

# **A STUDY OF PSYCHIATRIC MORBIDITY IN POST HYSTERECTOMY PATIENTS**

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Doctor of medicine**

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**THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY  
CHENNAI  
TAMILNADU**

**DEPARTMENT OF PSYCHIATRY  
MADURAI MEDICAL COLLEGE AND  
GOVERNMENT RAJAJI HOSPITAL  
MADURAI.**

## **CERTIFICATE**

This is to certify that the dissertation entitled “**A STUDY OF PSYCHIATRIC MORBIDITY IN POST HYSTERECTOMY PATIENTS**” presented herewith by *DR.M.V.PREETHI* to the faculty of Psychiatry, The Tamilnadu Dr. M.G.R. Medical University, Chennai in partial fulfillment of the requirement for the award of M.D. degree in Psychiatry is a bonafide work carried out by her under my direct supervision and guidance.

**Professor and Head of the Department  
Department of Psychiatry  
Madurai Medical College  
Madurai.**

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# CONTENTS

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CHAPTER	TITLE	PAGES
1.	Introduction	1
2.	Review of literature	4
3.	Aim of the study	17
4.	Methodology	18
5.	Results and interpretations	25
6.	Discussion	46
7.	Conclusion	51
8.	Limitation of the study	52
9.	Practical implications	53
	Bibliography	
	Appendix	

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# INTRODUCTION

The Importance of psychological factors, especially the bodily manifestations of emotional changes play a perceptible part in illness over the whole field of medicine since antiquity. Hippocrates, the father of western medicine coined the term hysteria and was keenly aware of the interaction of the mind and body. Benjamine Rush, the father of American Psychiatry emphasised the need to conceptualise the patient's soul and body as integrated.

The current century following the predecessor's concept developed Consultation - Liaison psychiatry (Zbigniew Lipowski) (CTP-VIII) as a subspeciality to Psychiatry. The early phase of such development focused on the consultation, the development of continuing the relationships with staff, teaching and the theoretical aspects of the Mind – Body interaction.

The organisation phase (1935-60) was marked by development, consolidation and evaluation of consultation - liaison services. Only during conceptual phase, consultation liaison psychiatry advanced in intensive care units, burn and Dialysis services, Gynaecology and Obstetrics among others.

Ever since ancient times relationship between uterus and psychological factors have been emphasised. This is evidenced by the term 'Hysteria' which denotes an array of psychiatric syndromes which were conceptualised to be due to disturbances of uterus. Though with scientific advances in basic sciences like Anatomy,

Physiology and with advent of biological psychiatry we deemphasize the role of uterus as conceptualised by our predecessors, its importance is still stressed in some other way.

Uterus has a special symbolic meaning for women so that its loss leads to a feeling of reduced femininity which in turn leads to psychiatric disorders (Krafft – Ebing- 1890). So the relationship between uterus and psychiatry is there to stay.

Freud regarded the uterus as a significant symbol of femininity. Surgical operations on the uterus are productive of an ‘insult’ to the emotional ‘equilibrium’ The patient passes through series of emotional experiences resulting in a crisis (Raphael, 1972). She has to contend with the unavoidable truth – the absence of the uterus which, she believes, gives her the grace, sexuality and femininity which is exclusively hers (IJP 1982 p.75).

Drellich and Bieber (1958) describes six important functions for uterus (1) a child bearing organ (2) an excretory organ (3) regulator and controller of body processes (4) a sexual organ (5) a reservoir of strength and vitality, (6) a maintainer of youth and attractiveness. Hence forth removal of the uterus may be regarded as equivalent to castration.

From the above views, it can be easily understood that removal of the uterus may be associated with a lot of functional symptoms leading on to calling for a psychiatrist in consultation - liaison work. So to serve effectively in such a consultation - liaison work, it is essential that a proper study of psychiatric reactions

in hysterectomy is essential for psychiatrist. Both international and Indian psychiatric scene has seen a lot of literature regarding psychiatric aspects of hysterectomy. However contribution from this part of the country is minimal.



## **REVIEW OF LITERATURE**

Hysterectomy and tubectomy are both psychologically traumatizing events viewed as loss of femininity in a woman. Various studies had been conducted throughout the world and in India, where the role of female is more emphasized, the symptoms are also more common.

Some of the Indian studies

### **Deepa and Subramanian IJP: 1982 24 (1) 75- 79**

Prospective study of women undergoing hysterectomy in Christian Medical College Vellore – Title: -Psychiatric aspects of hysterectomy. The main findings of this study are: (1) Psychiatric disturbances are more frequent after hysterectomy than other major Gynaecological operations. They found 20% patients had some psychiatric disturbance as depressive illness. The previous personality pattern appears to be related to the tendency to get psychiatric disturbance. None of their sample showed a clear cut ‘post hysterectomy syndrome’ described by Richards in 1974. Neurotic personality which makes them more vulnerable to develop psychiatric disturbance.

### **Vyas; Rathore Ijp 1989 31 (1) 83-89**

They found there was a significant increase in psychiatric morbidity after Hysterectomy. On psychiatric interview as well as on psychiatric questionnaires. 20% Reactive depression, Neurotic depression, 26% Anxiety Neurosis, 3% phobic

neurosis. 80% of patients who had previous history of psychiatric illness developed psychiatric illness post operatively.

**Bhatia, Nirmaljit IJP 1990 32 (1) 52-56**

Title: psychiatric reactions in hysterectomy:

**Prospective study:**

In this no significant association of socio demographic factors like age, literacy, marital status, parity and socio economic class could be found with psychiatric outcome, none of their sample showed a clearcut, post hysterectomy syndrome described by Richards1974.

Reader (progress in Obstetrics Gynaecology) p 307. Disorders of Female sexuality: Surgical procedures are likely to affect body and self image especially mastectomy and hysterectomy which also affect the women's sense of femaleness.

**Bhatia; NeenaBhora, Journal of O&G. India 1988 vol . 38 p. 510-513.**

Tubal ligation rarely leads to any adverse psychological outcome but the presence of feeling of guilt in a significantly higher number of women patients after sterilization show poor psychiatric outcome as found by Gath and Cooper in the studies by Rakshit 1966, Lu and Chun 1967, Black and Sclare 1968, Enoch and Jones 1975 but not in study by Sim et al 1973.

Khorana and Vyas 1975 in India (Prospective study) found a significant increase in the frequency and severity of physical symptoms after sterilization and

interpreted these as being psychologically determined. In this, definition of psychiatric disorder was unsatisfactory.

GATH AND COOPER had done extensive study of psychiatric aspect of hysterectomy and female sterilisation.

**DENNIS GATH PETER J. COOPER (Recent advances in Clinical Psychiatry)**

**1982:**

Title: Psychiatric aspects of hysterectomy and female sterilization. The author has reviewed the articles regarding the title and has given his own views too:

Majority of studies conducted before 1970 had reported high risks of psychiatric morbidity after hysterectomy and female sterilization while some did not support.

The finding that the psychiatric morbidity is more after hysterectomy is found in different studies (Lindeman 1941, Stengel 1958, Ackner 1960, Barglow 1965, Bragg 1965 and Becker 1968) but not in the study by Patterson and Craing (1963).

Gath and Cooper describes in his review of an article by Richards 1973. In this Richards has made an evidence to say hysterectomy frequently leads to psychiatric disorder. 36% of hysterectomised patients became depressed within the first 5 years. 33% depression after 3 years of operation and only 7% in the non hysterectomised controls. In Richard's 1974 study on psychiatric morbidity between hysterectomy and other surgeries, it is given as 73% were depressed in hysterectomy

but only 29% in the control. So it is concluded by him as 'Posthysterectomy syndrome'.

Studies favouring poor psychiatric outcome (Kaltreider et al 1976) and studies differing from it (Chynowath 1973, Meikle and Brody 1977 and martin et al 1977, 1980) are also given in the article by Gath and Cooper. But Gath and Cooper's own study does not support for poor psychiatric outcome.

Gath and Cooper also noticed that younger the patients more the symptoms were found after hysterectomy (Patternson and Craig 1963 and Bragg 1965, Richards 1973) – and Gath et al's own study differs from the above finding. Gath 1980, Gath and Cooper 1981, Gath et al 1981 – have made conclusions that Hysterectomy seldom leads to psychiatric morbidity and in many cases it may alleviate psychiatric disorder.

Demographic factors are probably unimportant to influence the psychiatric morbidity (Gath and Cooper).

Previous morbid psychiatric history, definitely causes poor psychiatric outcome following hysterectomy (Lindeman 1941, Melody 1962, Barker 1968, Richards 1973, Martin 1980). As noted by Gath and Cooper.

Gath et al 1981, in his study found that high proportion of patients had high neuroticism scores on Eyesenck's personality interview. So by this, it is concluded that women with predisposed personalities, the experience of prolonged menorrhagia may induce considerable emotional distress.

Gath and Cooper expresses, as he reviewed that functioning after hysterectomy (i) does not vary (Martin 1980, Cooper 1981 (ii) varying results (Amias, 1975, Richards 1974) (iii) worsens (Drellich, bieber 1953, Ackner 1960, Utian 1975, Dennerstein 1977) (iv) improves (Gath 1981).

Cooper 1981, 1982, Sterilization did not lead to psychiatric disorder with 12-18 months after the operation.

Neurotic personality carries a poor prognosis for adjustment (Woodside 1949, De 1961, Enoch Jones 1975). Demands for careful evaluation before and after procedure.

The clinical features in a post hysterectomy patient is given in the name of post hysterectomy syndrome. These are discussed in following studies.

**Dis Nerv Syst . 1977 Dec ; 38 (12) : 974 –80.**

**Martin RL, Roberts WV, Clayton PJ, Wetzel R.**

“Post –hysterectomy syndrome” Characterized by multiple psychologic and somatic symptoms to the surgery itself. However, a high preoperative prevalence of psychiatric illness, particularly hysteria, must be considered when evaluating symptoms in a post – hysterectomy population.

**Anderson:** Complications after hysterectomy Denmark Acta O&G Scandinavia 1993 Oct. 72 (7) 570-7. The most pronounced increase in the risk of readmission with complication occurred among women who had been admitted to psychiatric /somatic hospital 0-12 months before had their uterus removed.

**Obstet Gynecol. 1985 Feb; 65(2) : 206-10**

**(Trag GW)**

The recovery from emergency hysterectomy patients experienced fear, depression, anger, doubt, selfreproach, and multiple somatic complaints without physical origins. Sexual activity was reduced.

**Mackinger HF, Graf AH, Keck E, Temper C, Kaniz C0**

The group of hysterectomized women showed significantly higher levels of body complaints, depression, and unassertiveness in sexual situations, as well as decreased psychological well- being, and a more traditional gender – role orientation.

**Lacovides A, Ierodiakonou C, Kantarakias S.**

A study of the authors in women after hysterectomy compared to a control group showed a great percentage of reactive depression , 6-12 months following the operation.

**Ohkawa : Prospective study of psychosomatic reaction to hysterectomy.**

**Nippon Sankafujinka Gakkai Zasshi 1992 Jun: 44 (6) 676- 82.**

Most patients can overcome psychosomatic problems caused by hysterectomy. Psychosomatic disorder associated with hysterectomy are characterized by various symptoms but mainly by depressive state.

**Casper:** The effect of hysterectomy and bilateral oophorectomy in women with severe premenstrual symptoms.

Premenstrual tension disappears from 6 months following surgery.

**Aust Health Rev . 1996; 19(2): 40-55.**

**Ferroni P, Deeble J.**

Depression and self esteem scores were significantly worse for women with gynaecological conditions.

**Psychother Psychosom. 1983; 40(1-4): 246-56.**

**(Cooper PJ, Gath DH)**

Symptoms experienced in the hysterectomy group both before and after the operation were much greater than those in the general population, especially depression , lack of energy, and general anxiety.

**Ferroni P, Deeble J**

Women regarded the uterus as essential to femininity or womanhood and very few saw it as affecting sexuality.

**Eicher:** Sexual function and sexual disorders after hysterectomy.

Geburtn Shilfe Frauenheilkd 1993 Aug 53 (8) 519-29.

Hysterectomy leads to a temporary impairment of sexual behaviour.

Psychological factors also play an important part.

Regarding the pre existing psychological traits and psychiatric outcome,

**Geburtshilfe Frauenheilkd. 1996 Sep; 56(9) : 473-81.**

**Strauss B, Jakel I, Koch – Dorfler M, Lehmann - Willenbrock E, Giese KP, Semm K.**

These findings support view that consequences of hysterectomies are more likely to be predicted on the basis of psychological traits that existed before the operation, rather than from a medico- technical point of view.

Gynecol obstet Fertil . 2002 Jun; 30 (6): 474-82.

**J psychosom Obset Gynaecol , 2003 Jun; 24(2): 99- 109.**

**Donoghue AP, Jackson HJ, Pagano R.**

In assessing modeling revealed the key position of neuroticism and extraversion, which were both directly and indirectly related to pre- and post-operative depression and anxiety.

Can J Psychiatry. 1985 Feb; 30 (1) : 44-7

**Br J Psychiatry. 1982 Apr , 140 ; 343-50.**

Psychiatric outcome, measured in terms of Present state examination cases detected at 18 months , was strongly associated with preoperative mental state, neuroticism, previous psychiatric history, and family psychiatric history.



Regarding the type of surgery and psychiatric morbidity ,

**Graesslin O, Martin – Morille C, Leguillier – Amour MC.**

Psychosexual impact of hysterectomy is limited and is not more frequent when vaginal surgery is performed, but pre-and post- operative prevention can be useful.

**Lalinec – Michaud M, Engelsmann F.**

Depression occurred also more often in women who had emergency hysterectomies and in women who had expressed preoperatively some fears of possible change in their sexual life after the operation.

Bibl Psychiatric 1981; (160): 84-91.

**Nathorst: Psychological reactions sexual life after hysterectomy with and without oophorectomy- Sweden.**

O&G Invest . 1992 : 34 (2) 97-101.

Patients had more positive attitude towards the operation when ovaries were preserved . This is not so when ovaries were removed.

Berhard: Consequence of hysterectomy in the lives of women . Healths care women Int. 1992 Jul – Sept: 13 (3) 281- 91.

Prospective: Before operation, most of the women had both positive and negative feelings about hysterectomy. After 6 months most women reported atleast sometimes having negative symptoms.

The influence of place of origin and post hysterectomy psychiatric outcome is given by the following study

**Wien Klin wochenschr . 2001 Dec 17; 113 (23-24); 954-9.**

Soc Psychiatry Psychiatr Epidemiol . 1989 May ; 24 (3): 165-71.

**Lalinec – Michaud M, Engelsmann F.**

Women of European origin showed the highest scores on the Self rating depression scale at all observations, expressed more regrets about the operation and had a more difficult post – operative adjustment than the other two groups.

Education, the type of society; patriarchal versus matriarchal, the emphasis on the women’s reproductive ability in a particular culture, are among other factors that seem to play an important role.

Some studies show that the psychological reaction towards tubectomy are not long lasting.

**J Psychosom Res. 1997 Feb; 42(2) : 187- 96. Related Articles, Links**

**Tang CS, Chung TK**

There was significant improvement in women’s mental health following sterilization, and their sexual adjustment such as coital frequency and sexual satisfaction were not adversely affected at 1 year follow up.

These findings suggest that female sterilization is not associated with adverse psychological sequelae; it is recommended, however, that another follow-up be conducted 5 years after sterilization.

**Br Med J (Clin Res Ed). 1982 Feb 13; 284 (6314) : 461 –4.**

**Cooper P, Gath D Rose N, Fieldsend R)**

There was no evidence that elective interval sterilization increased the risk of psychiatric the risk of psychiatric disturbance up to 18 months after the operation.

The preoperative and postoperative psychotherapy can influence the psychiatric outcome.

**Milz; Holistic – Psychosomatic aspects of surgical organ loss Zxentralbl Gynakol 1992: 114 (B) 395- 402.**

Coping Processes after hysterectomy and breast surgery can improve following preoperative doctor patient- dialogue and post operative psychotherapeutic and body therapeutic strategies.

**Berhard – Men’s views about hysterectomy and women who have them. Image J nuts Sch. 1992 Fall: 24 (3) 177. 81.**

Many men were not knowledgeable about hysterectomy they perceived negative psychological, social, and sexual effects of hysterectomy on women.

Williamson: Sexual adjustment after hysterectomy J. O&G Neonatal Nurs. 1992 Jan – Feb: 21 – Feb: 21 (1) 42 – 7.

The impact of hysterectomy or oophorectomy is not limited to problems of altered body image and depression. Uterus removal, compounded by the possible loss of estrogen and androgens, alters sensations and the reactions that had been part of a

women's sexual response. Sexual and marital anticipatory guidance regarding decreased libidos, physical changes, loss and grief reactions.

Block: Efficacy of therapeutic suggestions for improved postoperative recovery presented during general anaesthesia.

There were no meaningful, significant differences in post operative recovery of patients receiving therapeutic suggestions and controls.

**Schofield: Self – reported long –term outcomes of hysterectomy.**

**Br. J. O&G 1991 Nov. 98 (11) 1129-36.**

Most of the women reported improvements in symptoms experienced before hysterectomy but more than half the women had symptoms which they believed had been worsened or caused by the hysterectomy. The results highlight the need to examine more closely.

Osborn- Psychological and physical determinants of premenstrual symptoms before and after hysterectomy.

After hysterectomy, levels of Premenstrual tension symptoms fell, significantly in the whole group, indicating that psychological factors were important determinants of such symptoms before hysterectomy.

**Dulaney:** A comprehensive education and support program for women

experiencing hysterectomy. J.O&G Neonatal Nurs 1990 Jul-Aug 19 (4) 319-25.

When undergoing hysterectomies require special education and emotional support.

**Health care Women Int. 1996 Jan-Feb; 17 (1): 47-55.**

**Wukasch RN.**

Abused women had a significantly ( $p < 0.05$ ) higher level of depression in the first year after the hysterectomy but not in the second year after the operation.

**Gynecol Endocrinol. 2000 Apr; 14 (2) : 132- 41.**

**Khastgir G, Studd JW, catalan**

An early detection of ovarian failure after hysterectomy, the initiation of hormone replacement therapy (HRT) immediately after surgery in perimenopausal women and in those undergoing oophorectomy, as well as regular followup to ensure long term compliance with HRT, would also improve the psychological outcome.

## **AIM**

To study psychiatric morbidity in Hysterectomised women when compared to Tubectomised women on the basis of various psycho social factors.

## **HYPOTHESIS**

1. Hysterectomy group has poorer psychiatric outcome than Tubectomy group.
2. Hysterectomy group are more depressed than Tubectomy group.
3. Hysterectomy group are more depressed and anxious than Tubectomy group.
4. Hysterectomy group who report more symptoms have suffered more stressful life events.
5. Extraverted women do not report more symptoms.
6. Neurotic women report more symptoms.
7. Psychiatric morbidity is more in nuclear type of family.
8. Psychiatric morbidity is more in younger age group.

## **METHODOLOGY**

Women underwent hysterectomy attending the outpatient Department of Obstetrics and Gynaecology, Government Rajaji Hospital, Madurai during the period from June 1<sup>st</sup> to September 30<sup>th</sup> 2005 formed the study group. Consecutive cases were screened and those who fulfilled the inclusion and exclusion criteria were selected for the study.

A control group cases of Tubectomised patients attending the same department were chosen as per inclusion and exclusion criteria.

Both the sample and control group were matched in the following variables like (1) Family type, (2) Domicile (3) Time of interview following surgery (4) Socio Economic status and (5) Marital status.

### **INCLUSION CRITERIA**

1. Women who underwent hysterectomy before the age of 40. (In India Menopausal age varies from 44 and 50 years – Wyon et al 1966, Sing et al 1983).
2. Time of interview after surgery between 6 months and 12 months.

## **EXCLUSION CRITERIA**

1. Women who underwent hysterectomy for malignancy.
2. Those with Pre and co existing physical disorders (except indications for hysterectomy or Tubectomy).
3. Those with Pre and Co existing Psychiatric disorders.
4. Those who are taking drugs which are known to alter emotional state.

Initial detailed interview with a constructed proforma designed for the purpose was conducted. After developing a rapport and getting their consent, General health questionnaire (GHQ) was administered. Goldberg's GHQ 60 item version was used. The questions were read aloud in their mother tongue and asked to indicate the response most suited them. Then they were also administered the Hamilton Anxiety Rating Scale (HARS) and Hamilton depression rating scale (HDRS) for quantification purpose. For the educated patients the scales were used as self rating tools. They were then given Eysenck's personality interview (EPI) in Tamil version and Presumptive stressful life events scale (PSLE-S) and Socio economic status-scale (SES) was reconstructed from the data obtained in the proforma.

For the cases which scored 12 or more in GHQ a detailed mental status examination following the proforma used in Institute of Psychiatry, Government Rajaji Hospital, Madurai was done.



## **TOOLS USED**

1. Proforma specially designed for the purpose.
2. General Health Questionnaire (GHQ Goldberg).
3. Hamilton Rating Scale for Anxiety (HRS-A).
4. Hamilton Rating Scale for Depression (HRS-D).
5. Presumptive Stressful Life Events Scale (PSLE-S).
6. Socio Economic Status-scale (SES).
7. Eyesenck's Personality Interview (EPI).

## **STATISTICAL ANALYSIS**

Statistical analysis was done using parametric tests like Mean, Standard deviation and students 't' test. A correlation analysis by Pearson's coefficient of correlation was done. For qualitative analysis, Non parametric tests viz., chi square was done.

## **General Health Questionnaire**

General Health Questionnaire devised by David Goldberg in 1972. It has been found to be a reliable screening instrument with acceptable reliability for the identification of patients with psychiatric problems. GHQ consists of 60 questions arranged in 3 groups.

**Group A:** General health, physical complaints, sleep disturbances.

**Group B:** Behaviour changes.

**Group C:** Emotional changes.

The scoring is done using 4 point scale 0-0-1-1 wherein if the patient has no symptoms or no more than usual symptoms they are given a score of '0' or the symptoms are more worse than usual, much more / much worse than usual they are given a score of '1'.

Optimal threshold for psychiatric case detection in a general practice setting was found to be a total score of 12 or above.

## **Hamilton's Rating Scale for Depression - HRS-D (1982)**

HRS-D is a 17item scale formulated for use with the general scoring sheet. The scale points vary from 0 to 4 to measure the severity of symptoms. There are 4 other items, the scores of which are not used to quantify depression but used as additional information.

HRS-A is one of the most widely used instruments for the clinical assessment of depressive illness.

**Applicability:** Adults with depressive symptomatology. Time span, rated: Now or within the last week.

The scale provides a simple way of assessing the severity of a patient's condition quantitatively.

A score of 3 to 7 is taken as no depression, 8 to 15 as minor depression and 16 and above as major depression.

### **Hamilton Rating Scale For Anxiety (Hrs-A) (1959)**

It is a more comprehensive and widely used general anxiety scale. It contains 14 items with severity ratings varying from 0 to 4, 0 being none, 4 being severe and grossly disabled. (It is divided into 2 broad categories viz psychic and somatic). Items 1 to 7 measure the psychic anxiety and the rest measures the somatic anxiety. The somatic part contains items, which measure systems like cardiovascular, respiratory, gastro intestinal, genitourinary and autonomic, most studies measuring anxiety use HRS-A as their tool. A cut off score of 14 and above is taken as illness.

### **Eysenck's Personality Inventory (EPI) 1963**

EPI has been devised by Eysenck based on his own dimensional theory of personality. It measures 3 dimensions viz Extraversion, Introversion & Neuroticism. There are 57 questions. Twenty four questions measure extraversion, twenty four questions measure neuroticism and the rest 9 measure lie scores. This has been translated into many Indian languages. There is a Tamil version of the inventory contributed by Institute of mental health Chennai. It is self rating inventory. The

person has to choose either 'Yes' or 'No' to each is taken as extraverted individual, a score between 8 to 11 ambiverted, a score of 7 or below is introverted. A score of more than 7 of neuroticism is taken as significant and a score of more than 5 in lie score is taken as unreliable. This scale is one of the most widely used in personality inventory.

**Socio economic status (SES) S.E. Gupta & B.P. Sethi (1978) (kuppusamy 1962)**

Socio Economic status scale consists of scores on 3 variables (Education, occupation and income) on the basis of a 10 point scale, It consists of 10 categories of socio economic status ranging from the highest to the lowest. The 10 point scale consists of 200 scores with equal class intervals. The categories are being grouped into 5 social class viz very high, upper middle, middle, lower middle and very low. The inter - rater reliability is found to be high ( $R=0.96$ ). This scale incorporates guidelines to score children, dependent persons as well as non dependent persons/married and unmarried subjects. The general remarkably lower position. The next 60 scores relate to average / slightly above average positions and the scores between 120-200 pertains to the higher positions.

The other scales (Kuppusamy 1962, Varma and Khanna 1976) which had earlier been most frequently employed in study have become irrelevant in the present socio economic context in view of substantial devaluation of money and various other social changes. In fact, the present scale (Gupta & Sethi) also needs revision.

### **Presumptive Stressful Life Events Scale (PSLE- S) Gurmeet Singh 1984**

PSLE-S is a scale of stressful life events designed for use in Indian population. The scale was revised based on Homes and Rahe's social Readjustment Rating Schedule (SRRS), because many items in the SRRS were found to be not applicable to Indian population.

The Scale consists of 51 items which are arranged in a descending order of severity. Each event is given a mean stress score which varies from 95 to 20. The events may further be divided into desirable undesirable and ambiguous, personal and impersonal. The scale may be administered for two- time spaces i.e., life time and recent one year.

## RESULTS AND INTERPRETATIONS

Table I

Distribution of SAMPLE and CONTROL with regard to AGE

S.No	Grouped age	Sample		Control		Total	
		N	%	N	%	N	%
1.	Below mean	6	20.0	23	76.6	29	48.3
2.	Above mean	24	80.0	7	23.3	31	51.7
Total		30	100.0	30	100.0	60	100.0

Chi- square= 19.9

df:1

P<0.05

Significant

The above table shows the distribution of sample and control with regard to age. The results show that where 76.7% of control lies above mean age, 80% of sample lie below mean age. This is significant. Age is not a matching variable at tubectomy is usually done around the age of 25-30 and hysterectomy around 35-40.

**Table II**

**Distribution of SAMPLE and CONTROL with regard to DOMICILE**

S.No	Domicile type	Sample		Control		Total	
		N	%	N	%	N	%
1.	Urban	11	36.7	18	60	20	48.3
2.	Rural	19	63.3	12	40	31	51.7
Total		30	100.0	30	100.0	60	100.0

Chi- square = 3.27

df:1

P>0.05

Not Significant

The above table shows distribution of sample and control with regard to Domicile type. The results show No significant difference.

**Table III**

**Distribution of SAMPLE and CONTROL with regard to GHQ  
(GHQ score more than 12 or more significant)**

S.No	GHQ type	Sample		Control		Total	
		N	%	N	%	N	%
1.	Not Significant	7	23.3	10	33.3	17	28.3
2.	Significant	23	76.7	20	66.7	43	71.7
Total		30	100.0	30	100.0	60	100.0

Chi- square = 0.74

df:1

P>0.05

Not Significant

The results of the above shows no significance in relation to GHQ score between sample and control group.



**Table IV**

**Distribution of SAMPLE and CONTROL with regard to  
FAMILY TYPE (Nuclear and Extended)**

S.No	Family Type	Sample		Control		Total	
		N	%	N	%	N	%
1.	Nuclear	18	60.0	20	66.7	38	63.3
2.	Extended	12	40.0	10	33.3	22	36.7
Total		30	100.0	30	100.0	60	100.0

Chi- square = 0.29

df : 1

P>0.05

Not Significant

The results of the above shows no significant difference with regard to family type either nuclear or extended.

**Table V**

**Distribution of SAMPLE and CONTROL with regard to  
PSLE –S Score (More than 20 units within the recent 1 year)**

<b>S.No</b>	<b>PSLE-S Type</b>	<b>Sample</b>		<b>Control</b>		<b>Total</b>	
		<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
1.	Not significant	25	83.3	26	86.7	51	85.0
2.	Significant	5	16.7	4	13.3	9	15.0
Total		30	100.0	30	100.0	60	100.0

Chi- square = 0.13

df : 1

P>0.05

Not Significant

The results of the above tables shows no significant difference between sample and control group in PSLE – S Score.

**Table VI**

**Distribution of SAMPLE and CONTROL with regard to  
Extrovert score in EPI: Cut off score 12 and above extrovert  
9-11 is Ambivert  
Below 9 is introvert**

S.No	Extrovert score type	Sample		Control		Total	
		N	%	N	%	N	%
1.	Introvert	2	6.7	8	26.7	10	16.7
2.	Ambivert	13	43.3	13	43.3	26	43.3
3.	Extrovert	15	50.0	9	30.0	24	40.0
Total		30	100.0	30	100.0	60	100.0

Chi- square = 5.00

df : 1

P>0.05

Not Significant

The results of the above table show that there is no significant difference between sample and control group with regard to Extrovert - score in EPI.

**Table VII**

**Distribution of SAMPLE and CONTROL with regard to  
Neurotic score above 7 is taken as significant**

<b>S.No</b>	<b>EPI neuro</b>	<b>Sample</b>		<b>Control</b>		<b>Total</b>	
		<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
1.	Not significant			2	6.7	2	3.3
2.	Significant	30	100.0	28	93.3	58	96.7
Total		30	100.0	30	100.0	60	100.0

Chi- square = 3.07

df : 1

P>0.05

Not Significant

The sample and control group do not differ in their neurotic score.

**Table VIII**

**Distribution of SAMPLE and CONTROL with regard to  
HAM-A (Hamilton's Anxiety rating scale)**

S.No	HAM-A type	Sample		Control		Total	
		N	%	N	%	N	%
1.	Not significant	15	50.0	19	63.3	34	56.7
2.	Significant	15	50.0	11	36.7	26	43.3
Total		30	100.0	30	100.0	60	100.0

Chi- square = 1.09

df : 1

P>0.05

Not Significant

The results of the above table shows that the sample and control group do not differ significantly in scoring on HARS.

**Table IX**

**Distribution of SAMPLE and CONTROL with regard to  
Scoring in Hamilton's depression rating scale.**

**0-7 No depression  
8-15 minor depression  
16 and above major depression**

S.No	HAM-D type	Sample		Control		Total	
		N	%	N	%	N	%
1.	No Depression	6	20.0	10	33.3	16	26.7
2.	Minor Depression	13	43.3	14	46.7	27	45.0
3.	Major Depression	11	36.7	6	20.0	17	28.3
Total		30	100.0	30	100.0	60	100.0

Chi- square = 2.51

df : 1

P>0.05

Not Significant

The results in the above table shows that the sample and control group do not vary in HAM – D.

**Table X**  
**t- test results of SAMPLE and CONTROL population**  
**With reference to different selected factors**

<b>S.No</b>	<b>Factors</b>	<b>Sample</b>	<b>Control</b>	<b>t</b>	<b>Df</b>	<b>Statistical</b>
<b>1.</b>	GHQ Mean SD SE	17.93 8.46 1.55	14.13 7.24 1.32	1.87	58	p>0.05
<b>2.</b>	PSLE-S Mean SD SE	133.73 69.93 12.77	122.43 79.58 14.53	0.58	58	p>0.05
<b>3.</b>	EPI- extrovert Mean SD SE	12.57 3.66 0.67	9.57 3.13 0.57	3.41	58	P<0.05 (Sig)
<b>4.</b>	EPI- Neuroticism Mean SD SE	14.50 3.37 0.62	13.27 3.63 0.66	1.36	58	p>0.05
<b>5.</b>	HAM-A Mean SD SE	14.50 6.20 1.13	12.33 6.24 1.14	1.35	58	P>0.05
<b>6.</b>	HAM- D Mean SD SE	14.17 6.39 1.17	10.70 5.49 1.00	2.25	58	P<0.05 (Sig)

From the above table, significant difference between sample and control are seen with reference to extroversion and Depression score in HAM- D. No significant differences are found on other factors like GHQ, PSLE-S, EPI – Neuroticism and HAM-A.

**Table XI**  
**t- test results of SAMPLE group based on GHQ score on various factors.**

<b>S.No</b>	<b>Factors</b>	<b>Not significant</b>	<b>Significant</b>	<b>T</b>	<b>df</b>	<b>Statistical</b>
<b>1.</b>	Age					
	Mean	34.86	35.48			p>0.05
	SD	3.98	5.82	0.26	28	(Not Sig)
	SE	1.50	1.21			
<b>2.</b>	PSLE-S					
	Mean	124.29	136.61			p>0.05
	SD	81.79	67.71	0.40	28	(Not Sig)
	SE	30.91	14.12			
<b>3.</b>	EPI- extrovert					
	Mean	11.71	12.83			p>0.05
	SD	2.06	4.03	0.70	28	(Not Sig)
	SE	0.78	0.84			
<b>4.</b>	EPI- Neuroticism					
	Mean	12.29	15.17			P<0.05
	SD	2.63	3.33	2.10	28	(Sig)
	SE	0.99	0.69			
<b>5.</b>	HAM-A					
	Mean	7.71	16.57			P<0.05
	SD	4.82	5.03	4.12	28	(Sig)
	SE	1.82	1.05			
<b>6.</b>	HAM- D					
	Mean	7.14	16.3			P<0.05
	SD	2.67	5.60	4.15	28	(Sig)
	SE	1.01	1.17			



Based on GHQ scores the sample was divided into two groups, not significant and significant. The above table shows significant difference between the above said groups with reference to Neurotic score in EPI and anxiety and depression scores in Hamilton's Rating Scale.

**Table XII**  
**t- test results of SAMPLE group based on DOMICLE**  
**(Urban & Rural ) type on various factors**

S.No	Factors	Urban	Rural	t	Df	Statistical
1.	GHQ					
	Mean	19.55	17.00			p>0.05
	SD	11.25	6.52	0.79	28	(Not Sig)
	SE	3.39	1.50			
2.	PSLE-S					
	Mean	112.55	146.00			p>0.05
	SD	73.22	66.83	1.28	28	(Not Sig)
	SE	22.08	15.33			
3.	EPI- extrovert					
	Mean	13.64	11.95			P>0.05
	SD	3.96	3.44	1.23	28	(Not Sig)
	SE	1.19	0.79			
4.	EPI- Neuroticism					
	Mean	15.55	13.89			p>0.05
	SD	3.62	3.16	1.31	28	(Not Sig)
	SE	1.09	0.73			
5.	HAM-A					
	Mean	15.55	13.89			P>0.05
	SD	6.46	6.15	0.70	28	(Not Sig)
	SE	1.95	1.41			
6.	HAM- D					
	Mean	15.27	13.53			P>0.05
	SD	7.60	5.70	0.72	28	(Not Sig)
	SE	2.29	1.31			

The above table shows that the sample group does not show any significant differences in various factors, when taken into consideration their domicile type i.e. , Urban and Rural people do not differ in their outcome after Hysterectomy.

**Table XIII**  
**t- test results of SAMPLE group based on FAMILY TYPE**  
**(Nuclear and Extended) on various factors**

S.No	Factors	Nuclear	Extended	t	df	Statistical
1.	GHQ					
	Mean	17.61	18.42			p>0.05
	SD	7.99	9.47	0.25	28	(Not Sig)
	SE	1.88	2.73			
2.	PSLE-S					
	Mean	123.56	149.00			p>0.05
	SD	66.51	75.04	0.98	28	(Not Sig)
	SE	15.68	21.66			
3.	EPI- extrovert					
	Mean	12.94	12.00			P>0.05
	SD	3.60	3.84	0.69	28	(Not Sig)
	SE	0.85	1.11			
4.	EPI- Neuroticism					
	Mean	14.78	14.08			p>0.05
	SD	3.32	3.55	0.55	28	(Not Sig)
	SE	0.78	1.03			
5.	HAM-A					
	Mean	14.22	14.92			P>0.05
	SD	6.04	6.68	0.30	28	(Not Sig)
	SE	1.42	1.93			
6.	HAM- D					
	Mean	13.94	14.50			P>0.05
	SD	6.35	6.72	0.23	28	(Not Sig)
	SE	1.50	1.94			

The above table shows that the sample group does not show any significant difference in various factors. When taken into consideration their family type does not influence the outcome after Hysterectomy.

**Table XIV**  
**t- test results of SAMPLE group based on GROUPEd AGE**  
**Mean age 35.33**

S.No	Factors	Below mean	Above mean	t	df	Statistical
1.	GHQ					
	Mean	18.17	17.88			p>0.05
	SD	7.06	8.91	0.07	28	(Not Sig)
	SE	2.88	1.82			
2.	PSLE-S					
	Mean	113.17	130.88			p>0.05
	SD	40.09	75.36	0.08	28	(Not Sig)
	SE	16.37	15.38			
3.	EPI- extrovert					
	Mean	12.83	12.50			P>0.05
	SD	3.49	3.78	0.20	28	(Not Sig)
	SE	1.42	0.77			
4.	EPI- Neuroticism					
	Mean	14.67	14.46			p>0.05
	SD	4.27	3.82	0.13	28	(Not Sig)
	SE	1.75	0.66			
5.	HAM-A					
	Mean	17.33	13.79			P>0.05
	SD	6.68	6.01	1.26	28	(Not Sig)
	SE	2.73	1.23			
6.	HAM- D					
	Mean	13.50	14.33			P>0.05
	SD	5.21	6.74	0.28	28	(Not Sig)
	SE	2.13	1.38			

The above table results show that the sample group does not show any significant difference in various factors when taken into consideration their age (i.e) age does not influence the out come after hysterectomy.

**Table XV**  
**Summary table on ‘t’ test results**

S.No	Variables	Sample and Control	GHQ	Family type	Domicile
			Significant Non-Significant	Nuclear /Extended	Urban/ Rural
1.	GHQ	N.S.	Sig	N.S	N.S
2.	PSLE-S	N.S.	N.S.	N.S.	N.S.
3.	EPI Extroversion	Sig	N.S.	N.S.	N.S.
4.	EPI Neuroticism	N.S.	Sig	N.S.	N.S.
5.	HAM-A	N.S.	Sig	N.S.	N.S.
6.	HAM-D	Sig	Sig	N.S.	N.S.

Sig – Significant

N.S. - Non Significant

Thus in the study statistically significant differences were found among

1. Sample and control group with regard to extra-version and depression score and
2. Within sample group when subgrouped into significant and non-significant groups with regard to neuroticism, Anxiety and Depression.



**Table XVI**

**Inter correlation matrix for selected factors in the study of**

**SAMPLE group**

	<b>Age</b>	<b>GHQ</b>	<b>PSLE-S</b>	<b>EPI-E</b>	<b>EPI-N</b>	<b>HAM-A</b>	<b>HAM-D</b>
<b>Age</b>	1.0000						
<b>GHQ</b>	+0.1283	1.0000					
<b>PSLE-S</b>	+0.0767	+0.1500	1.0000				
<b>EPI-E</b>	+0.1437	+0.0635	-0.3489	1.0000			
<b>EPI-N</b>	+0.1841	+0.4861*	+0.0884	-0.0070	1.0000		
<b>HAM-A</b>	-0.0897	+0.6532**	+0.1868	+0.1586	+0.5633*	1.0000	
<b>HAM-D</b>	+0.2726	+0.7726**	+0.3693	-0.0587	+0.5307*	+0.6721**	1.0000

+ Positively correlated

\* 99% significance

No. of cases = 30

- Negatively correlated

\*\* 99.99% significance

**The above table shows:**

1. The age factor positively Correlates with scores in GHQ, PSLE-S EPI-E, EPI-N and HAM-D and Negatively Correlates with HAM-A only.

2. The GHQ score Positively correlates with scores in PSLE-S, EPI-E, EPI-N HAM-A and HAM-D and significantly with EPI-N and very significant with HAM-A & HAM-D.
3. The PSLE-S positively correlates with EPI-N, HAM-A and HAM-D negatively correlates with EPI-E.
4. The EPI-E score Negatively Correlates with EPI-N and HAM-D positively correlates with HAM-A.
5. The EPI-N score positively correlates significantly with both HAM-A with and HAM-D.
6. The HAM-A score positively correlates with HAM-D which is very significant.

## DISCUSSION

### **Hypothesis (1) Hysterectomy group has more psychiatric morbidity than Tubectomy group**

Table III indicates the distribution of sample and control with regard to GHQ, does not differ significantly. Also the table X shows the same finding as per 't' test results ( $p>0.05$ ). But when the hysterectomy group alone is analysed with regard to various factors, table XI those who have scored more in EPI-N, HAM-A and HAM-D, the hysterectomy group significantly scored more in GHQ ( $p<0.05$ ).

The finding of poor outcome was often noted in the earlier studies Lindeman 1941, Stengel et al 1958, Ackner 1960, Barglow 1965, Bragg 1965, Richards 1973, Zervos and Papaloucas 1972, Keltreides et al 1976 – Source Recent Advancement in Clinical psychiatry. In cli psy(4) 1982, Subramaniyam 1982, Vyas et al 1989, Anderson 1993, Bernhard 1992, Ohkawa 1992, Willisamson 1992, Schofield 1991, Except some studies (Patterson & Craig 1963, Gath 1980, Gath studies (Patterson & Craig 1963, Gath 1980, Gath and Cooper 1981, Gath et al 1981).

### **Hypothesis (2) Hysterectomy group are more depressed than Tubectomy group:**

Table IX indicates the distribution between Hysterectomy and Tubectomy group does not differ in relation to HAM-D score ( $p>0.05$ ). Table X – Sample and control differ significantly ( $p<0.05$ ). The studies that support this hypothesis are by

Subramanian 1982, Barglow 1965, Richards 1974- source Recent Adv. In cli psy. 1982. But this opposed by Martin et al 1980 – source Recent Advt. incdi. Psy. 1982).

**Hypothesis (3) – Hysterectomy group suffer from mixed anxiety and depression than Tubectomy group:**

Table XV shows that those who have more in GHQ have scored more equally in both HAM-A and HAM-D and that too significantly ( $p < 0.05$ ).

**Hypothesis (4) – Hysterectomy group who report more symptoms have suffered from more stressful life events:**

Table V indicates the distribution of sample and control group with regard to PSLE-S score without any significance ( $p > 0.05$ ).

Table X also shows the same observation. But the GHQ score is positively correlated with PSLE-S as shown in table XVI. This shows that when the stress is significantly more the GHQ score also will be more.

**Hypothesis (5): - Extrovert women do not report more symptoms:**

Table VI indicates the distribution of hysterectomy group and tubectomy group with regard to extrovert score in EPI without significance. Table XI shows that those who are extrovert do not report significantly in GHQ ( $p > 0.05$ ). But table XVI denotes that those who are extrovert in EPI are positively correlated with HAM-A and negatively with EPI-N, and HAM-D. This finding is not statistically significant  $p > 0.05$ .

**Hypothesis (6) – Neurotic women report more symptoms:**

Table VII indicates the hysterectomy group and tubectomy group do not differ in distribution.

Table XI indicates significance in relation to GHQ. Table XVI indicates the neurotics are positively correlated with PSLE-S and significantly and positively with GHQ. This is supported by many studies Gath et al 1981 (Rec. Adv. In Cli. Psy.) Subramanian and Subramaniyan IJP 1982.

**Hypothesis (7) – Psychiatric morbidity is more in Nuclear type of family than Extended type:**

Table IV shows the distribution of sample and control group without significance

Table XIII indicates the hysterectomy group does not show any significant difference in relation to the score in GHQ, PSLE-S, EPI-E, EPI-N, HAM-A, or HAM-D. By this it is inferred that the type of family does not vary with the psychiatric outcome. But it may be suggested that the analysis of family support system might give some clue regarding its influence on outcome.

**Hypothesis (8)- Psychiatric morbidity is more in younger people of hysterectomy group:**

Table I shows distribution of sample and control group with regard to age and the results indicate significant difference between them. As we know the age of tubectomy is commonly earlier than the hysterectomy group differ for each. When

analysed within the group the table XIV indicates that the age does not influence the outcome after hysterectomy.

But some studies quote younger age group have more symptoms. Patterson & Craig 1963 & Bragg 1965, Richards 1973- source Rec. Ad. In Cli. Psy. (1982).

But this study does not prove the hypothesis

### **Discussion based on inter correlation matrix table on selected factors**

1. The age is positively correlated with score in GHQ, PSLE-S, EPI-E, EPI-N, HAM-D and negatively with HAM-A. From this observation we can infer that as the person becomes older, she is liable to give more symptoms, become more neurotic and more depressed than anxious, and the anxiety will become lesser.

Younger the hysterectomy done better the outcome will be:

2. The GHQ score with more symptoms are positively correlated with all other factors like stress, extraversion, neuroticism, anxiety and depression. Already many are convinced that stress leads to symptoms, extrovert expresses symptoms, neurotics are prone for symptoms (Significant finding in this study). Anxiety leads to more symptoms (Very significant in the study) and depressions will have more symptoms. The person being a neurotic in personality is definite to develop overt anxiety and or depression.. It cautions that a person complaining more symptoms should be looked carefully for anxiety and /or depression and treated promptly.

3. PSLE-S (Stress) is positively correlated with neuroticism, Anxiety, and Depression. Many workers in the past have already speculated about the adverse effects of stress on psychiatric outcome or it may be said that stress always a contributing factor for the development of psychiatric morbidity. So any person with more stress undergoing hysterectomy should be warned about the outcome.
4. Extraversion is negatively correlated with neuroticism and depression but positively with anxiety. The observation from this table indicates extraverted person is prone for anxiety rather than Depression and he\she will less likely to be neurotic.
5. Neuroticism is positively and significantly correlated with anxiety and depression. So any neurotic candidate who is offered hysterectomy should definitely be cautioned about the outcome or anticipated for poor outcome to interfere in advance.
6. Anxiety is positively and significantly correlated with depression. It is not a surprise that anxious person is apprehensive and more pessimistic like depressives rather optimistic like extraverts. So it is suggested to ask for the anxiety symptoms if any before the surgery and removed if accessible.

## CONCLUSION

Hysterectomy is common among Gynaecological surgeries now a days. We know still most women think the uterus is the major organ of femininity. So the perception towards the loss of it seems to cause psychological trauma which eventually leads to psychiatric morbidity. This study, though it is retrospective one proves definitely increased psychiatric morbidity with significant correlations with neurotic personality. Common presentations are being more of depression than anxiety and depression in mixed state. So this should be kept in mind while predicting the outcome after hysterectomy.

The inter correlation matrix table on various factors involved in the psychiatric outcome after hysterectomy, is positively correlating with stress, extraversion and neuroticism. By this study, the family type and the younger age at the time of hysterectomy do not influence the psychiatric outcome.



## LIMITATIONS OF THE STUDY

1. The major limitation of the study is the fact that it is a cross sectional analysis involving small sample size. The limitation have been attributable truly to paucity of time.
2. Patient's having different indications for hysterectomy can give rise to psychiatric symptoms due to the disease per se which are not taken into account.
3. Regarding analysis of life events, data was collected later, distortion to time and recall bias has to be kept in mind while discussing the findings. Patients forget, deny & repress. As a result, when patients are asked to retrospectively report life events, they tend to forget events that are shrouded in the past.
4. P.S.L.E. scale picked up only certain life event. Everyday "Hassles" which may cause a life event is not scored in the life event scale. Hence important stress was probably missed.
5. Follow of patients would help understand the illness, its course and outcome. But follow up of patient could not be done and many of the patients did not turn up even they are adequately informed for follow up.

## **PRACTICAL IMPLICATIONS**

1. Hysterectomy is a psychologically traumatizing event. An awareness programme can be put forward to the general public regarding the myth that hysterectomy can lead to general body weakness. The Psychological reactions towards the removal of uterus can be highlighted.
2. A routine presurgical counselling in psychiatric ward can be useful in identification of potential personalities and psychotherapy can be given before surgery.
3. Regular follow up in anticipated patients in Psychiatric unit with psychotherapy can reduce the risk of psychiatric morbidity mainly depression and can improve the quality of type.
4. Improving the interpersonal relationship between family members, and improving the ability to cope with life stresses play a important role in reducing the psychiatric morbidity and improving mental health.

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## PROFORMA

Name:

Age:

Address:

Marital Status:

Education:

Income

Occupation

Duration after hysterectomy / Tubectomy (6-12 months)

1. General health questionnaire
2. Hamilton's Anxiety Rating scale
3. Hamilton's Depression Rating scale
4. Eyesenck's personality inventory
  - E- score
  - N- score
5. Presumptive Stressful Life Event Scale
6. Socio Economic Status Scale

# HAMILTON'S ANXIETY RATING SCALE

(Anxiety symptoms rating scale – Hamilton)

Scored on 4 point scale	Severe	3
	Moderate	2
	Mild	1
	Absent	0

## 1. Somatic symptoms of anxiety:

### A. Cardio – respiratory

- 1) Palpitation
- 2) Sinking over heart or a epigastric region.
- 3) Breathlessness – hyperventilation – difficult breathing
- 4) Flushing of face
- 5) Excessive sweating
- 6) Fainting feeling or giddiness

### B. Pertaining to the head

- 1) Headache
- 2) Heaviness of head- pressure on head- off sensation in the head – gas going in to the head.

### C. Pertaining to special sense

- 1) Burning of the eyes
- 2) Blurring of vision – spot in vision

- 3) Tinnitus – noises in the head
- 4) Unpleasant taste

#### **D. G.I.Tract symptoms**

- 1) Lack of appetite or Dyspepsia
- 2) Excess of appetite
- 3) Tremors
- 4) Back ache
- 5) Aches and pains and tension
- 6) Parasthesia of limbs

#### **E. Musculocutaneous symptoms**

- 1) Twitching of muscle – shivering of limbs – trembling
- 2) General weakness – easy fatiguability
- 3) Tremors
- 4) Back ache
- 5) Aches and pains and tension
- 6) Parasthesia of limbs

#### **F. Genito urinary symptoms**

- 1) Frequency of micturition
- 2) Burning sensation in the urethra
- 3) Passage of whitish material in the urine (M)
- 4) Nocturnal emission frequent (M)

5) Premature ejaculation (M)

6) Amenorrhoea (F)

7) Dysmenorrhoea (F)

8) Leuchorrhoea (F)

### **Psychological components of Anxiety**

#### **1. Fears:**

- i) Fear of impending death
- ii) Fear of insanity /Bodily illness
- iii) Fear of crowds
- iv) Fear of dark places or closed places
- v) Fear of traveling in bus or train

#### **2. Memory disturbances:**

- i) Lack of concentration
- ii) Forgetfulness – misplacing things.

#### **3. Feelings:**

- i) Feeling of inferiority
- ii) Feeling of insecurity – being left alone

#### **4. Tension**

- i) Intolerability to noise
- ii) Intolerability to adverse news or sights
- iii) Irritability

## **5. Sleep disturbances:**

- i) Disturbed sleep – anxious dreams
- ii) Insomnia – Initial – Difficulty in falling asleep
- iii) Middle – Restless during night
- iv) Delayed : Waking early hours of morning

## **6. Mood**

- i) Worrying about self
- ii) Worry about family
- iii) Anticipation of the worst
- iv) Depressed mood

No happiness – sad mood

Pessimism

Weeping

Suicidal ideas

Total symptom rating score

Total symptom rating quotient

# HAMILTON DEPRESSION RATING SCALE

## 1) DEPRESSED MOOD

(Sadness, hopelessness, helplessness, worthlessness)

0= Absent

1= These feeling state indicated only on questioning

2= These feeling states spontaneously reported

3= Communicates feeling states non- verbally

(ie) Through facial expression, voice & tendency to weep

4= Patient reports virtually only these.

## 2) FEELING OF GUILT

0= Absent

1= Self- approach, feels he has left people down

2= Ideas of guilt or rumination over past errors or sinful deeds

3= Present illness is a punishment. Delusion of guilt

4= Hears accusatory or derogatory voices and /or experience threatening visual hallucinations.

## 3. SUICIDE

0= Absent

1= Feels life is not worth living

2= Wishes he were dead or any thoughts of possible death to self

3= Suicidal ideas or gestures

4= attempts at suicide (any serious attempts rate 4)

#### **4. INSOMNIA (EARLY)**

0= No difficulty in failing asleep

1= Complaints of occasional difficulty

2= complaints of difficulty in falling asleep

#### **5. INSOMNIA (MIDDLE)**

0= No difficulty

1= Complaints of being restless and disturbed during the night

2= Waking during the night (Except for purpose of voiding)

#### **6. INSOMNIA (LATE)**

0= No difficulty

1= Waking in early hours of the morning but goes back to sleep

2= Unable to fall asleep again if he gets out of bed.

#### **7. WORK AND ACTIVITIES**

0= No difficulty

1= Thoughts and feelings of incapacity, fatigue or weakness related to activities, work or hobbies.

2= Loss of interest in activity hobbies or work either directly reported by patient or indirectly in listlessness indecision and vacillation (feels he has to push off to work or activities)

3= decreases in actual time spent in activities or decrease in productivity.



## **8. RETARDATION**

(Slowness of thought and speech; impaired ability to concentrate, decreased motor activity)

0 = Normal speech & thought

1= Slight retardation at interview

2= Obvious retardation at interview

3= Interview difficult

4= Complete stupor

## **9. AGITATION**

0= None

1= Fidgetiness

2= playing with hands, hair pulling , biting of lips

## **10. ANXIETY (PSYCHIC)**

0 = No difficulty

1= Subjective tension and irritability

2= Worrying about minor matters

3= Apprehensive attitude apparent in face or speech

4= Fears expressed without questioning

## **11. ANXIETY (SOMATIC)**

(Physiological concomitants of anxiety such as

Gastrointestinal; dry mouth, indigestion, diarrhoea, cramps, belching cardiovascular; palpitations, headaches Respiratory: hyperventilation, sighing

0= Absent

1= mild

2= Moderate

3= Severe

4= Incapacitating

## **12. SOMATIC SYMPTOMS – GASTRO INTESTINAL**

0 = None

1= loss of appetite but eating without staff encouraging

2= Difficulty eating without staff urging.

## **13. SOMATIC SYMPTOMS –GENERAL**

0 = None

1= Heaviness in limbs, back, or head, Backaches head ache, muscle aches.

Loss of energy and fatigability

2= Any clear cut symptom rates – 2.

## **14. GENITAL SYMPTOMS**

(symptoms such as loss of libido , menstrual disturbances)

0= Absent

1= Mild

2= Severe

## **15. HYPOCHONDRIASIS**

(On weekly ratings by ward psychiatrist, when actual weight changes are measured)

0= Not present

1= Self absorption (bodily)

2= Preoccupation with health

3= frequent complaints requests for help etc.,

## **16. LOSS OF WEIGHT**

(On Weekly ratings by ward psychiatrist, when actual weight changes are measured)

0= Less than 0.5kg weight loss in week

1= Greater than 0.5kg weight loss in week

2= Greater than 1kg weight loss in week

3= Not assessed

## **17. INSIGHT**

0= Acknowledges being depressed and ill

1= Acknowledges illness but attributes cause to bad food, climate, over work,  
virus need for rest etc.,

2 = Denies being ill at all.

## **18. A. DIURNAL VARIATION**

(whether symptoms are worse in morning or evening if no diurnal variation

mark (0)

0= No variation

1= Work in AM

2= Work in PM

0= none

1= mild

2= Severe

## **19. DEPERSONALISATION AND DEREALIZATION**

(Such as feelings of un reality, nihilistic ideas)

0= Absent

1= Mild

2= Moderate

3= Severe

4= incapacitating

## **20. PARANOID SYMPTOMS**

1= None

2= Ideas of reference

3= Delusions of reference and persecution

## **21. Obsessional and compulsive symptoms**

0 = Absent

2 = Mild

3 = Severe

## PRESUMPTIVE STRESSFUL LIFE EVENTS SCALE

(GURMEET SINGH ET AL, 1984)

Sl.No	Life Event	One year	Life time
01	Going on a pleasure trip pilgrimage (20)		
02	Wife begins or stops work (25)		
03	Change in eating habits (27)		
04	Change in social activities (28)		
05	Reduction in number of family functions (29)		
06	Gain of new family member (30)		
07	Birth of daughter (30)		
08	Change in sleeping habits (33)		
09	Change in working condition or transfer (33)		
10	Retirement (35)		
11	Begin or end schooling (36)		
12	Outstanding personal achievement (37)		
13	Change or expansion of business (37)		
14	Change in residence (39)		
15	Unfulfilled commitments (40)		
16	Trouble with neighbour (40)		
17	Getting married or engaged (43)		
18	Appearing for examination or interview (43)		
19	Failure in examination (43)		
20	Death of pet (44)		
21	Major purchase or construction of house (46)		
22	Breakup with friend (47)		
23	Family conflict (47)		
24	Minor violation of law (48)		
25	Marriage of daughter or dependent sister (49)		
26	Large loan (49)		
27	Lack of son (51)		
28	Self or family member unemployed (51)		
29	Sexual problems (51)		
30	Conflict over dowry (self or spouse) (51)		
31	Pregnancy of wife (wanted or unwanted) (52)		
32	Prophecy of astrologer or palmist, etc (52)		
33	Trouble at work with colleagues, superiors or subordinates (52)		

34	Illness of family member (52)		
35	Financial loss or problems (54)		
36	Son or daughter leaving home (55)		
37	Major personal illness or injury (56)		
38	Broken engagement or love affair (57)		
39	Conflict with in laws (other than over dowry) (57)		
40	Excessive alcohol or drug use by family members (58)		
41	Robbery or theft (59)		
42	Death of a friend (60)		
43	Property or crops damaged (61)		
44	Marital conflict (64)		
45	Death of close family members (66)		
46	Lack of child (67)		
47	Detention in jail of self or close family member (72)		
48	Suspension or dismissal from job (76)		
49	Marital separation / divorce (77)		
50	Extra marital relation of spouse (80)		
51	Death of spouse (95)		

Total Number of Life Events (One year)

Life Events Scored (One year):

Total Number of Life Events (Life time):

Life events Score (Life time):

## **SOCIO – ECONOMIC STATUS SCALE**

**(S. C. GUPTA & B.P. SETHI, 1978)**

### **Scoring indicators**

#### **I) Education Score**

- a. Score of self for adults
- b. Score of the guardian for children up to the 20 years

#### **II) Income score:**

Total monthly income of the family members living together

#### **III) Occupational score**

It takes into consideration financial dependency as well as marital status of the individual.

#### **A) Unmarried subjects (including widowed & separated)**

- i) Working individual - occupational score of the self
  - ii) Neither working nor dependents – 50% of the sum of educational and income scores.
- i) Non- Working dependents – 50% of the occupational score of the guardian upon whom mainly dependent.

#### **B) Married subjects**

- i) Both spouses non-working (dependent) – 50% of the occupational score of the guardian upon whom mainly dependent.

- ii) Both spouse non-working but not dependent – 50% of the sum of the scores education and income
- iii) Only one spouse working – score of the working spouse.
- iv) Both spouse working – Score of the spouse having higher occupational position.

### **SCORING MANUAL**

<b>Sl. No</b>	<b>Educational categories</b>	<b>Score</b>
1	Up to 5 <sup>th</sup> class	20
2	Less than High School	40
3	High School	60
4	Intermediate	80
5	Graduation (Excluding professional subjects *) or technical diploma	100
6	Post graduation excluding professional subjects	120
7	Post graduate diploma in non- professional subjects ; BE; B.Tech; B. Arch; MBBS; BMBS; BIMS; MDS; BDS LLB	140
8	Post graduate diploma or degree in professional subjects ; Ph.D	160
9	D.Lit; Dsc or Equivalent ; and award of membership or fellowship from professional institutions of international recognition.	180
10	National or international award for the academic or scientific achievements.	200



## **ENGINEERING, MEDICINE AND LAW**

<b>Sl. No</b>	<b>Income (Rs.)</b>	<b>Score</b>
1	Up to 250	20
2	251-500	40
3	501-750	60
4	751-1000	80
5	1001-1500	100
6	1501-2500	120
7	2501-5000	140
8	5001-10,000	160
9	10,000-15,000	180
10	Above 15, 000	200

<b>Sl. No</b>	<b>Occupational groups</b>	<b>Scale</b>
	<b><i>1. Skilled and Semi – skilled</i></b>	<b>Scale</b>
1.1	Semi- skilled or unskilled workers (e.g., barber unskilled labour)	40
1.2	Skilled workers (drivers , painters, mechanics, printers, watch repairers)	60
1.3	Skilled workers of higher rank of having special training	80
	<b><i>2. Officer work and Equivalent</i></b>	
2.1	Peon, Chowkidar, Constable or equivalent	40
2.2	Junior grade office assistant, dispatcher, head constable or equivalent	60
2.3	Senior grade office assistant, sub inspector or lower grade inspectors (e.g., Sanitary inspector, supervisors in private or public organisation).	80
	<b><i>3. Teaching job</i></b>	
3.1	Teachers of primary and Junior High school	60
3.2	Teachers of High School or Intermediate (Excluding Principal of intermediate College)	80
3.3	Lectures and Readers in the University or equivalent, Principal of intermediate College.	100
3.4	University Professors and Principals of degree or post graduate college.	120
3.5	Eminent professors having national or international recognition	160
	<b><i>4. Business</i></b>	
4.1	Petty business and small shop- keepers	60
4.2	Middle class businessman	80
4.3	Businessman or industrialist of upper strata	100
4.4	Eminent businessman in the town or city	120
4.5	Eminent industrialist in the state of country	160
	<b><i>5. Professional jobs (medicine, law, and engineering)</i></b>	
5.1	Individuals in the profession of medicine. Law or technology having no recognized training.	60
5.2	Qualified professional having no specialization	80
5.3	Specialist in the professional jobs	100
5.4	Senior Grade specialist	120
5.5	Eminent professionalists in the field	160

	<b>6. Semi – Professional</b>	
6.1	Junior grade technical or scientific assistants, lower grade semiprofessionals (Pharmacists and nursing staff)	60
6.2	Senior grade technical or scientific assistants and the semi professionals of average grade (psychologists, statisticians, social workers, surveyors, etc.	80
6.3	Scientist employed as class I and class II in the central Govt. or equivalent employees in either organizations, assistant or joint director or vice – principal in the technical institutions.	100
6.4	Directors of principals in technical institutions	120
6.5	Directors of highly prestigious technical institutions and for scientist of international recognition	160
	<b>7. Artist and literary men</b>	
7.1	Low grade artists, actors, writers , religious pandits, palmists and similar others having little expertise .	60
7.2	Individuals of above category having considerable expertise	80
7.3	Experts of above categories having high social image	100
7.4	Most eminent writers , poets, magicians, religious , figures, artists and actors.	120
	<b>8. Agriculture</b>	
	(This category was included because some urban residents may have agriculture or orchard as their main source or livelihood)	
8.1	Small size holding of agriculture or orchard which can hardly meet the basic needs of a family.	60
8.2	Medium size holding or agriculture or orchard sufficient of average middle class family in an urban setup.	80
8.3	Large size holding of the above nature which can comfortably meet the requirements of an upper middle class family.	100
8.4	Agriculturist or fruit grower of very large size holding	120
	<b>9. Administrative</b>	
9.1	Office superintendent, Section Officers, Inspectors (e.g., police , Sales Tax, Income Tax, etc) Junior PCs, Officers including Tashildar and equivalent.	100

9.2	IAS and equivalent services (e.g., IPS, IFS, ISS or Senior PSC)	120
9.3	Senior IAS and equivalent ; Vice – Chancellor, Director-General , Heads of prestigious Institutions 180	140
		160
		180
		200
	<b><i>10. Judicial service</i></b>	
10.1	Munsif , Honorary magistrate or equivalent	100
10.2	District and senior judge	120
10.3	Judges of high	140
10.4		160
10.5		180
10.6		200
	<b><i>11. Political Leaders</i></b>	
11.1	Leaders of district level (block Pramukh, corporation or Equivalent)	100
11.2	M.P., M.L.A, M.L.C, District Chairman and City Major	120
11.3	Major of Metropolitan City, State Ministers and Union deputy ministers and other political headers of equivalent leve.	140
11.4		160
11.5		180
11.6		200

## Social Status Categories

On the basis of sum scores of the three variables , an individual's status can be ascertained from the following.

Status category	Total score	Major social class	Its description
1	476 and above	Very high	Individuals of most prestigious social position, mainly consisting of top-most businessmen, politicians, administrators, scientists , professional men or highly distinguished persons in the other fields.
2	426-475	Very high	Same as above
3	376-425	Upper middle	Individuals of above categories having obviously higher social position but not belonging to the top most category in their specialties. This standard of living is definitely of a superior class and as such they would constitute only a small percentage of our urban society
4	326-375	Upper middle	Same as above
5	276-325	Middle Class	Although inferior to the upper middle class. Their individual scores on the 3 variable are likely to be in the range of 80 to 100
6	226-275	Middle Class	Same as above
7	176-225	Lower Middle	Majority of urban subjects are likely to belong to this category. Their substandard of living makes their existence on urban society a marginal one. Their individual scores on the 3 variables usually range between 60 to 80
8	126-175	Lower Middle	Same as above
9	76-125	Very low	These individuals are characterizes with lower standard of living . Their educational occupational as well as financial position is almost at the lowest level and as such they belong to the most disadvantageous class having very little to survive.
10	Up to 75	Very low	Same as above

**THE GENERAL HEALTH QUESTIONNAIRE ( 60 ITEM VERSION)**

<b>HAVE YOU RECENTLY</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>
1. Been feeling perfectly well and in good health	Better than usual	Same as usual	Worse than usual	Much worse than usual
2. been feeling in need of a good tonic	Not at all than usual	No more than usual	Rather more than usual	Much more than usual
3. been feeling rundown out of sorts?	Not at all	No more than usual	Rather more than usual	Much more than usual
4. felt that you are ill?	Not at all	No more than usual	Rather more than usual	Much more than usual
5. been getting any pains in your head?	Not at all	No more than usual	Rather more than usual	Much more than usual
6. been getting a feeling of tightness of pressure in your head	Not at all	No more than usual	Rather more than usual	Much more than usual
7. been able to concentrate on whatever you are doing?	Better than usual	Same as usual	Rather more than usual	Much more than usual

8. been afraid that you were going to collapse in a public place?	Not at all	No more than usual	Rather more than usual	Much more than usual
9. been having hot or cold spells?	Not at all	No more than usual	Rather more than usual	Much more than usual
10. been sweating a lot?	Not at all	No more than usual	Rather more than usual	Much more than usual
11. found your self waking early and unable to back to sleep?	Not at all	No more than usual	Rather more than usual	Much more than usual
12. been getting up feeling sleep hasn't refreshed you?	Not at all	No more than usual	Rather more than usual	Much more than usual
13. been feeling too tired and exhausted even to eat?	Not at all	No more than usual	Rather more than usual	Much more than usual
14. lost much sleep over worry?	Not at all	No more than usual	Rather more than usual	Much more than usual
15. been feeling mentally and wide awake?	Better than usual	Same as usual	Less alert than usual	Much more than usual

16. been feeling full of energy? wide awake?	Better than usual	same as usual	less energy than usual	Much more than usual
17. had difficulty in getting of to sleep?	Not at all	No more than usual	Rather more than usual	Much more than usual
18. had difficulty in staying asleep once you are off?	Not at all	No more than usual	Rather more than usual	Much more than usual
19. been having frightening or pleasant dreams?	Not at all	No more	Rather than usual	Much more than usual
20. been having rest less distributed nights?	Not at all	No more than usual	Rather more than usual	Much more than usual
21. been managing to keep yourself busy?	More than usual	same as usual	Longer than usual	Much more than usual
22. been taking longer time to do things?	Quicker than usual	Same as usual	Longer than usual	Much longer than usual
23. Tended to lose interest in your ordinary activities?	Not at all	No more than usual	Rather more than usual	Much more than usual
24. been losing interest in your personal appearance?	Not at all	No more than usual	Rather more than usual	Much more than usual



25. been taking less trouble with your clothes?	More trouble than usual	same as usual	less trouble than usual	Much less than usual
26. been getting out of the house as much as usual?	More than usual	same as usual	Less than usual	Much less than usual
27. been managing as well as most people would in your shoes?	Better than most	about the same	Rather less well	Much less well
28. felt on the whole you were doing things well?	Better than most	about the same	Rather less well	Much less well
29. been late getting to work or getting started on your house work?	Not at all	No more than usual	Rather more than	Much more than usual
30. been satisfied with the way you have carried out your work?	More satisfied	about same as usual	Less satisfied than usual	Much less satisfied
31. been able to feel warmth and affection for those near to you	Better than most	about the same as usual	Less well than usual	Much less well
32. been finding it easy to get on with other people?	Better than most	about the same as usual	Less well than usual	Much less well
33. spent much time chatting with people?	Better than most	about the same as usual	Less well than usual	Much less well

34. Kept feeling afraid to say anything to people in case you made a fool of yourself?	Not at all	No more than usual	Rather more than usual	Much more than usual
35. felt that your are playing a useful part in things?	More than usual	Same as usual	Less than usual	Much less than usual
36. felt capable of making decisions about things?	More than usual	same as usual	Less than usual	Much less than usual
37. felt you're just not able to thing that you have to do?	Not all	No more than usual	Rather more than usual	Much more than usual
38. felt your self dreading every thing that you have to do?	Not at all	No more than usual	Rather more than usual	Much more than usual
39. felt constantly under strain?	Not at all	No more than usual	Rather more than usual	Much more than usual
40. felt you couldn't overcome your difficulties?	Not at all	No more than usual	Rather more than usual	Much more than usual
41. been finding life a struggle at the time?	Not at all	No more than usual	Rather more than usual	Much more than usual

42. been able to enjoy your normal day to day activities?	More than usual	Same as usual	Less than usual	Much less than usual
43. been taking things hard?	Not at all	No more than usual	Rather more than usual	Much more than usual
44. been getting edgy and bad tempered ?	Not at all	No more than usual	Rather more than usual	Much more than usual
45. been getting scared or panicky for no good reason?	Not at all	No more than usual	Rather more than usual	Much more than usual
46. been able to face up on your problems?	More than usual	Same as usual	Less than usual	Much less than usual
47. found everything getting on top of you?	Not at all	No more than usual	Rather more than usual	Much more than usual
48. had the feeling that people were looking at you?	Not at all	No more than usual	Rather more than usual	Much more than usual
49. been feeling unhappy and depressed?	Not at all	No more than usual	Rather more than usual	Much more than usual

50. been losing confidence in your self?	Not at all	No more than usual	Rather more than usual	Much more than usual
51. been thinking of yourself as as worthless person?	Not at all	No more than usual	Rather more than usual	Much more than usual
52. felt that life is entirely hopeless?	Not at all	No more than usual	Rather more than usual	Much more than usual
53. been feeling hopeful about your own future?	More than usual	Same as usual	Less than usual	Much less usual
54. been feeling reasonably happy all things considered?	More than usual	Same as usual	Less than usual	Much less usual
55. been feeling nervous and strung- up all the times?	Not at all	No more than usual	Rather more than usual	Much more than usual
56. felt that life is not worth living?	Not at all	No more than usual	Rather more than usual	Much more than usual
57. thought of the possibility that you might make away with your life?	Definitely not	I don't think	has crossed my mind	Definitely have

58. found at time you couldn't do anything because your nerves were too bad?	Not at all	No more than usual	Rather more than usual	Much more than usual
59. found yourself wishing you were dead and away from it all?	Not at all	No more than usual	Rather more than usual	Much more than usual
60. found that the idea of taking your own life kept coming into your mind?	Definitely not	I don't think	has crossed my mind	Definitely have

# EYSENCK'S PERSONALITY INVENTORY

NAME:  
ADDRESS

AGE:

SEX:

DATE:

fPo;f;fz;l Nfs;tpfSf;F Mk;/,y;iy vd;w gjpy; kl;Lk; \$wTk;

1. eP mbf;fb kdf; FJhfyj;pw;fhf Vq;Ffpwhah? Mk;/,y;iy
2. cd;id ed;F mwpe;j jd;ikAs;s ez;gh;fs; cd;id Mk;/,y;iy  
kfpo;tpg;gJ mbf;fb cdf;Fj; Njitg;gLfpwjh?
3. eP nghJthf ftiyaw;W ,Ug;gtdh? Mk;/,y;iy
4. ,y;iy vd;w gjpiy Vw;Wf; nfhs;s cdf;F Mk;/,y;iy  
rpukkhf cs;sjh?
5. vijr; nra;Ak; Kd;Gk; mjid epd;W epjhdpj;J Mk;/,y;iy  
Nahrpf;fpwhah?
6. VNjh xd;iwr; nra;Ntd; vd;W eP xU thf;FWjp  
nfhLj;jhy; mjid epiwNtw;w vj;jid rpukq;fs;  
Vw;gbDk; nfhL;j;j thf;if epiwNtw;w Kw;gLthah? Mk;/,y;iy
7. cd; kNdhepiy mbf;fb khWk; jd;ikAiljh? Mk;/,y;iy
8. Kd; Nahridapd;wpg; nghJthff; fhhpq;fs;  
nra;tJz;lh? Mk;/,y;iy
9. fhuzkpd;wpr; Nrhh;tile;J Nghfpd;whah? Mk;/,y;iy
10. eP vijAk; Jzpe;J nra;fpd;whah? Mk;/,y;iy

11. fth;r;rpAs;s md;dpahplj;jpy; NgRk;NghJ  
jpBnud;W ehzkiltJ cz;lh? Mk;/,y;iy
12. vg;NghNjh rpy Ntisfsy; fl;Lg;ghl;il kPwp  
NfhgkiltJz;lh? Mk;/,y;iy
13. mbf;fb fhhsaq;fs; epidj;j khj;jpuj;jpNyNa  
nra;fpwhah? Mk;/,y;iy
14. eP nra;a my;yJ Ngrf;\$lhj fhhsaq;fs; Fwpj;J  
mbf;fb ftiyg;gLtJz;lh? Mk;/,y;iy
15. nghJthf kf;fisr; re;jpg;giuf; fhI;bYk;  
Gj;jq;fisg; gbg;gij tpUk;Gfpwhah? Mk;/,y;iy
16. eP rPf;fpuj;jpy; tUj;jkilfpwhah ? Mk;/,y;iy
17. mjpfk; ntspapy; Rw;Wtjw;F tpUk;Gfpwhah? Mk;/,y;iy
18. kw;wtHfs; njhpe;jnfhs;s\$lhj NahridfSk;  
rpe;jidfSk; cdf;F Vw;gLfpd;wdth? Mk;/,y;iy
19. Nrhk;gyhfNth my;yJ rpy rkaq;fsy;  
RWRWg;ghfNth ,Uf;fpwhah? Mk;/,y;iy
20. ePq;fs; rpy Mdhy; tpNr\pj;j ez;gh;fisNa  
mila tpUk;gfpwPh;fsh? Mk;/,y;iy
21. ePq;fs; Vuhscha; gfy; fdT fhz;gJz;lh? Mk;/,y;iy
22. cd;idg; gpwh; epe;jpf;Fk;NghJ gjpYf;Fg;gjpy;

- nra;a tpUk;Gfpwhah? Mk;/,y;iy
23. Fw;w czh;r;rpahy; mbf;fb eP ghjpf;fg;gLfpwhah? Mk;/,y;iy
24. cd; gof;f tof;fq;fs; vy;yhk; ey;ydthfTk; vy;NyhUk;  
tpUk;Gfpd;wdthfNth cs;sdth? Mk;/,y;iy
25. fspahl;lq;fSf;Fr; nry;yTk; (rhjuzkhf) kpf;f  
kfpo;r;rpNahL ,Uf;fTk; cd;dhy; Kbfpwjh? Mk;/,y;iy
26. cd;id eP vg;ngHOJk; kd cisr;rypy; ,Ug;gtd;  
vd;W epidf;fpwhah? Mk;/,y;iy
27. eP mjpf RWRWg;ghdtd; vd;W kw;wth;fs; fUJfpwhh;fsh? Mk;/,y;iy
28. eP VjhtJ Kf;fpakhf xU fhhpaj;ijr; nra;JKbj;j  
gpd; mjid tpl ed;whfr; nra;jpUf;fyhNk vd;w  
vz;zj;NjhL mbf;fb tUe;Jfpwhah? Mk;/,y;iy
29. kw;wth;fNshl Nrh;e;J ,Uf;Fk;NghJ eP ngUk;ghYk;  
kTdkhf ,Uf;fpwhah? Mk;/,y;iy
30. eP rpy Ntisfspy; tPz; Ngr;Rf;F ,lkspf;fpwhah? Mk;/,y;iy
31. eP jhq;ff;\$lhj mstpW;F gy rpe;jidfs; cd;  
jyapy; votJz;lh? Mk;/,y;iy
32. eP vijahtJ njhpe;j nfhs;s epidf;Fk; NghJ  
kw;wth;fspLk; mjidg; NgRtijf;fhl;bYk;  
Gj;jfj;ijNa Gul;;bg; ghh;f;fpwhah? Mk;/,y;iy
33. cdf;F ,jag; glglg;G my;yJ ,uj;j mOj;jk; Mk;/,y;iy



Vw;gLtJz;lh?

34. mjpgf ftdk; nrYj;Jk; Ntiyia tpUk;Gfpwhah? Mk;/,y;iy
35. cly; eLf;fk; cdf;F Vw;gl;IJz;lh ? Mk;/,y;iy
36. cd;id ve;epiyapYk; fz;Lgpbff;f ,ayhj epiyapy;  
\$l Rq;f ,yhfhtpy; cd;dpLj;jpy; ,Ug;git  
vy;yhtw;iwAk; fhI;btpl vz;Zthah? Mk;,,/,y;iy
37. Nfypg;Ngr;Rfs; NgRk; \$l;lj;jpy; ,Uf;f cdf;F  
ntWg;G Vw;gLfpd;wjh?
38. rPf;fpuj;jpy; nra;ag;gLk; Ntiyfspy; <Lgl  
cdf;Fg; gphpaKz;lh? Mk;/,y;iy
39. eP xU Nfhgf;fhudh? Mk;/,y;iy
40. Vw;glf;\$ba gaq;fukhd rk;gtq;fisf; Fwpj;J eP  
ftiy milfpd;whah? Mk;/,y;iy
41. cd;Dila eltbff;iffspy; epjhdkhfTk; glglg;G  
,y;yhkYk; ele;J nfhs;fpwhah? Mk;/,y;iy
42. eP cd; Ntiyf;F vg;NghjhtJ jhkjkhf  
nrd;wpUf;fpd;whah? Mk;/,y;iy
43. eP gaq;fukhd nrhg;gdq;fs; fhz;gJz;lh? Mk;/,y;iy
44. me;epaNuhL goFk;NghJ re;jh;g;gj;ij ,oe;J  
Nghfhkhy; vy;NyhhpIKk; Ngr cdf;F tpUg;gKz;lh? Mk;/,y;iy
45. typ NehTfshy; njhe;juTfs; milfpd;whah? Mk;/,y;iy

46. mNj re;jh;gq;fspy; mjpfk; Ngiu re;jpf;fKbahky;  
 Nghdhy; cdf;F tUj;jk; cz;lhfpd;wjh? Mk;/,y;iy
47. eP vspjpy; czh;r;rprrg;gLgtD; vd;W cd;id  
 vz;Zfpwhah? Mk;/,y;iy
48. cdf;F mwpKfkhd vy;Nyhhplj;jpYk; eP epr;rakhf  
 tpUk;ghj rpyh; ,Uf;fpwhh;fsh? Mk;/,y;iy
49. eP vspjpy; mwpKfkhd vy;Nyhhplj;jpYk; eP epr;rakhf  
 tpUk;ghj rpyh; ,Uf;fpwhh;fsh? Mk;:/,y;iy
50. cd;idAk; > cd; NtiyiaAk; Fwpj;Jg; gpwh;  
 Fw;wk; \$wpdhy; eP vspjpy; kdk; Gz;gLfpwhah? Mk;:/,y;iy
51. kfpo;r;rpufkhd xU tpgj;jpy; eP re;Njhrkhf  
 ,Uf;ff; f\;lk; Vw;gLfpwjh? Mk;/,y;iy
52. jho;T kdg;ghd;ikahy; eP njhe;jutilfpwhah? Mk;:/,y;iy
53. cw;rhfkw;w FOf;fspy; cd;dhy; cw;rhfk; cz;lhf;f  
 KbAkh? Mk;/,y;iy
54. eP xd;Wk; mwpahj fhhpq;fs; Fwpj;Jg; NgRtJz;lh? Mk;:/,y;iy
55. eP cd; cly; eyk; Fwpj;Jf; ftiyg;gLtJz;lh? Mk;/,y;iy
56. mLj;jth;fspk; ghpfhr tpiahl;Lf;fs; nra;a cdf;F  
 tpUg;gkh? Mk;:/,y;iy
57. Jhf;fkpd;ikahy; mtjpg;gLfpwhah? Mk;/,y;iy

## EPI SCORING KEY

1. Yes E	11. Yes N	21. Yes N	31. Yes N	41. No E
2. Yes N	12. Yes L	22. Yes E	32. Yes N	42. No L
3. Yes E	13. Yes E	23. Yes N	33. Yes N	43. Yes N
4. Yes N	14. Yes N	24. Yes L	34. No E	44. Yes E
5. No E	15. No E	25. Yes N	35. Yes N	45. Yes N
6. Yes L	16. Yes N	26. Yes N	36. Yes L	46. Yes E
7. Yes N	17. Yes N	27. No E	37. No E	47. Yes N
8. Yes E	18. No L	28. Yes N	38. Yes N	48. No L
9. Yes N	19. Yes N	29. No E	39. Yes E	49. Yes E
10. Yes E	20. NO N	30. No L	40. Yes N	50. Yes N
51. No E	52. Yes N	53. Yes E	54. No L	55. Yes N
56. Yes E	57. Yes N			