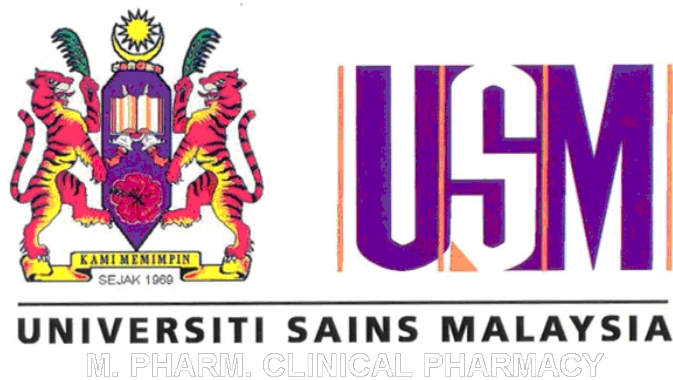


**EVALUATION OF PUBLIC KNOWLEDGE AND CLINICAL  
MANAGEMENT OF DEPRESSION IN THE STATE OF PENANG,  
MALAYSIA**

By

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**Thesis submitted in fulfilment of the  
requirements for the degree  
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## *Dedication*

*This research work is dedicated to my father Gulzar*

*Ahmed and my mother Surya Sultan Bibi*

## **ABSTRACT 1**

## KNOWLEDGE ATTITUDES AND THE PRACTICES FOR DEPRESSION IN PENANG, MALAYSIA

Syed, A.S. Sulaiman & Khan, T. Mehmood. (Sept 2007) Asian Association Of  
Colleges Of Pharmacy (AASP) Conference Philippines  
School Of Pharmaceutical Sciences, University Sains Malaysia,  
Pulau Penang 11800, Malaysia.

**Objective:** To evaluate the public knowledge regarding to the depressive disorders and its social impacts in Malaysia. **Method:** This study is conducted in Penang; a questionnaire is used to conduct this survey among the individuals over 18. This questionnaire is then distributed among the following groups.

- a) In general public.
- b) University Students (University Sains Malaysia).
- c) Patients visiting USM clinic.

The questionnaire consists of 21 questions which cover socio-demographic factors, knowledge about the causes, symptoms, treatment, beliefs and help seeking interventions. Random sampling technique is utilized and data is analysed by using SPSS version 13.

**Results:** Total number of questionnaires distributed were 1037 out of this 950 was returned and out of 950, 843 questionnaires lie in the acceptance criteria. The response rate was (81.29%). Demographics show that (35.8%) Chinese, (44.6%) Malay, (10.3%) Indian and (9.3%) others, participated in the survey. Out of this (64.2 %) were female and 35.8% were male, 445(52.8%) were Muslim, 48(5.7%) were Hindu, 60(7.1%) were Christian, 273(32.4%) were Buddhist, 17(2.0%) others. About (78.1 %) respondents mentioned that they have heard of a disease like depression and (12.5%) have no idea about it while (9.5%) don't know either it is disease or not, (12.7%) have personal experience of depression. Regarding to the information about the type of depression Tension (67.3%) and sadness (47.0%) are the most common known illness in comparison with change in behavior (28.8%) and madness (21.0%). Factors responsible for depression are Sad and Guilt feelings (73.7%), Due to failure in achievements (73.3%) Due to the death of loved ones (63.2%), Social problems (71.5%), Due to the death of loved ones (62.2%), and Examination (59.0%), Due to a relation breaks up of partner or friend (59.0%), Home and Family (56.5%). Regarding to help seeking behaviors (52.0%) likes to consult a GPs, (62.8%) have shown interest to visit psychiatrist. **Conclusion:** we conclude that in Malaysia the people have a moderate knowledge about depression some critical efforts are required to bring improvement regarding to the knowledge of depression in general public.

**Key words:** *Depression: Knowledge*

## **ABSTRACT 2**

## **A STUDY ON HELP SEEKING INTERVENTIONS FOR DEPRESSION AMONG STUDENTS AT A MALAYSIAN UNIVERSITY**

Khan, T. Mehmood., Syed, A.S. Sulaiman. & Mohamed A. Hassali.(July 2008) 8<sup>th</sup>  
Asian Conference of Clinical Pharmacy (ACCP)  
School Of Pharmaceutical Sciences , University Sains Malaysia,  
Pulau Penang 11800, Malaysia.

### **Background:**

Depression is a mental disorder that not only affects the mind and thoughts but body as well. It mainly affects the sleeping, eating patterns and the way one think about him/her self and the surrounding. In general population the group more at risk to depression are students, especially those involved in higher education at universities, engineering and medical colleges. A study shows that students in western Universities they are highly prone to depression. The main reason believed is the tough study schedule. Depression can be affectively managed if the individual is aware of how and where to seek help. Keeping in view this situation a survey conducted in June 2007 among students in Penang to examine their help seeking interventions and believes. **Methodology:** A cross sectional survey consisting 21 items was used as a tool for data collection. The items in the survey are categorized in the following themes respectively: the socio-demographics profile of the respondents, knowledge about depression, and types of self-help seeking interventions. Convenience sampling method was used in order to get potential respondents. Data obtained was analyzed using SPSS version 13.5. **Results:** A total of n=700 university students participated in this survey. Among them, 590 recognize depression as a disease, n=110 they have never heard of a disease termed 'depression'. Most commonly recognized type of depression by the students was tension followed by sadness, change in behavior and then madness. Failure in achievements and the death of loved ones are the most two commonly recognized causes for depression among the students. Majority believed that depression have a very strong impact on the social life of an individual. Mean score reflected that 49.57% students have idea about the symptoms of depression. With respect to self- help seeking interventions, majority believe (32.14%) in the efficacy of vitamins and nerve tonics. The results also sows that the respondents knowledge and believes about the antidepressant medications is very low. In term of professional help seeking n=363(51.85%) prefer to consult a GP and n=464(66.29%) like to consult a psychiatrist. **Conclusion:** There is an urgent need to increase the mental health literacy level among university student. Results show that students have moderate level of knowledge in recognizing depression symptom, which hinder their ability to seek professional help at right time.

**Key words:** *Depression, Help seeking, Tension, Mental health*

### **ABSTRACT 3**

## **PUBLIC BELIEVES ABOUT THE COMPLICATIONS OF DEPRESSION**

Khan, T. Mehmood., Syed, A.S. Sulaiman. & Mohamed A. Hassali.(July 2008) 8<sup>th</sup>  
Asian Conference of Clinical Pharmacy (ACCP)  
School Of Pharmaceutical Sciences , University Sains Malaysia,  
Pulau Penang 11800, Malaysia.

### **Objective:**

Depression is the second leading cause of disability world wide after heart diseases. Depression in general affect the mood of the individual but along with this this change In mood result many complications. These complications can be either social or physiological in nature. Through this study an effort is made to evaluate the public believes about the complication of depression.

### **Methodology:**

This is a KAP study conducted in the State of Penang Malaysia. For the purpose of data collection, a questionnaire was developed and used. The questionnaire consists of 21 items, which cover the information about the socio-demographics and knowledge of depression. This questioner then distributed among the following groups.

- a. In general public
- b. University students studying at University Sains Malaysia (USM)
- c. Patients visiting USM clinic

### **Data analysis:**

Data analysis conducted by using SPSS<sup>®</sup> version 13.0 and the tabulation and graphical representation was done using Microsoft Office<sup>®</sup> program.

### **Results**

The total numbers of questionnaires distributed were 1037. Out of this 950 returned from this figure only 843 questionnaires are deemed usable for further analysis (response rate was 81.29%). Demographics data showed that 35.8% of the respondents are from Chinese ethnic group,, 44.6% are Malays, 10.3% are Indians and 9.3% are from other minor ethic group. When the respondents were questioned about their beliefs on complications of depression, most of them (n=603; 71.53%) prioritized complication of depression as a social problem, followed by blood pressure (n=362; 42.94%), sexual disorders (n= 258; 30.60%), loss of memory (n=238; 28.23%), heart attack (n= 216; 25.62%), and diabetes mellitus (n=135; 16.01%). Other perceived complication of depression by respondents are job complications, family tension, mania, eating disorders , headache, suicide, lack of interest in work, loss of new relationship and crimes.

### **Conclusion**

Base on the survey findings, the respondents have a good knowledge towards the complications of depression, but necessary efforts are required to increase the mental health literacy especially on how to seek professional treatment and recognition for symptoms.

**Key words:** *Disability, Knowledge attitudes and precetion:KAP.*



## **ABSTARCT 4**

## RECOGNITION OF DEPRESSION AMONG MALAYSIAN

Khan, T. Mehmood., Syed, A.S. Sulaiman. & Mohamed A. Hassali. (Sept 2008) 11<sup>th</sup>  
Bridging Eastern and Western Psychiatry Congress, Turkey.  
School Of Pharmaceutical Sciences , University Sains Malaysia,  
Pulau Penang 11800, Malaysia.

### **Background:**

Ability to recognize depression is directly related with the public understanding that up to what extent public understand the symptoms. The main objective of this study was to evaluate the level of recognition for depression symptoms among Malaysians.

### **Methodology:**

A questioner based study was conducted in the State of Penang Malaysia. The questionnaire consists of 21 items, which cover the information about the socio-demographics and knowledge of depression. The symptoms mentioned in the questionnaire were in accordance with the DSM IV criteria for the evaluation of depression. The age limit for participation in the survey was 18 years and all the respondents among general public were encouraged to participate in this survey. Data collected then analysed by using SPSS<sup>®</sup> version 13.0 and the tabulation and graphical representation was done using Microsoft Office<sup>®</sup> program.

### **Results:**

The total numbers of questionnaires distributed were n=1037. Out of this n=950 returned from this figure only n=843 questionnaires are deemed usable for further analysis (response rate was 81.29%). Demographics data showed that n=35.8% of the respondents are from Chinese ethnic group,, n=44.6% are Malays, n=10.3% are Indians and n=9.3% are from other minor ethnic group. While calculating the score for the symptoms of depression mean score reveals that Chinese they have the good knowledge of depression among all with a mean score of 5, followed by Malay 4.5, other ethnic group 4.12 and Indians 3.7(maximum score was 9). All these score lies in the moderate level of knowledge. When the scale is further divided in to poor, good, moderate level then n=33.77% Chinese, n=27.66% Malay, n=10.34% Indians and other ethnic groups n=17.95% have a good knowledge about the symptoms of depression. However n=35.76% Chinese, n=38.03% Malay, n=39.0% Indians and n=37.17% other ethnic groups have moderate knowledge and n= 20.19% Chinese, n=34.31% Malay, n=48.27% Indians and n=33.33% other ethnic groups have a poor level of knowledge of depression. Still there one alarming factor that about n=10.28% Chinese, n=4.22% Indians and n=11.55% other ethnic groups in Malaysia they have 0 score and they have no idea bout the symptoms of depression.

### **Conclusion:**

Majority of Malaysians they bear a moderate level of identifications for the depression in term of identification of symptoms. Immediate efforts are required for the elevation of the knowledge on mental health issues in order to avoid the additional burned to economy.

**Key words:** *Mental health, knowledge.*

## **ABSTRACT 5**

# **DO MALAYSIANS RECOGNISE DEPRESSION? OUTCOME OF A CROSS SECTIONAL POPULATION BASED SURVEY**

Khan, T. Mehmood., Syed, A.S. Sulaiman. & Mohamed A. Hassali. (Aug 2008) 4<sup>th</sup>  
International Mental Health Conference, Mental Health For All, Young and Old,  
Organised by Institute of Psychiatry, Kings College London.  
School Of Pharmaceutical Sciences, University Sains Malaysia,  
Pulau Penang 11800, Malaysia.

**Background:** Mental health disorders are common problems faced by the both developed and under developed countries, among all mental disorders depression is the most prevalent. lack of awareness among public regarding to symptoms and causes of depression hinder their ability to seek appropriate professional help in time.

**Aim:** To determine the current awareness among Malaysians toward depression.

**Method:** A cross sectional study design was used. All university students and the people visiting restaurants, shopping malls and picnic spots willing to participate in the survey were interviewed using a 21 items based questionnaire.

**Results:** A total of N (1037) questionnaire were distributed to the potential participant. From this initial distribution a total of N (950) (91.61%) returned the questionnaires. N (843) found complete in all respects and considered for the further analysis with a response rate of (81.29%). Females they have a better knowledge level than males.

**Conclusion:** Chinese have higher knowledge about depression, but knowledge about symptoms and drug therapy is still need to be improved. Positive efforts in this regard help in, prevention, early diagnosis and treatment of the depressive disorders. More over also decrease the burden on the economics of country.

**Key words:** *Mental health problems, Depression, Socio-demographic variables, Awareness, Education level.*

## **PUBLICATION 1**

## **Evaluation of Cost and Daily Drug Dose of Fluoxetine and Sertraline in General Hospital Pulau Penang Malaysia**

Khan, T. Mehmood., Syed, A.S. Sulaiman. & Mohamed A. Hassali. (2008) Asian Journal of Pharmaceutical and Clinical Research Issue(3) In Press.  
School Of Pharmaceutical Sciences, University Sains Malaysia,  
Pulau Penang 11800, Malaysia.

**Background:** SSRIs are generally the first-line medication for depression because of the few side effects in comparison to other medicines used for depression.

**Aim:** To evaluate the cost of SSRIs in Penang general hospital Malaysia

**Methodology:** On December 2007 a retrospective and prospective study of pharmacy records (Jan 2006- Feb 2007) were done in order to calculate the cost of Selective serotonin reuptake inhibitors (SSRIs). Prescription trending for SSRIs was sought through patient's medical records from (Jan 2002 – Dec 2007). Daily drug dose was calculated by following the WHO guidelines.

**Results:** In comparison to the cost in 2006 and 2007 it shows a massive increase in direct cost of SSRIs in 2007. In 2006 cost of Fluoxetine and Sertraline were 50,063.00USD while in 2007 it increased up to 22.59% (79,297.00USD).

**Conclusion:** Cost of SSRIs (Fluoxetine and Sertraline) in 2007 has increased about 1/4<sup>th</sup> of the cost of (Fluoxetine and Sertraline) in 2006; this noticeable increase reflects increase in the prevalence of depression.

**Key words:** SSRIs, Cost, Prescription trending, Fluoxetine, Sertraline.

## **PUBLICATION 2**

## **The Causes of Depression? A Survey among Malaysians about perception for causes of depression**

Khan, T. Mehmood., Syed, A.S. Sulaiman. & Mohamed A. Hassali. (2008) Asian Journal of Pharmaceutical and Clinical Research Issue(3) In Press.  
School Of Pharmaceutical Sciences, University Sains Malaysia,  
Pulau Penang 11800, Malaysia.

**Objective:** To explore the perception among Malaysians about the causes of depression

**Methodology:** A cross sectional and descriptive population based survey was conducted in Pulau Penang Malaysia; a 21 items validated Questionnaire was distributed among the respondents using a convenient sampling method to know the public perception about the causes of depression. The causes of depression were classified to three groups 1) medical and non-medical causes, 2) personal and family issues, and 3) Education issues.

**Results:** n=1037 prospective participants were approached, 950 (91.61%) questionnaires were returned and 843 Questionnaires were found completed and complies the criteria for the further analysis with a response rate of (81.29%). Findings show that among education related issues Failure in achievements 618(73.31%), Examination 497(58.96%), Due to the death of loved ones 533(63.23%), Relation break up 497(58.96%) and feelings of Sad and Guilt 621(73.67%) are the most commonly prioritised causes of depression. Race, Gender, Education and marital status are the main demographic variables having association with the causes of depression.

**Conclusion:** Among Malaysians educational and relation ship problems were found to be the main causes of depression. There is an urgent need to review the mental health policy and the methodologies for mental health promotion; because most of the individuals less prioritise the biological reasons of depression this approach will hinder their ability to seek help at the right time.

**Key words:** *Depression, familial issues, educational issues, medical and non medical beliefs*



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**Tahir Mehmood Khan**

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## LIST OF ACRONYMS

5-HTP	5-Hydroxy tryptophan
ADAP	Adolescent Depression Awareness Program
BDI	Beck Depression Inventory
CES-D	Centre for Epidemiological Studies Depression Scale
CIDI	Composite International Diagnostic Interview
CCBT	Computerized Co-genitive Behavioural Therapy
DDD	Daily Drug Dose
DALYs	Disability Adjusted Life Years
DSM III	Diagnostic Statistic Manual III
DSM IV	Diagnostic Statistic Manual IV
ECG	Electro Cardiogram
ECT	Electroconvulsive therapy
EPDS	Ebensburg's Postnatal Depression Scale
EUR	Euro
GABA	Gamma-Amino-Butyric-Acid
GDS	Geriatric Depression Scale
GA	General Anaesthesia
GH	General Hospital
GHQ	General Health Questionnaire
GQLI	Goteborg Quality of Life Instrument
GPs	General Practitioners
HDRS	Hamilton Depression Rating Scale
HIV	Human Immune Virus
HCV	Hepatitis C Virus
AIDS	Acquired Immune Deficient Syndrome
ICD- 10	International Classification Of Disease- 10
IFN	Interferon
IPT	Interpersonal Psychotherapy
IHD	Ischemic Heart Disease
KAP	Knowledge attitudes and perceptions
KSEK	Swedish Krone
MCHP	Manitoba Centre for Health Policy
MDD	Major Depressive Disorder
MOAs	Mono Amine Oxidase Inhibitors
MOH	Ministry Of Health
MADRS	Montgomery Asberg Depression Scale
NADI	National Agency for Drug Information
NHIS-D	National Health Interview Survey Disability Supplement
NIHM	National Institute of Mental Health
NICE	National Institute for Excellence London
NeRIs	Norepinephrine reuptake inhibitors
OPD	Out Patient Department
PEG	Pegylated
PSD	Post Stroke Depression

PND	Postnatal Depression
POT	Psychoanalytically Oriented Therapy
RTMS	Repetitive Transcranial Magnetic Stimulation
SAD	Seasonal Affective Disorder
SNRIs	Serotonin-Norepinephrine Reuptake Inhibitors
SAW	South Asian Women
SEAR	South East Asian Region
SPSS	Statistical Package for Social Science
SSRIs	Selective Serotonin Reuptake Inhibitors
TCAs	Tri Cyclic Antidepressants
TC	Treatment continue
NMIR	Not Mentioned In Record
NFU	No Follow Up
TV	Television
US	United States
USM	University Sains Malaysia
VNS	Vagus nerve stimulation
WHO	World Health Organisation

## **APPENDICES**

- Appendix A Knowledge questionnaire in English
- Appendix B Knowledge questionnaire in Bahasa Melayu
- Appendix C Data collection form for hospital
- Appendix D Data collection form to evaluate the cost of depression therapy
- Appendix E Request letter for permission to conduct research at USM clinic
- Appendix F Approval from Clinical Research Committee, Ministry of Health Malaysia
- Appendix G Letter of appointment as a field supervisor
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- Appendix J NICE guideline for management of depression primary and secondary care
- Appendix K Malaysian Guideline for the management of depression
- Appendix L Current and past medical complications reported by patients

## **CONFERENCE PRESENTATIONS**

- Abstract 1 Knowledge Attitudes And The Practices For Depression In Penang, Malaysia (Poster)
- Abstract 2 A Study On Help Seeking Interventions For Depression Among Students At A Malaysian University (Poster)
- Abstract 3 Public Believes About The Complications Of Depression (Oral)
- Abstract 4 Students Perceptions & Recognition about Depression: Outcome of a survey conducted at a Malaysian University (Poster)
- Abstract 5 Do Malaysians Recognise Depression? Outcome of a Cross Sectional Population Based Survey (Oral)

## **PUBLICATIONS**

- Publication 1 Evaluation of Cost and Daily Drug Dose of Fluoxetine and Sertraline in General Hospital Pulau Penang Malaysia (In Press)
- Publication2 The Causes of Depression? A Survey among Malaysians About Perception for Causes of Depression (In Press)

## **ABSTRAK**

Depresi atau kemurungan (depression) merupakan satu daripada isu kesihatan global yang paling penting, begitu juga dalam konteks di Malaysia. Pertubuhan Kesihatan Sedunia (WHO) mengesahkan bahawa depresi sebagai penyebab utama kehilangan upaya yang disebabkan oleh kesan fizikal, psikologi dan sosial. Kesan ini dapat dikurangkan melalui penilaian pengurusan depresi, juga melalui pengetahuan, sikap serta persepsi masyarakat terhadap simptom, penyebab, perawatan serta sikap untuk meminta bantuan terhadap masalah depresi. Mengikut Kementerian Kesihatan Malaysia(MOH), tiada data semasa yang menilai isu ini. Berdasarkan keperluan untuk menilai aspek farmakoterapi dan sosial tentang depresi, maka suatu kajian secara lazim, retrospektif serta prospektif telah dijalankan di Pulau Pinang mulai Jun 2007 hingga Februari 2008.

Kajian ini dijalankan dengan 3 objektif utama; yang pertama menerokai pengetahuan, sikap serta persepsi masyarakat umum tentang simptom, penyebab serta sikap meminta bantuan terhadap masalah depresi; yang kedua untuk mendokumentasikan kaedah rawatan depresi di Unit Psikiatrik pesakit luar di hospital Pulau Pinang dan yang ketiga untuk menilai kos yang digunakan untuk membeli agen antidepresi di hospital Pulau Pinang. Sejumlah N= 1149 responden menyertai kajian ini dari dua kumpulan utama iaitu orang awam(n=1037), dan pesakit yang datang ke Unit Psikiatrik pesakit luar di hospital Pulau Pinang (n=112). Tahap pengetahuan purata secara keseluruhan dikaji dalam kalangan responden umum berdasarkan pengetahuan mereka tentang depresi. Responden dalam golongan ini yang mempunyai pengalaman peribadi didapati berpengetahuan tinggi tentang depresi. Kebanyakan mereka mengetahui tidak lebih dari tiga (3) simptom depresi. Konsep tentang mendapatkan bantuan secara professional adalah jelas namun pengetahuan tentang ubat ubatan adalah lemah. Berdasarkan kepercayaan masyarakat terhadap etiologi depresi, kebanyakan mereka percaya bahawa penyebab utamanya adalah faktor sosial (seperti masalah perkahwinan dan perhubungan) dan juga isu pendidikan. Dari segi gender, responden wanita mempunyai tahap pengetahuan yang lebih baik, terutamanya responden berbangsa Melayu. Rekod secara retrospektif dan prospektif mendapati kadar depresi adalah tinggi dikalangan wanita Cina (berusia < 50 tahun). Simptom yang sering dilaporkan oleh pesakit antaranya ialah depresi mod, gangguan tidur, hilang minat untuk berhibur, hilang selera, kurang bertenaga / letih dan sering memikirkan untuk bunuh diri. Kadar membunuh diri adalah tinggi dikalangan wanita Cina terutama kumpulan yang berusia 18-30 tahun. Etiologi utama masalah ini dari segi retrospektif dan prospektif yang diperolehi dari rekod perubatan adalah faktor sosial seperti masalah perkahwinan dan

perhubungan. Untuk tujuan diagnosis, penggunaan Inventori Depresi Beck adalah lebih kerap berbanding dengan Manual diagnostik secara statistik IV (DSM IV) dan Pengkelasan Antarabangsa Untuk Penyakit (ICD-10), yang dicadangkan oleh garis panduan pengurusan depresi di Malaysia. Sebagai tambahan, diagnosis yang dilakukan tidak disokong oleh mana-mana ujian diagnostik makmal. Kecuaian ini bukan sahaja menghalang ketepatan diagnosis bahkan ia menunjukkan ketidakpatuhan terhadap garis panduan yang dikeluarkan terutamanya yang berkaitan dengan pengurusan penyakit yang menekankan penyelarasan ujian makmal terutama yang mengalami komorbiditi seperti diabetes, kerosakan ginjal dan kardiovaskular. Trend preskripsi daripada kes prospektif menunjukkan kekerapan penggunaan SSRI (selective serotonin reuptake inhibitors). Sebaliknya, penggunaan antidepresan trisiklik, perencat monoamina oksidase dan juga perencat serotonin dan norepinefrin adalah sangat kurang. Bagi penilaian kos antidepresan, Hospital Besar Pulau Pinang telah membelanjakan RM1,070,000 untuk pembelian antidepresan dalam tahun 2006, dan kosnya meningkat kepada RM1,310,000 dalam tahun 2007. Secara keseluruhan, peningkatannya adalah 10.08% dalam tahun 2007 berbanding dengan 2006. Beban utama yang ditanggung dalam pembelian SSRI iaitu Fluoxetine dari RM80juta (2006) meningkat kepada RM140 ribu (2007) dan Sentraline dari RM79juta (2006) meningkat kepada RM113 ribu (2007). Dapatan ini mengesyorkan agar suatu program pendidikan kesihatan mental diperlukan dengan segera untuk meningkatkan pengetahuan serta kepercayaan masyarakat umum tentang depresi dan perawatannya.

Dari segi pengurusan depresi di Hospital Besar Pulau Pinang, suatu polisi pengurusan yang lebih berkesan diperlukan untuk memastikan perawatan serta kepatuhan terhadap garis panduan MOH dapat dipertingkatkan sebaiknya.

## **ABSTRACT**

Depression is one of the most important public health issues in Malaysian and global context. World Health Organisation declared depression as the leading cause of disability because of its physical, psychological and social affects. These affects can be reduced by evaluating the management of depression and through public knowledge, attitude and perception towards the symptoms, causes, treatment, and help seeking behaviour. According to Ministry of Health Malaysia (MOH), no current data is available that evaluate these issues. Based on this need to evaluate the pharmacotherapy and social aspects of depression a cross sectional, retrospective and prospective study was conducted in Penang from Jun 2007 until Feb 2008.

This study has three main objectives, firstly to explore the public knowledge, attitudes and perceptions about symptoms, causes and help seeking behaviours toward depression, secondly to document the modality used for depression treatment at the outpatient psychiatry unit of Penang general hospital and thirdly to evaluate the cost spent for purchasing antidepressants agents in Penang general hospital. A total of N(1149) respondents participated in the survey from two main groups' i.e general public (n=1037), and patients visiting psychiatry out patient department Penang general hospital (n=112). The overall average knowledge level was observed among the general public regarding the recognition of depression; however an excellent knowledge was observed among those with personal experiences. Majority has recognised not more than three symptoms of depression. Concepts about the professional help seeking were clear among all groups but the knowledge about medication was poor. Whilst exploring the public beliefs about the aetiology of depression, it was revealed that majority had highlighted social factors like marital and relationship problems followed by educational issues. In terms of gender female were found to have a better knowledge and ethnically Malay were on the top. Retrospective and prospective record has demonstrated a prevalence of depression is high among young Chinese women (age < 50 years). Most frequently reported symptoms by patients were depressed mood followed by disturbed sleep, loss of interest in enjoyment, diminished appetite, reduced energy /fatigue and suicidal/suicidal thoughts. Suicide rate was highest among Chinese female especially the age group 18-30 years. The social issues like marital and relationship problems were the main etiological factors reported in retrospective and prospective medical records. For diagnosis the use of Beck depression inventory was found frequent instead of; Diagnostic statistical manual IV (DSM IV) and International Classification of Disease (ICD-10), which are recommended by the Malaysians guideline for the management of depression. In addition to this the diagnosis was not supported by any laboratory test. This negligence not only hinders the accuracy of diagnosis but also shows non-compliance with Malaysian guideline for



management which emphasise on the laboratory test especially among those with comorbidities like; Diabetes mellitus, renal and cardiovascular disorders.

Prescription trend from the prospective cases has demonstrated the frequent use of selective serotonin reuptake inhibitors but the use of tri-cyclic antidepressants, mono amine oxidase inhibitors and serotonin and norepinephrine inhibitors were negligible. Evaluation of cost of antidepressant revealed Penang GH has spent RM 1,070,000 for the purchase of antidepressants in 2006 and this amount has increased up to RM 1,310,000 in 2007. Overall an increase of 22.4% was observed in year 2007 in comparison to year 2006. Main burden was due to the purchase of selective serotonin reuptake inhibitors i.e the cost of fluoxetine RM 80 thousand 2006 increased to RM 140 thousand in 2007 and sertraline RM 79 thousand 2006 increased to RM113 thousand in 2007. These findings recommend an immediate need of a mental health literacy program to modify the public knowledge and beliefs about depression and its treatment. In terms of management of depression at Penang general hospital an improved and strictly monitor management policy can enhance the outcome of treatment and compliance to Ministry of Health guideline as well.

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.0 Background**

Depression is defined as the state of gloomy thoughts characterized by sadness, loss of interest in activities and by decreased energy (World Health Organisation [WHO], 2008). An ancient text in Ebers Papyrus 1974, presented a short description of depression among Egyptians. History demonstrated different concept among people and cultures about depression, however in 1950, chemical imbalances in brain were perceived to be the possible cause of depression; this hypothesis was presented whilst observing the effects of reserpine and isoniazid in altering the levels of monoamine and observing the corresponding depression symptoms (Schildkraut, 1965).

In today's busy life, depression is one of the most prevalent psychological disorders diagnosed (Gregory, 2005), which is a challenge to public health (Henderson and Rickwood, 2000). Population at developing countries are at greater risk; factors due to socio-economic and demographic factors (Rauf, 2006). By the year 2020, depression is expected to become the second leading cause of disability after heart disease (WHO, 2007a).

Depression has strong associations with traumatic life events, for example, failure in academic achievements, setback in relationships, loss of financial investments, break-up of love affairs, or the death of a loved one (Gregory et al., 2005 ; WHO, 2007b). The sufferer withdraws from his personal, social and occupational

activities (WHO, 2007b). Most prevalent types of depression are major depression, bipolar depression (Manic depression), seasonal affective disorders, and post partum depression; among all common prevailing type is Major depression (Donald, 2007).

Diagnosis and the decision about the type of depression are conducted on the basis of the symptoms mentioned in the Diagnostic Statistic Manual IV (DSM IV, 1994) criteria of depression. The most disturbing consequence of depression is loss of lives due to suicide attempts. About 15% of youngsters committed suicide while suffering from depression. Previous findings provide evidence of high suicide rate among Scandinavians (Rauf, 2006), but in 2002 it was observed highest among Sri Lankans (55 in 0.1 million committed suicide), and the assumed reason for the increase in rate of suicide was the civil war from the last two decades affecting the normal lives of people. In other countries, the suicidal rate per 0.1 million is as follows: Japan 25, China 17, India 10, Malaysia 9 to 12, Australia 13, America 10 and England 10 (Rauf, 2006).

### **1.1 Factors associated with the prevalence of depression**

Literature provides evidences that relate depression with medical and social factors. Among medical complications, heart diseases (Laura et al., 1996; Gavin; Wayne, 2001), Diabetes mellitus, Human Immune Virus (HIV) (Hua et al., 2006), Stroke (Ylva et al., 2007), hyperthyroidism, gynaecological cancer (Kathleen et al., 2005) and other cancerous conditions can result in depression. Moreover, the therapy used for viral infections (like Hepatitis B and C) has a vital role in causing depressive symptoms (Hua et al., 2006).

Whilst in terms of social factors the family, marital problems, unemployment, job dissatisfaction and the history of childhood trauma are the main causative factors for developing depression (Gregory et al., 2005). Among women, stressful or forced marriage and low socio- economic status are also noted as the reasons for developing depression illness (Dessislav, 2005). These factors affect social activities, close relationships, and family activities (Gotlib & Hammen, 1992; Lynn et al., 2004). Whilst in terms of frequency of depression symptoms; social, cultural and demographic factor have vital role (DSM IV, 1994), for example in some culture somatic symptoms were observed, rather than sadness or guilt. Complaints of fever and headaches are frequent in Latino and Mediterranean culture, weakness, tiredness, or imbalance in Chinese and Asian culture, problems of the heart in Middle Eastern culture, and heart broken in Native Americans culture. However, in terms of gender, somatic symptoms are observed more in females (Bret, 1999). The understanding of these cultural issues can improve diagnosis and result effective management of mental disorders (DSM IV, 1994). In addition, the increase of knowledge level on mental disorders can be a beneficial attempt to make the diagnosis more reliable.

## **1.2 Financial cost due to depression**

Hu, (2004) stated that, financial cost due to depression will be greater if it remain as an untreated disorder and outcome will result in a substantial proportions in terms of direct cost. Treating depression requires financial resources to pay for the provision of health services, hospital stay, medication and counselling. Costs of illness include direct and indirect costs (Hu, 2004). As study by Hu (2004) reported that the estimated cost of direct services for treating depression in Australian was \$615 million dollars in 1997 -1998; the indirect treatment accounted for a further 78%

of the total treatment cost of \$2.8 billion. A total of 1.1% workers in US underwent Composite international diagnostic interview (CIDI) criteria for a 12-month bipolar disorder (I or II), and 6.4% met the criteria for 12-month major depressive disorder. Bipolar disorder (65.5%) and the major depressive disorder were (27.2%) were associated with the lost workdays per ill worker per year (Ronald et al., 2006). The annual cost of depression in the United States was approximately \$43.7 billion, of which \$12.4 billion of this was attributable to direct costs, and \$31.3 billion to indirect cost (Greenberg et al., 1993).

The total direct cost of depression therapy in Taiwan was US\$ 116.6 million (Agnes et al., 2006). In addition, depression has vast disabling affects (Murray & Lopez, 1997). Worldwide, the loss of Disability Adjusted Life Years (DALYs) due to neuropsychiatry disorders were more than 10% and about one third were due to depression (WHO, 2007b). It was estimated that unipolar major depression accounted for 14.2 million DALYs in China and 22.7 million DALYs for all other Asia Pacific countries (Hu, 2004). Murray & Michaud, 1996 has provided evidence of high prevalence of among developed countries.

### **1.3 Public knowledge about mental disorders**

The level of Knowledge level on mental disorders was found to be inconsistent around the globe (Razali et al., 1996). Among Asian countries, the majority related mental disorders with witchcraft and demons and they preferred to seek mental health treatment from traditional healers (Razali et al., 1996). The findings of Sally et al., (2004) to explore the causes of this behaviour demonstrated that the majority have strong beliefs that general practitioners (GP) and psychiatrists

are not the right person to discuss mental disorders (Andrea et al., 2001). It was harsh to question the capability of GPs and psychiatrists but Manal (2006), provided evidence of the lack of knowledge among GPs about mental disorders. Anthony et al., (1997) reported that the majority of youngsters have cursory beliefs about the symptoms and therapy for depression. These attitudes later on affect the therapeutic outcome of therapy due to the lack of knowledge about therapy. About 28% of patients stopped antidepressant within the first month, and 44% discontinued the medications within 3 months just because of the side effects of the medications (Agnes & Raymond, 2002). GPs can play a vital role by counselling the patients about the use and the side effects of medication and mental health education can be beneficial to improve public beliefs (Anthony et al., 2005a).

#### **1.4 Importance of knowledge about mental disorders**

The propagation of mental health is a vital issue to be considered by Health Department (Naeem et al., 2005). Efforts in this regard not only improve public knowledge about depression but also will influence the way people seek help and clarify misconceptions about the causes, treatments and the risk factors for depression (Wang et al., 2007). If the mental health level of the public were to remain low the enhancement in developing mental health facilities would be worthless (Sally et al., 2004). A low level of knowledge about depression not only obstruct public acceptance of evidence-based mental health care but also hinder social support (Dinesh & Madelyn, 2004). Efforts to increase mental health literacy among the public will help the policy makers and the public in early diagnosis and recognition of depression (Anthony, 2000).

## **1.5 Epidemiology of depression in Malaysia**

World Health Organisation in the year 2007 has provided evidence of a high rate of depression with a lifetime risk of 7-12 % for men and 20-25 % for female in South East Asian Region (SEAR) (WHO, 2007a). The Ministry of Health Malaysia (MOH), is committed for the improvement of mental health (WHO, 2001). Epidemiological surveys in rural areas of Malaysia have provided evidence that about 10% of the population have some sort of minor and major depressive disorders (Ramli et al., 1991). The evaluation of Saroja, (1997) showed that among the elders depression was frequent with a prevalence rate of 13%, the majority among these were with prevalence of other medical complication like diabetes 25%, low serum calcium level 16%, low albumin 24% and 51% with low haemoglobin level. However among females the prevalence rate of Post natal depression (PND) was 3.9% and among Indian females the highest incidence of PND was 8.5% in comparison to Malay and Chinese females (Kit et al., 1997). The findings of the 3<sup>rd</sup> National Health and Morbidity Survey 2006 provided evidence of 11.5% of psychiatry morbidities but no segregation had been done in order to demark the prevalence of different psychiatry disorders (National Health and Morbidity Survey III, 2006).

### **1.5.1 Suicide rate in Malaysia**

Zulkifli, (2004) provided evidences of high suicidal rate; 7.4 per 100,000 in Malaysia. Indians were found prominent with a highest suicide rate (21.1 per 100,000) followed by the Chinese (8.6 per 100,000 specifically among elders); whereas among the Malays it was (2.6 per 100,000) (Zulkifli, 2004; NADI, 2002).

## **1.6 Problem statement**

Nowadays depression is one of the most disabling non-communicable disease challenge faced by developed and developing countries. However, current facts about prevalence of depression and public knowledge and attitudes in Malaysia are not available. So far no prominent effort has been cited that has explored public knowledge about symptoms, causes, and help seeking attitudes about depression (Mental illness, 2007). Moreover, the practice for the clinical management of depression that comply with the standard guideline or not, remains an issue need to be explored. This study will make an effort to explore public knowledge, attitudes and perception about symptom, causes and help seeking intervention. In additional, it will also evaluate the Pharmacotherapy in compliance with the MOH Malaysia guideline for depression.

## **1.7 Motivation for study**

Motivation for this study was in response to the call for letter of intent by the Malaysian National Institute of Health in February 2007 (Mental Illness, 2007). This letter clearly stated the unavailability of data on public knowledge and issues related to prevalence, management and cost of depression. This insufficiency of fact is hindering the improvements in providing quality services in Malaysia.

## **1.8 Study Objectives**

### **1.8.1 General aims**

The primary aim of this study is to explore the level of knowledge and awareness of depression among the general public. This study will provide information to the local and national health authorities about the knowledge level of



the public. Later on, these findings will help the Malaysian Ministry of Health to design the mental health policies.

The secondary aim of this study is to determine the epidemiology of depression in Penang General Hospital (GH). The findings will demonstrate the guideline implementation and the cost of antidepressant in Penang GH. Furthermore, the findings in terms of cost will provide preliminary findings for future studies.

### **1.8.2 Specific objectives**

- To explore the knowledge, attitudes and perception about symptoms, causes and help seeking behaviours for depression among general public and psychiatric OPD Penang GH.
- To document the modality used for depression treatment at the outpatient psychiatry unit of Penang GH.
- To evaluate the cost spent for purchasing antidepressants agents in Penang GH.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0 Introduction**

For the literature review, an extensive search was done utilising different journals web sites and data bases like Medline, WHO, Science direct Springer link and other international journals focusing on clinical and social aspects of mental disorders, more specifically depression.

#### **2.1 Literature review**

The literature review was divided in to issues about mental health and mental health literacy, knowledge about symptoms, causes, treatment, factors associated with the prevalence of depression, cost of depression, medical and social factors leading to depression and previous studies conducted in Malaysia highlighting the prevalence and factor associated with the prevalence of depression in Malaysia.

##### **2.1.1 Issues about mental health and mental health literacy**

In the year 1997, Anthony et al. introduced the term mental health literacy. It is defined as the awareness and attitude toward mental disorders which help an individual to recognize, to manage and to prevent a mental disorder.

Anthony et al., (1997) believed that mental health is the blend of the following factors;

- Ability to recognize and differentiate mental disorders
- Awareness about the causes and risk factors
- Beliefs and attitudes towards the self help seeking

- Approaches which help to recognise and provide knowledge in choosing the right outlet for help

After the introduction of the term *Mental Health Literacy*, many researchers have made efforts to evaluate the knowledge level of public on mental disorders, especially about depression. Few studies are quoted as follows as part of literature review.

Ian et al., (2007) conducted a cross sectional study among four groups of Australian university students to examine the level of awareness about depression and the help seeking practices. These four groups comprised of medical students in the second and fourth years of a graduate course, the Chinese ethnic students and general undergraduate students. A questionnaire was used to evaluate the level of knowledge and attitudes of the students towards depression. The findings demonstrated that fourth year students have a good level of knowledge than the second year students and the white Australian undergraduate students had better knowledge level than the Chinese students. In terms of help seeking, Chinese students preferred psychologists. The educational level of respondents was one of the factors associated with the knowledge difference. However, in conclusion they seemed to knowledge associated with the ethnic differences.

Christoph et al., (2005) conducted an online survey in Switzerland among university students in order to explore the university students' recognition about different symptoms of depression and schizophrenia. The results showed that male students of natural science, economics and philosophy were not familiar with the

symptoms of depression. They recommended efforts to promote mental health in order to reduce the labelling habits among public towards people with mental disorders. The educational background and race were found to be associated with the knowledge level and help seeking beliefs.

John & Ronald, (2006) conducted a study to evaluate the adolescents' knowledge of depression and attitudes towards help seeking. Potential respondents for this study were Australian adolescents. A questionnaire reflecting the mental situation of five youngsters was used to achieve the aims. The findings showed that the majority has recognized their conditions as depression and were able to differentiate the severity of depression on the basis of symptoms. Among all female seemed to have better knowledge about depression. However, the attitude towards help seeking was poor among the Australian adolescents.

Anthony et al., (2005a) conducted a national survey in Australia to evaluate their beliefs about the use of antidepressants. Australian adults were assessed to explore the beliefs about the helpfulness or the harmfulness of antidepressants for a person with depression and suicidal thoughts. In addition; socio-demographic, personal experiences, the ability to recognize depression, beliefs about other depression interventions, beliefs about outcomes with and without treatment, beliefs about the causes, and stigmatizing attitudes were also assessed. The findings demonstrated that one fourth of the respondents were less educated and they believe that antidepressants would be harmful for a person who is depressed and suicidal. Their recognition about depression and perceptions about help seeking were poor because of the lack of exposure to depression symptoms. Overall, an average knowledge level was observed and negative beliefs about therapy. The findings

demonstrated that personal experiences and low educational level were the main variables associated with the knowledge level of depression.

Georg et al., (2006) evaluated the public beliefs about the causes of mental disorders in Germany. The findings of this survey showed that 16% of the respondents believed that depression is a life event. About 12% of them considered depression as a brain disease which occurs due to the stress at home and family. Other causes of depression revealed by the respondents were stress at work, unconscious conflict, weak mental constitution, heredity, self-induced stress, broken homes and lack of social support.

Sally et al., (2004), conducted a study among high school students in order to evaluate their knowledge about depression and suicide. They hypothesised that high school practices for suicide prevention and education were not well understood and there was a need of Adolescent Depression Awareness Program (ADAP). The results of this study demonstrated a significant gap in depression knowledge. Overall it was observed that these students had a low level of knowledge towards treatment and symptom recognition. They recommended immediate efforts to be taken so as to elevate the mental health literacy in order to increase the related knowledge level.

A comparative study between the Japanese and Australians was conducted by Anthony et al., (2005b). The main aim of this study was to evaluate public beliefs about the treatment of mental health disorders. Household interviews were conducted in both countries using a study tool which comprises of four cases vignettes, by describing their state as depression, depression with suicidal thoughts, early schizophrenia or chronic schizophrenia to the respondents. The findings showed that

the Japanese were more hesitant to disclose mental disorders and to use psychiatric labels (particularly for the depression cases). Moreover, Japanese have confidence in counsellors instead of general practitioners (GPs); however they were pessimistic about the full recovery. In contrast the Australians were found to use psychiatric labels more often, particularly "depression". In terms of help seeking the Australians were positive about both counsellors and the GPs. Negative attitudes toward Psychiatric hospitalization and electroconvulsive therapy (ECT) were observed among both the Japanese and Australians. However, Australians were found to have a better understanding of the symptoms of depression and help seeking.

Karin et al., (2008) evaluated the public beliefs about mental disorder in Sweden. A questionnaire was posted to the potential respondents. The screening of questionnaires was done by using: DSM IV, Sheehan Patient-Rated, Major Depression Inventory, Alcohol Use Disorder Identification Test score and WHO's brief Disability Assessment Schedule. The respondents were divided in to three groups. Those having mental health problem and are on treatment (n= 353), mentally healthy (n= 2893) and those having symptoms of mental illness and not on any treatment (n=292). For the interview, a character based story of Anna (female) and Magnus (male) was used. The results demonstrated that two thirds failed to recognize depression. Those who were pre-exposed to the depression therapy had better attitudes towards help seeking and they preferred the use of antidepressants, hypnotics and they liked to consult a psychotherapist or GP for help. However, mentally healthy individuals believed in the use of vitamins and exercise. These findings revealed that personal experiences of depression were associated with better knowledge about symptoms and help seeking.

Andrea et al., (2001) conducted a study using a self rated questionnaire survey in London to evaluate the public and Psychiatry Patients knowledge level about the training of Psychiatrist. It was revealed that the majority among respondents from general public have underestimated the psychiatrist training and expertise. However, the psychiatric out-patient group had significantly better knowledge of pharmacological treatments and professional help seeking. These findings are in compliance with the findings of Karin et al., (2008).

Naeem et al., (2005) conducted a questionnaire based survey to evaluate the attitudes and knowledge of medical and non medical professionals and students toward depression in Pakistan. A survey was conducted among the medical students and the doctors of the three medical colleges, as well as the students and teachers of The Punjab University in Lahore, Pakistan. Findings have demonstrated that Fifty percent of the medical students and professionals claimed that they had never heard about depression. The majority had negative attitude towards depressed patients. The knowledge level and recognition about symptoms were found poor among both groups. They conclude that educated people of the Pakistani society need better information about mental disorders.

Dinesh & Madelyn, (2004) conducted a study among the South Asian females in England, In order to evaluate the knowledge about depression, help seeking and suicide by using a convenient sampling method. A total of (n=180) British South Asian females were sampled. After reading the pamphlet, significantly more females assessed themselves as willing to confide in their clinicians, friends, and spouses if they felt depressed or suicidal, rather than not telling anyone. Also, more females

reported that they felt that antidepressants were helpful for depression after they read the pamphlet. These changes remained four to six weeks later. The pamphlets were feasible for use in primary care and community settings and highly acceptable among British South Asian female and professionals.

### **2.1.2 Factors associated with prevalence of depression**

Manitoba Centre for Health Policy (MCHP, 2002) defined prevalence as the calculation of a circumstance/incidence /event in the population at a certain time. Literature focusing on prevalence and other factors associated with prevalence of depression are illustrated as follows;

Katia et al., (2007) has evaluated the prevalence of depression and generalized anxiety disorders among the natives and the immigrants in Belgium. The data from the Belgian Health Interview Survey 2001 was utilised and (n=7224) were approached. They hypothesized that socio-demographic factors were the main risk factors for depression and anxiety among the immigrants. The findings demonstrate a high prevalence of depression among the immigrants. Low socio-economic status was observed to be the main risk factor for anxiety and depression.

In order to estimate the prevalence of anxiety, depression and their associated risk factors among students of a public medical college in Pakistan, a cross-sectional study was conducted by Khan et al., (2006) among students. Self administered questionnaires were distributed randomly among medical college students having no physical or mental illness other than anxiety and depression. The evaluation of the questionnaires was done by using DSM IV criteria for depression. The results showed seventy percent of the respondent's suffer from anxiety and depression disorders.



Those students suffered the loss of love ones and with personal history of drug abuse and family history of mental disorders were found more prone to depression and anxiety. They concluded that social and familial factors contribute a lot in the prevalence of depression and anxiety disorders among medical students.

Mohammad et al., (2005) have estimated the nation-wide prevalence of lifetime psychiatric disorders among adults. Socio-demographic variables were considered while evaluating the prevalence of psychiatric disorders. About (n=25000) potential respondents were selected by using clustered random sampling method. The psychiatric evaluations of the respondents were done by (n=250) trained clinical psychologists by using Diagnostic and Statistical Manual of Mental Disorders-IV criteria. The data was entered through EPI-Info software and the odds ratios and their confidence intervals estimated by using logistic regression (SPSS 11). The findings revealed that the overall prevalence of psychiatric disorders were 10.81%. Psychiatry disorders were observed more among, moreover major depressive disorders were found to be more prevalent among all psychiatry disorders. A high prevalence of psychiatry disorders was observed to be more among divorced, illiterate, unemployed and urban residents.

Marc et al., (2005) conducted a study in a primary care unit in Belgium. They have associated the prevalence of depression with the poor management provided to the patients. Medical record showed that the majority the patients were prescribed tranquilizer instead of antidepressant, which delayed the recovery process and increase the chances of life time prevalence of depression.

Jo et al., (2003) conducted a study among the prisoner and the prison staff (southern England). About (n=31) prisoners and (n=12) prison staff attended the focus group. The finding showed mental distress among prisoners was because of loneliness, negative attitude of staff, lack of recreational activities and lack of contact with relatives. However shortage of staff, prison culture and fear of safety were the main factors associated with the depression among the prison staff. They concluded that the high rate of mental disorders among the prisoners and the staff was mainly due to the environment in the prison.

Pandav, (2006) conducted a study to explore the impact of surrounding environment on population mental status. Pandav, in collaboration with WHO South East Asian region (SEAR) had conducted a survey to evaluate the prevalence of the mental health disorders after the Tsunami. A comparison of data before and after Tsunami (2006) was made. Findings showed that the number of reported case with psychiatry disorders after Tsunami were double in comparison with the previous findings. These findings provided evidence that environmental changes after natural disaster play a vital role in the prevalence of mental disorders.

Worldwide it is perceived that there is a high prevalence of depression among the females. To prove this statement (Brett, 1999) had analysed the data taken from the national co-morbidity survey. The respondents aged 15 – 54 years were considered for the study. To create a better understanding of the study depress group was divided in to two; group one with somatic symptoms, insomnia, loss of appetite and group two with the symptoms of pure depression. Diagnostic evaluation was done by using Diagnostic Statistical Manual III (DSM III) and Composite International

diagnosis interview (ICD- 10). Results showed that female subjects exhibited a higher prevalence of depression but only in terms of somatic depression, but not in term of pure depression.

Ingrid & Richard, (2007) associated the after marriage experience like miscarriage with the prevalence of depression and psychological problems. 40% suffered through sadness and about 20- 40% experienced anxiety. However, in term of major depression it was about 10-50% in the duration of 6 to 12 months. They concluded that those females who had past history of miscarriage suffered more form mental disorders. In addition to this, Rudolf (2005) stated that depression among female may develop during the different phases of the reproductive cycle (premenstrual dysphoric disorder, depression during pregnancy, postpartum depressive conditions, and menopausal depression). Along with these other events such as infertility, miscarriage, oral contraceptives, and hormone replacement treatment have been reported as aetiological factors for depression among the females.

Ri et al., (2007) conducted a cohort study among the Chinese females who had delivered their first child. They hypothesized that there is a relationship between the foetal sex and the incidence of postnatal depression. Three hundred female participants aged 18-40 years were part of the study. The finding of the study showed that female delivering female children suffered more depression. The reason highlighted by them was the lack of social support in mainland China, for female delivering female child.

Unaiza & Sehar, (2006) believe that low socioeconomic status, lack of the availability of legal rights, sacred sanction, tribal traditions and values, biased law among south Asian female are the reasons behind mental disorders among females. In addition Stewart et al., (2006) have highlighted the social issues like, the lack of education, injustice in legal rights, sexual harassment at work, lack of access to basic needs like good food, residence etc along with this inequality in the job and low socioeconomic status as the main causes of mental disorders among females.

In order to evaluate the nexus of social and cultural issues with the prevalence of depression Amin et al., (2007) has conducted a cross sectional telephone based survey among three big cities of Pakistan. Eight hundred and twenty respondents were randomly selected for interview. The findings demonstrated a high prevalence of depression among the female respondents. Age, sex, and education were the variables found associated with the prevalence of depression. However, the prevalence level of depression was not the same among the three cities; cultural and social aspects play a vital role in this regard.

Ali et al., (2007) conducted a survey in Iran in order to examine the factors associated with the prevalence of depression. The general and the mental health status of (n=2624) respondents were obtained using Duke University Questionnaire. The final conclusion about the diagnosis was done by using DSM IV criteria. It was revealed that overall prevalence of depression was 14.4%. The findings showed that divorced respondents were more at risk of depression. Respondents aged 45-65 years were found more depress in comparison to youngsters. Insomnia, lack of energy, restlessness and concentration related problems are the common symptoms observed

among Iranian population. They stated that the demographic factors like age, marital status, education and sex are the main variables associated with the prevalence of depression.

Samuel, (2006) conducted a household survey in Hong Kong among the middle-aged men for the prevalence of depression symptoms. The assessment was carried out using the Centre for Epidemiological Studies Depression Scale (CES-D) among (n=545) men. Results showed that depression was more frequent among men with a low socioeconomic status. In addition a high prevalence of depression was observed among divorced and less educated individuals.

Rauf, (2006) had highlighted the budget as the main reasons for the progressive increase in depression among the developing countries which are due to the lack of allocation of budgets for Mental Health; Singapore has specified 7%, Japan 5.3%, China 2.3%, Malaysia 1.5% Indonesia 1%, India 0.8%, Pakistan 0.4%, England 10%, America 6%, France 5%. The lack of medical professionals for treatment of the mentally ill people was significant especially in Asian countries; for the treatment of 0.1 million people, Japan has 8 mental health specialists, North Korea 3, Singapore 2, Switzerland 22, France 20, England 11, and America 10, however, India, Malaysia and Pakistan have 1 mental health specialist for the population of 0.3 million.

### **2.1.3 Cost of depression**

Lynn et al., (2004) conducted a study on the effects of depression on the ability of a person to do work by using the data from the National Health Interview

Survey Disability Supplement (NHIS-D) for two year (1994 and 1995). A comparison was made in terms of the ability of individuals to do work among those who were depressed and working and those depress but not working. The findings showed that the majority of the respondents with the prevalence of depression were from low socio-economic status. The nonworking depress respondents were less educated than working respondents. A remarkable difference in the social, functional and health factors of those who work and those who do not work was observed. They concluded that negligence in this regard will put the additional cost on the organisation in term of absenteeism, disability cost and decline in the productivity. Employer should compensate medical and health insurance services for depress staff. Along with this, the employee assistance programs and mental related educational intervention can be proven beneficial for the employees and the employers as well.

Von et al., (2006) evaluated the societal cost of major depression and the impact of adherence and treatment response in order to explore the indirect cost and the burden on society due to major depression. The mean total cost per patient during the two years was KSEK 363 (EUR 38 953). The cost of drugs was minor, about (4.5%), but the Indirect costs were the most important component comprising (87%) of the burden. There was no significant difference in costs or quality of life between treatment arms or between adherent and non-adherent patients was demonstrated. They concluded that major depression has high costs for society, primarily because of indirect costs.

#### **2.1.4 Social and medical Factors leading to depression**

Jennifer et al., (2007) conducted a cross sectional population based survey in UK to investigate the association of visual impairment with depression and anxiety.

(n=13900) potential participants aged over 75 visiting 49 family practices in Britain were approached. A randomize health screening was conducted by using general health Questionnaire 28 and geriatric depression scale. In order to prove the reliability of the hypothesis, a comparison was made with the individuals with good vision. The findings has demonstrated that visually impaired people have a higher prevalence of depression comparatively with those with good vision (13.5% visually impaired and 4.6% with good vision), when evaluated using GDS-15 as a scale. However, 9.3% visually impaired and 7.4% with good sight had two or more symptoms of anxiety. They concluded that visually impaired people suffer more from depression and anxiety in comparison to those having good eye sight.

Hua et al., 2006 conducted a study among HIV +ve (n=28) and HIV- ve (n=23) participants in order to examine the prevalence rate of major depression and suicidality among Chinese respondents. They used Chinese Composite International Diagnostic Interview to determine lifetime rates of major depressive disorder (MDD) and suicidality. Current mood and suicidal ideation were assessed with the use of Beck Depression Inventory. Among HIV +ve respondents (n=22) were discovered to be affected with the prevalence of major depression. Only two (9%) had received depression treatment, yet four (18%) had persisting active suicidal thoughts. Their findings provided evidence of high rates of major depression and suicidality in HIV+ve infected persons in China. Despite this, few had sought mental health assistance, suggesting a need to increase the sense of awareness of psychiatric co-morbidity and access to mental health services.

Mauro et al., (2007) conducted a cohort study among the chronic hepatitis C and B patients in order to evaluate the prevalence of depression. (n=135) patients with

chronic hepatitis C and (n=76) patients with chronic hepatitis B were considered for the study. Patients on interferon therapy, HIV therapy, and with the history of alcohol and drug abuse were excluded from the study. A control sample of (n=540) without the prevalence of depression was selected from the previous studies. For the evaluation of the depression, DSM IV and ICD-10 were used. The findings showed that the individuals with chronic hepatitis C and B have high prevalence of depression in comparison to the control group regardless of the use of interferon.

Charles et al., (2005) evaluated the depressive symptoms among (n=162) HCV-infected patients on being treated with pegylated IFN alpha-2b (PEG IFN) and ribavirin. The evaluation of patients was done by using Zung Self-Rating Depression Scale (SDS). It was discovered that thirty-nine percent of the sample experienced moderate to severe depressive symptoms at some point during PEG IFN/ribavirin therapy. They concluded that the development of moderate to severe depressive symptoms occurred frequently during PEG IFN/ribavirin treatment, the History of major depressive disorder was also a significant predictive factor.

Ylva et al., (2007) conducted a study among (n=187) patients surviving their first-ever stroke. The assessment was done by using Goteborg Quality of Life Instrument (GQLI), and Montgomery Asberg Depression Scale (MADRS-S). More than half of the patients suffered from symptoms of depression with no significant improvement for 12 months. The most common general symptoms 3 months after the stroke were; fatigue, sadness, pain in the legs, dizziness and irritability. Fatigue and sadness were still common at 12 months. The majority suffered from fatigue and from symptoms of depression after 3 and 12 months. These results highlighted the need of



depression screening among stroke patients. Timely diagnosis will enable them to get benefits from anti-depressive treatment.

Kathleen et al., 2005 conducted a diagnostic depression screening among (n=472) females in order to assess the prevalence of depression among the low-income, ethnic minority females with breast or gynaecological cancer. The findings demonstrated that twenty-four percent of the females reported moderate to severe levels of depressive disorder (30% of breast cancer patients and 17% of gynaecological cancer patients). Only 12% of the females meeting the criteria for major depression reported currently receiving medications for depression and only 5% reported counselling or participation in a cancer support group. Neither cancer stage nor treatment status was correlated with the prevalence of depression, however primary diagnosis of breast cancer, younger age, greater functional impairment, poorer social and family well-being, anxiety, comorbid arthritis, and fears about treatment side effects were correlated with depression. They concluded that in addition to the type of cancer and cancer stage, the ethnic and socioeconomic statuses were observed to have an association with the prevalence of depression.

Vikram, (2006) concluded that lack of basic infrastructure facilities and low educational profile have an impact on the knowledge about the mental health disorders. In addition, the lack of community support, inequalities in resources distribution, unemployment and class differences are the main aetiological factors for depression in SEAR. Vikram, recommended that betterment can be achieved through the micro-credit financing, investment on educational sector, health promotion and availability of medical facilities at affordable cost. These efforts encourage the residence to seek mental health. In addition to this development of social support,