiety	[11]
	COPD	Depression (20-60%), Delirium, panic attacks (38%), phobia	[12]
	Pulmonary Embolism	Sudden anxiety, panic attacks	
	Sleep Apnea	Sleep disturbances, day-time somnolence, Depression, Irritability, Personality changes.	
Gastrointestinal Disorder	Esophageal Dysmotility	Axis-1 psychiatric illness, like Major Depressive Disorder (52%), Generalized Anxiety (36%), Somatization Disorder (20%) and Substance related Disorder (20%).	[13]
	Irritable Bowel Syndrome	Panic (26%), generalized anxiety (26%), social phobia (26%), major depressive disorder (23%)	[14]
	Inflammatory Bowel Disorder	Depression, Stress	[15]
	GERD and Ulcer	Anxiety Disorder	[16]
Metabolic Disorder	Obesity	Eating Disorder, Depression	
	Wilson's Disease	Irritability, Aggression, Disinhibition, Recklessness, Depression	[17]
	Hepatic encephalopathy	Substance abuse	[18]
Endocrinal Disorder	Diabetes Mellitus	Anxiety (45%), Depression (33%),	[19]
	Hyperthyroidism	Anxiety, Depression	[20]
	Hypothyroidism	Depression	[21]
	Hyperparathyroidism	Lethargy, Drowsiness, impaired concentration, confusion, psychosis	[22]
	Hypoparathyroidism	Delirium, Neuropsychiatric symptoms	
	Cushing Syndrome	MDD (50%), Alcoholism, Anorexia nervosa, Panic disorder, psycho-active substance withdrawal symptoms	[23]
	Addison's Disease	MDD, Personality disorder, dementia, somatoform disorder.	

System	Disease	Associated Common Mental Disorder	Ref
Autoimmune Disorder	SLE	Psychosis, delirium, seizures, cognitive impairment, Depression, memory disorder, learning difficulty	[24-26]
Renal Disorder	ARF	Delirium, Somnolence, Asterixis, neuromuscular irritability	
	CRF with ESRD	Irritability, lethargy, insomnia, anorexia, seizures, restless legs syndrome, dementia, depression	[27]
	Hemodialysis	Personality disorders, mood disorders, phobia, panic disorders, substance related disorders, adjustment disorders, cognitive disorders	
Hematological Disorder	Anemia	Dementia, depression	[28]
	Leukemia	Anxiety, Depression	[29]
	Hemorrhagic Disorders	Anxiety, Depression, stress	[30]
Infections	STDs	Anxiety, Depression, Personality change, PTSD	[31]
	Chronic Diseases	Anxiety, depression	[32]
	Encephalitis	psychosis	[33]
Surgery		Delirium, Cognitive dysfunction, Depression	[34]
Cancer therapy		Depression	[35]
Obstetric and Gynaecological disorders	Infertility	Depression	[36]
	Hysterectomy	Depression	[37]
Neurological disorders	Stroke	Anxiety, depression, panic	[38,39]
	Parkinson's disease	Anxiety	[40]
	Multiple Sclerosis	Depressive disorder	[41]
	Brain tumour	Mixed anxiety depression	[42]

Using confirmatory factor-analysis (CFA) to analyse the BHPS data Y.B. Cheung compared various models found that the 3-factor model proposed by Graetz gave the best fit. The factors are anxiety and depression (4 items), social dysfunction (6 items), and loss of confidence (2 items)[43].

A prospective cohort study involving a sample of 800 adults using GHQ-12 concluded that negative illness attitude the presence of physical and psychiatric disorders, health anxiety, changes in psychological distress, reported physical symptoms and demographic factors the such as age and sex were independently associated with frequent consultations at general practitioners clinics over 5 years period[44].

Another prospective study of 330 first-time mothers using GHQ-12 accurately picked up the number of cases with post – partum depression[45]. In another study GHQ-12 was found to be reliable and valid even when administered over phone in a dermatology clinic[46].

AIMS & OBJECTIVES

As mentioned above, there is ample data on psychiatric illness presenting at the general practitioners' (GP) clinics, medical clinics, and elsewhere. GP and medical clinics data are fair indices of prevalence of common mental disorders (CMD) in community samples. Moreover, many studies were done by household surveys[47] especially in western world[48].

However, there is scarcity of similar data particularly in corporate hospital setting, more so in India. This may be explained by the fact that most corporate hospitals function as tertiary centers and there data may not reflect the true prevalence of CMD in the population. Also, in Indian economic set-up, corporate hospitals only cater for a selective group of patients i.e. higher social classes, in which the prevalence of CMD might not reflect the scenario of the community as a whole[49].

However, very much alike all other countries, there will always be a 'hidden population" who will present at general medicine clinics with vague symptoms like tiredness, fatigue, headaches, body aches, weakness, lack of sleep and appetite etc. A significant proportion will actually be suffering from CMDs. Our main objective was to find and gauge this "hidden population" in which an additional psychiatric service will lead to a comprehensive management of their illness with a much reduced overall cost.

We aimed to use a validated questionnaire which will detect CMDs in patients attending the general health clinic. GHQ 12 is a well-established self-rated screening instrument designed to detect possible psychiatric morbidity in the general population. Each item in the GHQ 12 consists of a question asking whether the respondent has recently experienced a particular symptom or feeling (e.g. happiness, anxiety, sleep disturbance) on a scale ranging from 'less than usual' to 'much more than usual'.

We aimed to collect the first fifty completed questionnaires and analyze the data to evaluate prevalence of CMDs in our target population. We also aimed to compare our data with previous studies in different settings.

METHODOLOGY

We first arranged a training session for everyone working at the general health clinic with the researchers. The main project worker (NB) then intimated them about our project.

The study had received approval from the hospital ethics committee. The data were collected only after receiving informed consent from the patients and in such a way that the confidentiality of patients would be maintained. Researchers remained blind about which patient had submitted which particular questionnaire. Total fifty consecutive responses were collected.

RESULTS :

Out of the 50 attenders who participated in the study, one failed to answer all the questions. We therefore excluded the questionnaire from the study. We were left with 49 appropriately answered questionnaires to whom we were completely blind. The minimum score was 4 and maximum being 30 (vide table 1).We stratified the scores as follows 0-12, 13-15, 16-20 & >20. 28 participants scored between 0-12, 8 between 13-15, 11 between 16-20 and 2 scored >20 (vide table 2). Further findings are shown in table 3.

Table 2

Scores	No of participants
0-12	28
13-15	8
16-20	11
>20	12

Table 3 : A Comparison between AMRI, Scottish House Condition Survey (SHCS) and mental health survey 2004, England.

	AMRI	SHCS 2002 [62]	Mental Health 2004 [63]
Base : All respondents who answered the GHQ12	49	16537	1300
	%	%	%
1. Been able to concentrate on what you're doing?			
Better than usual	4.1	4	7
Same as usual	57.1	81	76
Less than usual	30.6	13	16
Much less than usual	8.2	3	2
2. Lost much sleep over worry?			
Not at all	38.8	33	29
No more than usual	32.6	50	50
Rather more than usual	24.5	13	16
Much more than usual	4.1	4	4
3. Felt that you are playing a useful part in things?			
More so than usual	4.1	8	12
Same as usual	75.5	79	75
Less so than usual	16.3	10	10
Much less than usual	4.1	3	3
4. Felt capable of making of decisions about things?			
More so than usual	12.2	7	11
Same as usual	73.5	84	80
Less than usual	14.3	7	8
Much less than usual	0	1	1
5. Felt constantly under strain?			
Not at all	20.4	24	22
No more than usual	28.6	55	52
Rather more than usual	42.8	17	20
Much more than usual	8.2	5	5
6. Felt you couldn't overcome difficulties?			
Not at all	38.8	36	35
No more than usual	32.6	53	51
Rather more than usual	24.5	9	11
Much more than usual	4.1	2	2
7. Been able to enjoy your normal day to day activities?			
More so than usual	10.2	5	8
Same as usual	65.3	75	74

Table 3 continued….

	AMRI	SHCS 2002[62]	Mental Health 2004 [63]
Less so than usual	16.3	15	14
Much less than usual	8.2	4	4
8. Been able to face up to your problems?			
More so than usual	10.2	5	9
Same as usual	77.6	85	81
Less than usual	10.2	8	8
Much less than usual	2	2	2
9. Been feeling unhappy or depressed?			
Not at all	36.7	40	42
No more than usual	32.7	43	38
Rather more than usual	24.5	13	16
Much more than usual	6.1	4	4
10. Been losing confidence in yourself?			
Not at all	53.1	47	49
No more than usual	26.5	40	36
Rather more than usual	16.3	10	12
Much more than usual	4.1	3	3
11. Been thinking of yourself as a worthless person?			
Not at all	75.5	64	67
No more than usual	14.3	28	25
Rather more than usual	8.2	5	7
Much more than usual	2	2	1
12. Been feeling reasonably happy, all things considered?			
More so than usual	20.4	10	14
Same as usual	69.4	79	75
Less so than usual	6.1	8	10
Much less than usual	4.1	3	2

DISCUSSION

Our main objective was to assess prevalence of common mental disorders (CMD). To detect the psychotic illness we need a well-tested questionnaire. The 12 - item GHQ has been widely used in many countries for detecting psychological morbidity. Some major national studies such as the British Household Panel Survey (BHPS) also employ this instrument[50].

While the longer versions of the GHQ are normally considered multidimensional, the GHQ – 12 is often regarded as measuring only a single dimension of psychological health[51].

Corti analyzed the GHQ-12 data in the BHPS and maintained that the high Cronbach's alpha value indicated the unidimensionality of this instrument. However, several authors suggested that the GHQ-

12 contained two or three meaningful factors. Using principal component analysis Politi identified two factors, general dysphoria & social dysfunction[52]. Graetz (1991) proposed three different three-factor models[53].

Stratification of available data is always statistically useful and helps to understand the epidemiology better. Likewise, if we left a box with options male or female, and asked the respondents to tick appropriately, we would be able to stratify our data according to sex.

Moreover, if we left another box for the respondent to write their age, further stratification according to age groups would be possible. This would have helped us to better understand the epidemiology and would allow us to compare our data with similar previous studies.

However, we had a few serious issues to consider : By no means were we prepared to compromise with the confidentiality and confounders and biases.

The original GHQ 12 in its present form doesn't have options of age or sex. It is validated or reliable only in its present form and any alterations may interfere with its validity.

The most important of all was, the GHQ 12 is a screening tool and not a diagnostics one. It is not operational and doesn't aid to arrive at a diagnosis of any mental illness parse.

So even if we stratified our data further, we wouldn't really add anything to our current epidemiological knowledge. Hence, we decided to stick to our original objective of evaluation of prevalence of all psychological illness in our given sample.

The GHQ manual says: in a Likert scale ranging like "not at all / no more than usual/ rather more than usual / much more than usual', the scrolling should be 0, 1, 2, & 3 respectively[54]. Accordingly, every questionnaire can yield a minimum score of zero to a maximum of 36 (12 questions). The GHQ manual advises that scores between 11 and 12 are typical, scores above 15 will mean psychological distress and scores above 20 will mean severe psychological problems[54].

According to these guidelines, we had 4.1% respondents scoring over 20 and 11 respondents scoring between 16 and 20 (22.4% of the final sample size). So, 4.1% of sample had severe problems and another 22.4% were in some kind of psychological distress.

This will mean 73.5% were psychologically stable. This is strikingly similar figure with many other previous studies either as door-to-door survey or GP clinic based survey.

However, the GHQ manual doesn't clarify what they mean by score of 11-12 being 'typical'. Is it the mean, median or mode? Understandably, this score cannot be median. Our study showed scores ranging from 4 to 30 with a median of 17. The mode was 9 (score by 8 participants). We calculated the mean score of 49 participants to be 12.2. It seems the term "typical", as used by the GHQ manual is fairly close to the mean score of our study.

Weich et.al.2003, following a cross sectional survey of several electoral wards in England, Wales & Scotland commented "little evidence was found of statically significant variance in the prevalence of common mental disorders (CMD) between wards, which ranged from 18.8% to 29.5%....."[55].

It is interesting to note that our figure of CMD's at the General Health Clinic of 22.4% falls well within this range despite being done in a completely different setting and being a hospital based rather than community study. Our figures were comparable to two other similar studies done previously viz. SHCS and Mental Health Survey, England, 2004. We have also given an elaborate breakdown of individual questions and their responses.

LIMITATIONS

The major limitation of our study is its small sample size, especially in comparison to the previous studies on the same area. In the analysis of data a more sophisticated model could have been used to show further relations of psychiatric comorbidities with various other socio demographic and clinical parameters. The subjects were included in the study without any clear inclusion or exclusion data. And finally we had used a self-rated questionnaire which was not translated to a language that is spoken by the subjects. This will raise doubt about the validity of the instrument in this particular study.

CONCLUSION

Psychiatric comorbidities in general medical patients are as common in our hospital as it is in various other parts of the world. So an integrated competent mental health team in this sort of hospitals would definitely be quite useful in the holistic management of all these patients. However in view of some limitations of the current study our findings should be cautiously generalized.

REFERENCES

1. Singleton, N., et al., *Psychiatric morbidity among adults living in private households, 2000.* International Review of Psychiatry, 2003. **15** (1-2) : p. 65-73.
2. Grippo, A.J., et al., *Increased susceptibility to ventricular arrhythmias in a rodent model of experimental depression.* American Journal of Physiology - Heart and Circulatory Physiology, 2004. **286** (2) : p. H619-H626.
3. Frasure-Smith, N., F. Lespérance, and M. Talajic, *Depression and 18-Month Prognosis After Myocardial Infarction.* Circulation, 1995. **91** (4) : p. 999-1005.
4. Rozanski, A., et al., *Mental Stress and the Induction of Silent Myocardial Ischemia in Patients with Coronary Artery Disease.* New England Journal of Medicine, 1988. **318** (16) : p. 1005-1012.
5. Ruberman, W., et al., *Psychosocial Influences on Mortality after Myocardial Infarction.* New England Journal of Medicine, 1984. **311** (9) : p. 552-559.
6. Mayou, R.A., et al., *Depression and Anxiety As Predictors of Outcome After Myocardial Infarction.* Psychosomatic Medicine, 2000. **62** (2) : p. 212-219.
7. Lesperance, F., N. Frasure-Smith, and M. Talajic, *Major depression before and after myocardial infarction: its nature and consequences.* Psychosomatic Medicine, 1996. **58** (2) : p. 99-110.
8. Preckel, D., et al., *Overcommitment to work is associated with vital exhaustion.* International Archives of Occupational and Environmental Health, 2005. **78**(2) : p. 117-122.
9. Denollet, J., et al., *Usefulness of Type D Personality in Predicting Five-Year Cardiac Events Above and Beyond Concurrent Symptoms of Stress in Patients With Coronary Heart Disease.* The American Journal of Cardiology, 2006. **97**(7) : p. 970-973.
10. HARBURG, E., et al., *Socio-Ecological Stress, Suppressed Hostility, Skin Color, and Black-White Male Blood Pressure: Detroit.* Psychosomatic Medicine, 1973. **35**(4) : p. 276-296.
11. Katon, W.J., et al., *The Relationship of Asthma and Anxiety Disorders.* Psychosomatic Medicine, 2004. **66**(3) : p. 349-355.
12. Norwood, R., *Prevalence and impact of depression in chronic obstructive pulmonary disease patients.* Current Opinion in Pulmonary Medicine, 2006. **12**(2): p. 113-117 10.1097/01.mcp.0000208450.50231.c6.
13. Clouse, R.E. and P.J. Lustman, *Psychiatric Illness and Contraction Abnormalities of the Esophagus.* New England Journal of Medicine, 1983. **309**(22) : p. 1337-1342.
14. Bhatia, V. and R.K. Tandon, *Stress and the gastrointestinal tract.* Journal of Gastroenterology and Hepatology, 2005. **20**(3) : p. 332-339.
15. Walker, E.A., et al., *The relationship of current psychiatric disorder to functional disability and distress in patients with inflammatory bowel disease.* General Hospital Psychiatry, 1996. **18**(4) : p. 220-229.
16. Whitehead, W.E., *Behavioral medicine approaches to gastrointestinal disorders.* Journal of Consulting and Clinical Psychology, 1992. **60**(4) : p. 605-612.
17. Dening, T.R. and G.E. Berrios, *Wilson's Disease : Psychiatric Symptoms in 195 Cases.* Arch Gen Psychiatry, 1989. **46**(12) : p. 1126-1134.
18. Crone, C.C., G.M. Gabriel, and A. DiMartini, *An Overview of Psychiatric Issues in Liver Disease for the Consultation – Liaison Psychiatrist.* Psychosomatics, 2006. **47**(3) : p. 188-205.
19. Rosenthal, M.J., et al., *Hospitalization and Mortality of Diabetes in Older Adults : A 3-year prospective study.* Diabetes Care, 1998. **21**(2) : p. 231-235.
20. Thomsen, A.F., et al., *Increased risk of affective disorder following hospitalisation with hyperthyroidism – a register-based study.* European Journal of Endocrinology, 2005. **152**(4) : p. 535-543.
21. Gold, M.S., A.L.C. Pottash, and I. Extein, *Hypothyroidism and Depression.* JAMA : The Journal of the American Medical Association, 1981. **245**(19) : p. 1919-1922.
22. Allerheiligen, D.A., et al., *Hyperparathyroidism.* Am Fam Physician, 1998. **57**(8) : p. 1795-802, 1807-8.
23. Thompson, J.M., et al., *Neurocognitive impairment in euthymic patients with bipolar affective disorder.* The British Journal of Psychiatry, 2005. **186**(1) : p. 32-40.
24. Margutti, P., et al., *Screening of an endothelial cDNA library identifies the C-terminal region of Nedd5 as a novel autoantigen in systemic lupus erythematosus with psychiatric manifestations.* Arthritis Research & Therapy, 2005. **7**(4) : p. 1-8.

25. Omdal, R., et al., *Neuropsychiatric disturbances in SLE are associated with antibodies against NMDA receptors.* European Journal of Neurology, 2005. **12**(5) : p. 392-398.

26. McLaurin, E.Y., et al., *Predictors of cognitive dysfunction in patients with systemic lupus erythematosus.* Neurology, 2005. **64**(2) : p. 297-303.

27. Kimmel, P.L., et al., *Psychiatric illness in patients with end-stage renal disease.* The American Journal of Medicine, 1998. **105**(3) : p. 214-221.

28. Onder, G., et al., *Anemia Is Associated With Depression in Older Adults : Results From the InCHIANTI Study.* The Journals of Gerontology Series A : Biological Sciences and Medical Sciences, 2005. **60**(9) : p. 1168-1172.

29. Angiolillo, A.L., et al., *Appreciation and the Interdisciplinary Management of the Psychosocial Impact of Leukemia on Children and Their Families Childhood Leukemia*, G.H. Reaman and F.O. Smith, Editors. 2011, Springer Berlin Heidelberg. p. 285-301.

30. Rodriguez-Merchan, E.C. and L.A. Valentino, *Current and Future Issues in Hemophilia Care*. 2011: John Wiley & Sons.

31. Reisner, S.L., et al., *Sexually transmitted disease (STD) diagnoses and mental health disparities among women who have sex with women screened at an urban community health center, Boston, MA, 2007.* Sex Transm Dis, 2010. **37**(1) : p. 5-12.

32. Clarke, D.M. and K.C. Currie, *Depression, anxiety and their relationship with chronic diseases: a review of the epidemiology, risk and treatment evidence.* Med J Aust, 2009. **190** (7 Suppl) : p. S54-60.

33. Chapman, M.R. and H.E. Vause, *Anti-NMDA receptor encephalitis: diagnosis, psychiatric presentation, and treatment.* Am J Psychiatry, 2011. **168**(3) : p. 245-51.

34. Deiner, S. and J.H. Silverstein, *Postoperative delirium and cognitive dysfunction.* British Journal of Anaesthesia, 2009. **103** (suppl 1) : p. i41-i46.

35. Thekkumpurath, P. and M. Sharpe, *Cancer and psychiatry.* 2009. **8**(6): p. 208-211.

36. Wilkins, K.M., J.K. Warnock, and E. Serrano, *Depressive symptoms related to infertility and infertility treatments.* Psychiatr Clin North Am, 2010. **33**(2) : p. 309-21.

37. Mantani, A., et al., *Higher incidence of hysterectomy and oophorectomy in women suffering from clinical depression : Retrospective chart review.* Psychiatry and Clinical Neurosciences, 2010. **64**(1) : p. 95-98.

38. Masskulpan, P., et al., *Anxiety and depressive symptoms after stroke in 9 rehabilitation centers.* J Med Assoc Thai, 2008. **91**(10): p. 1595-602.

39. Goodwin, R.D. and D.P. Devanand, *Stroke, Depression, and Functional Health Outcomes Among Adults in the Community.* Journal of Geriatric Psychiatry and Neurology, 2008. **21**(1) : p. 41-46.

40. Menza, M.A., D.E. Robertson-Hoffman, and A.S. Bonapace, *Parkinson's disease and anxiety : Comorbidity with depression.* Biological Psychiatry, 1993. **34**(7) : p. 465-470.

41. Beiske, A.G., et al., *Depression and anxiety amongst multiple sclerosis patients.* European Journal of Neurology, 2008. **15**(3) : p. 239-245.

42. Ron, M.A., *Psychiatric manifestations of frontal lobe tumours.* British Journal of Psychiatry, 1989. **155** : p. 735-738.

43. Bun Cheung, Y., *A confirmatory factor analysis of the 12-item General Health Questionnaire among older people.* International Journal of Geriatric Psychiatry, 2002. **17**(8) : p. 739-744.

44. KAPUR, N., et al., *Psychosocial and illness related predictors of consultation rates in primary care – a cohort study.* Psychological Medicine, 2004. **34**(04) : p. 719-728.

45. Des Rivières-Pigeon, C., M.-J. Saurel-Cubizolles, and N. Lelong, *Considering a Simple Strategy for Detection of Women at Risk of Psychological Distress after Childbirth.* Birth, 2004. **31**(1) : p. 34-42.

46. Picardi, A., et al., *Treatment outcome and incidence of psychiatric disorders in dermatological out-patients.* Journal of the European Academy of Dermatology and Venereology, 2003. **17**(2) : p. 155-159.

47. Knight, B.G., et al., *7.20 - Community Mental Health Services in the United States and the United Kingdom : A Comparative Systems Approach*, in *Comprehensive Clinical Psychology*, S.B. Editors-in-Chief : Alan and H. Michel, Editors. 1998, Pergamon : Oxford. p. 455-475.

48. Weissman, M.M., J.K. Myers, and C.E. Ross, *Community surveys of psychiatric disorders*. 1986 : Rutgers University Press.

49. Fryers, T., D. Melzer, and R. Jenkins, *Social inequalities and the common mental disorders.* Social Psychiatry and Psychiatric Epidemiology, 2003. **38**(5) : p. 229-237.

50. Wiggins, R.D., et al., *Social position and minor psychiatric morbidity over time in the British Household Panel Survey 1991–1998.* Journal of Epidemiology and Community Health, 2004. **58**(9) : p. 779-787.

51. Corti, L., *For better or worse? Annual change in smoking, self-assessed health and subjective well-being.* In Changing Households: The British Household Panel Survey 1990–1992, ed. G.J. Buck N, Rose D, Scott J. Colchester. 1994 : University of Essex.

52. Politi, P.L., M. Piccinelli, and G. Wilkinson, *Reliability, validity and factor structure of the 12-item General Health Questionnaire among young males in Italy.* Acta Psychiatrica Scandinavica, 1994. **90**(6) : p. 432-437.

53. Graetz, B., *Multidimensional properties of the General Health Questionnaire.* Social Psychiatry and Psychiatric Epidemiology, 1991. **26**(3) : p. 132-138.

54. Goldberg, D. and P. Williams, *General health questionnaire*. 2006 : GL Assessment.

55. Weich, S., et al., *Contextual risk factors for the common mental disorders in Britain: a multilevel investigation of the effects of place.* Journal of Epidemiology and Community Health, 2003. **57**(8) : p. 616-621.