A STUDY ON IMPACT OF VITILIGO ON PSYCHIATRIC MANIFESTATIONS

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CERTIFICATE FROM THE DEAN

This is to certify that this dissertation entitled **"A STUDY ON IMPACT OF VITILIGO ON PSYCHIATRIC MANIFESTATIONS"** submitted by **Dr. VIJAYALAKSHMI.M** to The Tamil Nadu Dr. M.G.R. Medical University, Chennai is in partial fulfillment of the requirement for the award of M.D. [PSYCHIATRY] and is a bonafide research work carried out by her under direct supervision and guidance. This work has not previously formed the basis for the award of any degree or diploma.

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DECLARATION

I, **Dr. VIJAYALAKSHMI.M,** solemnly declare that the dissertation titled **"A STUDY ON IMPACT OF VITILIGO ON PSYCHIATRIC MANIFESTATIONS"** has been prepared by me. I also declare that this bonafide work or a part of this work was not submitted by me or any other for any award, degree, diploma to any other University board either in India or abroad.

This is submitted to The Tamilnadu Dr. M. G. R. Medical University, Chennai, in partial fulfillment of the rules and regulation for the award of M.D degree Branch – XVIII (Psychiatry) to be held in MAY 2018.

Place: Madurai **Dr. VIJAYALAKSHMI. M**

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TABLE CONTENTS

INTRODUCTION

INTRODUCTION

The interaction between the Mind and the Skin have been accepted and skin is recognised as the organ of expression. The skin is represented as the Mirror of the Mind which responds to both endogenous and exogenous stimuli. It senses and integrates environmental cues and transmits intrinsic conditions to the external world .Psychodermatology is a recent subfield of Psychosomatic Medicine which address the interaction between Mind(Psyche) and skin. The two disciplines are interconnected at the embryonal level by their origin from ectoderm and influenced by reciprocal action of neuroendocrine and immune systems[1,2].The role of psychoneuroimmunology in causation, course, prognosis of psychocutaneous disorders is on focus in recent days .

Dermatologist have realised the importance of Psychiatrist opinion for identification of psychological factors which are of prior concern in chronic intractable skin conditions like Vitiligo, Psoriasis, Eczema, Atopic dermatitis, Lichen planus, etc. Psychological stress leads to activation of the Hypothalomo Pituitary Axis which can result in undesirable aggravation of cutaneous disorders and thus stress act as a precipitating factor.Stress in dermatoses mentioned few decades before in eighties and early nineties by Cermack and Panconesi.[3,4]

Patients with cutaneous disorders face emotional problems like shame, distorted self image and a reduced self esteem.The impact on the individual depends on various factors which include the patient's Sociocultural background, demographic profile, personality of the patient, life stressors and

how the disease is perceived by others in society. Most importantly it depends on the natural history of the illness and the psychological vulnerability of the patient ,higher trait of anxiety may be one among the vulnerability factors[5,6]. It was reported that cutaneous disorders are common among persons who have an insufficiency in expressing their anger and hostility (Jublin et al, 1981). Stress is said to aggravate the dermatological condition in about 40-100 percent of the patients[87].

Psychiatric disorders have a high prevalence in patients with skin diseases. The prevalence of psychiatric comorbidities among patients with dermatological disorders is said to range from 25 to 43 percent (Picardi et al 2001, Humphreys et al 1998)[7,8].

Vitligo is a Psychocutaneous disorder of Multifactorial etiology characterised by white macules and patches in skin and mucosa which have unpredictable course with remission and exacerbation which can lead to psychosocial distress and social stigmatization thereby affecting functionality of patient[9].Vitiligo provoke Negative Emotion like Shame, Embarrassment, lack of Confidence, low Self esteem, Social phobia, Dysthymia, Sleep disturbances, Adjustment Disorders, Anxiety, Depression, Suicidality and greatly affects patients quality of life[10,11]. Vitiligo can be associated with high Psychiatric co morbidities as high as 79.2% as reported in an Indian study[12].The importance of Emotional and psychological factors have been emphasised recently to involved in incidence, progression , remission and relapse of Vitiligo[13] .Thus psychiatric conditions could potentially add to the

burden of this disorder. As some of vitiligo patients with psychiatric problems may not be aware of their own illness and if it could have been undiagnosed, the association may be further stronger.

These psychiatric co-morbidities have a direct effect on the treatment seeking behaviour, compliance and hence the overall outcome of the patients. Therefore identifying these Psychiatric manifestations earlier and treatment of the same will greatly reduce the disease process of Vitiligo and also will improve the quality of life in these patients. Therefore we aimed at studying the Impact of vitiligo on psychiatric manifestations and thereby bringing an awareness into this area.

SCOPE OF THE STUDY

This study is focused on Psychiatric Manifestations in patients with Vitiligo, a chronic depigmentary skin disorder with frequent relapses and remissions. This study is designed to find the frequency and type of the psychiatric illness. In addition, this study also aims to correlate the stressful life events, hostility with the severity and duration of vitiligo, as well as with the comorbid psychiatric disorder. Our study also attempts to assess the burden of the psychiatric comorbidity, by studying the quality of life in the patients. By understanding the types of Psychiatric Manifestations, its relationship with Stressful Life Events, Hostility and Quality of Life, successful intervention can be possible to reduce both Psychiatric and cutaneous morbidities and to improve their coping skills thereby to have a better quality of life.

REVIEW OF LITERATURE

REVIEW OF LITERATURE

Psychodermatology is a new discipline in psychosomatic medicine and is a subspeciality deals with the study of Psychiatry, Psychology and Dermatology

I. CLASSIFICATION

Though there is no standard classification system at present, Psychodermatological or Psychocutaneous disorders are classified as following by Koo and Lee.[14-16]

A) Psychophysiological disorders

Skin diseases are precipitated or exacerbated by psychological stress. Patients experience a clear and chronological association between stress and exacerbation. Examples in this category Atopic dermatitis, Psoriasis, Acne, Urticaria, Alopecia areata etc.,

B) Psychiatric Disorders with Dermatological Symptoms:

There is no skin condition and everything seen on the skin is self-inflicted. These disorders are always associated with underlying psychopathology and are known as stereotypes of psychodermatological diseases.

1. Primary Psychiatric Disorder:

In this group, the underlying cause of the symptoms is psychiatric and patient harm their skin due to unconscious defenses. When such patients

present to a dermatologist, they refuse their psychopathologies and want to be treated by the dermatologist. Directly destroying the defenses and referring them to psychiatry is harmful because of possibilities of suicidal intentions or worsening of symptoms. Examples include Dermatitis artefacta, Trichotillomania. Body dysmorphic disorder, Neurotic excoriations, Delusional Parasitosis etc.,

2. Secondary Psychiatric Disorders

This group consists of dermatological disorders which are strongly influenced by psychosomatic factors. These disorders have a physiological etiology. However they are exacerbated by some psychological factors and also by stress. On the other hand stress can also be precipitated by the psychosocial effects of the disease. Deformation of the skin is said to be the most important variable influencing the emotional reactions of the patient. Age, site, morphology of the lesions are some other factors influence the psychological distress experienced .(Holter, 1961).

3. Collaborative Group

It is difficult to treat the patients who fall in this group.Disorders in this group have a multifactorial etiology. On one end, stress and at the other end, physiological and psychological defense mechanisms are said to play a role. It is difficult to establish the relation between psychological factors and the dermatological disorder in the diseases which fall under this group..

C) Dermatological Disorders with Psychiatric Symptoms

Emotional problems are more prominent as a result of having skin disease, and the psychological consequences are more severe than the physical symptoms. Examples include Vitiligo, Hemangioma, Acne excorie, Ichthyosis. etc.,

D) Miscellaneous: Several other disorders have been described and grouped under miscellaneous conditions. The medication-related adverse effects of both psychiatric and dermatological medications have also been included in the broad classification of psychodermatological disorders. Examples include Cortisone psychosis, Lithium induced psoriasis, Interferon depression. Chlorpromazine induced pigmentation. etc.,

II. HISTORY OF PSYCHODERMATOLOGY

The history of psychodermatology dates back to olden time of Hippocrates 460-377 B.C., who mentioned about mind and body interaction that people tore their hair out in response to stress. Similar condition was later described by Hallopeau Francois Henai in 1889 as Trichotillomania.

Aristotle (384-322 B.C) believed that mind and body were complimentary and inseparable. In 1857 William James Erasmus first described about "Skin neurosis" addressing topics such as delusional parasitoses, alopecia areata, pruritus and hypopigmented lesions in his book "Diseases of Skin"[17] . He also mentioned about anxiety, fear and depression could be responsible for hyperhydrosis. [18]

Robert Willan, an English dermatologist, in 1799, first told about delusional parasitosis. The same was named as ‘Acarophobia’ by Thibierge George(1856-1926) variably termed as entomophobia,parasitophobia which means fear of insects. However, Karl Axel Ekbom, a Swedish neurologist was the one who differentiated delusional parasitosis from fear of insects and ultimately, the syndrome was named after him as Ekbom syndrome. In 1946, in a publication in the Archives of Dermatology, Wilson and Miller coined the currently accepted term "delusional parasitosis"[19].

Body Dysmorphic Disorder was first documented by Enrique Morselli, an Italian Psychopathologist. He named it dysmorphophobia. Later Sigmund Freud wrote about a case of dysmorphophobia in his book, “The Wolfman and other cases” in 1909 explained that how perceived defect in a patient negatively affected his social life[20]. In 1987 Body Dysmorphic Disorder was added to the Diagnostic and Statistical Manual of Mental Disorders (DSM).

III. BIOPSYCHOSOCIAL MODEL IN PSYCHOCUTANEOUS DISORDER

The biopsychosocial model of health and illness is a framework developed by George L. Engle that states that interactions among genetic makeup (biology), mental health and behavior (psychology), and sociocultural environment (social world) that determine the course of their health-related outcomes. This model is the focus of interest now in all psychodermatological and psychosomatic conditions.

Application of the Biopsychosocial Model

The biological influences on mental health and mental illness are varied, and include genetics, infections, physical trauma, nutrition, hormones, and toxins. The psychological component looks for potential psychological explanations for a health problem, such as lack of self-control, emotional turmoil, or negative thinking. Social and cultural factors are conceptualized as a particular set of stressful events that can differentially impact mental health depending on the individual and his or her social context.

The biopsychosocial theory postulate that each one of these factors is not sufficient to create health or mental illness, but the interaction between them determines the course of one's development.Despite its usefulness, there are issues with the biopsychosocial model, including the degree of influence that each factor has, the degree of interaction between factors, and variation across individuals and life spans. Approximately 30-40% of patients with skin conditions have an underlying psychiatric or a psychological problem that either causes or exacerbate a skin condition .Many evidences from literature suggest that the course of skin disorder is affected by stress and psychological events (Abadie et al,1994)[21].

Disfigurement in dermatological conditions often run a chronic course resulting in profound psychological morbidity leading to secondary psychiatric disorders.Vitiligo is one such cutaneous condition associated with 30-60% psychiatric morbidity as reported in a study [22] and upto 75% in another study[12].

a) Psychoneuroimmunology and its Role

In todays world the knowledge on psychoneuroimmunology is expanding, the role of neurtransmitters, neuropeptides, glucocorticoids and other hormones in psychodermatological disorders is being discovered[24,25,32]. Therefore for a better understanding of the pathogenesis, course, and treatment planning of psychocutaneous disorders, knowledge of psychoneuroimmunology is essential. Stress act as an internal or external force which influence the homeostatic balance of the individual. The individual has the ability to adapt to acute homeostatic challenges but chronicity leads to distress, exhaution and disease or exacerbation of already existing dermatological conditions.

Stress alters two major neuronal pathways: the hypothalamic-pituitary-adrenal axis and the sympathetic nervous system. The identification of external stress by the brain results in the stimulation of the paraventricular nucleus of the hypothalamus and locus ceruleus. Corticotropin-releasing factor(CRF) is secreted from the hypothalamus and transported by portal circulation to the pituitary, where it leads to the release of adrenocorticotropic hormone from the anterior pituitary in to the general circulation. As a result the secretion of glucocorticoids and catecholamines from the adrenal gland increases.

Cortisol play a negative feedback on the hypothalamus and controls the release of corticotropin-releasing factor. The cells of locus ceruleus activate the sympathetic system resulting in the secretion of norepinephrine and epinephrine.

Both catecholamines and cortisol have major effects on the immune system. They modulate antigen-presenting cells and macrophages and inhibit their activity and the production of interleukin (IL)-12 and IL-18. They play important role to mediate the differentiation of naive T-helper (TH) cells toward TH2, to the detriment of the development of TH1 cells. This alters the balance toward humoral immunity and activates B cells, eosinophils and mast cells resulting in increased allergic inflammatory response. Nerve terminals in cutaneous sensory nerves release neuropeptides, such as calcitonin gene-related peptide and substance P, which have a variety of effects on local inflammatory response; these affect several psychocutaneous disorders.

b) Psychosocial Stress And Coping Mechanism In Skin Disorder

The patients experience of psychosocial distress is variable and depends on the nature and characteristic of skin disorder itself.The individual characteristic of Patient and his or her life situation.Cultural attitude related to skin disorder (stigma).

c) Characteristic Of Dermatological Condition

Emotional reaction to a particular skin condition is variably affected by the patients understanding of its origin. The external appearance of skin lesion can lead to different degrees of disfigurement. Associated symptoms like itching, pain may add to the burden. The location of skin lesion make patient self consicious and lesion over face, exposed region is of great concern like how others view them. The timing onset, course, relapse, remission, treatment related side effects also has major influence on patient and their families.

d) Individual Characteritics and Life Situation

Age and sex considered important as coping styles differs in different age group and gender. Personality can influence patients relation and subjective experience of illness and coping. Patients with borderline personality disorder consider skin disorder as a threat to self-image, autonomy and react with unstable mood, severe anxiety and fear of abandonment. Early developmental experiences in children having cutaneous conditions has impact on mother-child relationship.

e) Attachment Styles

The onset of skin disease can result in physical disfigurement, discomfort, embarassement and social stigma leading to low self-esteem and also affect security in a relationship. Attachment styles are considered to be working models that shape cognitive, emotional and behavioural response to others. In individuals with secure attachment the dermatological shame may be disease specific and not generalised to self schema,such individuals accept their physical and psychological issues in healthy way.

Anxious or ambivalent person may experience pervasive generalised shame experience and negative belief interwind with body schema. Avoidant persons are more likely to minimize display of emotional distress in order to hide the shame.

f) Communication Difficulties

Secure and anxious or ambivalent individuals report more self disclosure than avoidant adults. The avoidance pattern leads to loss of friends and limited social network. The relationship between body image and sexual intimacy is a good illustration of reciprocal nature of interpersonal influences. A negative body image can display or damage such relationship.

g) Body Image and Self Schema

Body image conceptualisation is multifactorial and consist of perception,feeling and associated thoughts about body and core feelings of self.It also have a special component with interpersonal meaning and cultural ,physical asthetics.Body image dissatisfication occurs if there is greater discrepancy between perceived body and ideational body which is associated with low self esteem.

People high in self-esteem are said to be more attractive, to have better relationships, and to make better impressions on others than people with low selfesteem, but objective measures disconfirm most of these beliefs. Narcissists are charming at first but tend to keep distance with others eventually. Self-esteem has not been shown to predict the quality or duration of relationships.

High self-esteem makes people more willing to speak up in groups and to criticize the group's approach. Though Leadership does not stem directly from self-esteem it may have indirect effects. Relative to people with low self-

esteem, those with high self-esteem show stronger in-group favoritism, which can increase prejudice and discrimination.

Self-esteem has strong relation to psychological wellbeing and happiness. Although the research has not clearly established causation, we are prevailed upon that high self-esteem does lead to greater happiness and on the other end Low self-esteem is more likely than high to lead to depression under some circumstances. Some studies support the buffer hypothesis, which is that high self-esteem mitigates the effects of stress, but other studies come to the opposite conclusion, stating that the negative effects of low self-esteem are mainly felt in good times. Still others find that high self-esteem leads to good outcomes regardless of stress or other situations[76,77].

h) Stigma

Cognitive emotional regulation is one of the mechanism underlying the relationship between Stigma and Psychopathology.

Ginsberg and Link proposed six dimensions about the belief of stigmatization into which individual beliefs can be grouped.

i) Anticipation of rejection.

ii) Feeling of being flawed.

iii) Guilt and shame

iv) Secretiveness

v) Sensitivity to other's opinion

vi) A positive attitude

Patients of vitiligo report embarrassment and low self-esteem leading to emotional stress and social isolation, particularly if the disease develops on exposed areas of the body. The feeling of sense of being stigmatized can affect a person's interpersonal and social behavior, which in turn increases the risk of depression and other psychosocial disorders. Although not fatal, it may considerably influence patient's health-related quality of life (QOL) and psychological well-being.Skin disorders like Vitiligo, psoriasis, alopecia, eczema frequently associated with hostile personality characteristics, dysthymic states and neurotic symptoms[62].

IV. PSYCHIATRIC MORBIDITY IN DERMATOLOGICAL DISORDERS

a) Prevalence rate

The Overall prevalence of psychiatric manifestations among patients with skin conditions was around 30-40% according to Picardi A etal,(2000)[22] and Woodruff et al,(1997)[26].According to Korabel H et al (2008)[27], the prevalence of psychiatric disorders in dermatological disorders is 30-60%. Whereas, Picardi et al(2001)[7] report a prevalence of 25-43% in patients with dermatological disease. Many Indian studies like Matoo SK Handa,(2002)[10],Sharma et al,(2001),[28] reported around 25-35% of psychiatric illness in patients attending Dematology clinic. Aktan et al,(1998)[29] have found 33.4% prevalence of psychiatric disorders accompanying dermatological diseases.

b) Psychiatric Disorder

A recent Indian study by Kosaraju SK et al,2015 reveals majority of dermatology patients (89%) have depressive symptoms. In a study by Seyhan et al,(2006),[30] the reported Psychiatric comorbidities were depression (32.0%), adjustment disorder (15.5%) and anxiety (13.4%). The distribution of psychiatric morbidity in various dermatological disease groups in this study were psychosomatic disorders (25%) and depression (18.8%) in urticaria group; adjustment disorder (40%) and depression (30%) in the patients with psoriasis; and anxiety (36.4%) and adjustment difficulty (18.2%) in the patients with alopecia.

According to Pulimood et al(1996)[65], depression was the most prevalent psychiatric disorder with a prevalence of 34%. Among dermatological disorders, chronic urticaria, exfoliative dermatitis and Sexually transmitted diseases were the disorders which had more psychiatric comorbidity. Aslant et al(2003) study finding is that depression and adjustment disorder were the most prevalent and the second most prevalent disorders, respectively. According to Woodruff et al, severe depression had a prevalence of 14%, mild to moderate depression- 28% and mild anxiety was 25% prevalent. Akay et al(2002) reported a 58% prevalence rate of depression in psoriasis as compared to 53% in Lichen planus and 20% in the control group.

c) Age

According to Woodruff et al, in female dermatological patients suffering with a psychiatric disorder, the mean age was 46.8 years, compared to males,

who had a mean age of 41.9 years. Seyhan et al report a mean age of 35 for males and 37.8 years for females. The findings of these studies suggest that the age of onset in males is earlier as compared to females.

d) Sex

According to Wessley et al,1989 psychiatric manifestations were more commonly seen in women than men. A study by Picardi et al,(2000),[22] said psychiatric manifestations were common in female patients than male patients with vitiligo.This was supported by a Turkish study O.D.Balaban et al,(2011)[63].In a study by Humphreys et al(1998)[8], it has been found that females, especially widows and those suffering from eczema, pruritus, psoriasis and acne have higher prevalence of psychiatric disorders. Another korean study reported Vitiligo is more common in female, Cho S.kang et al,2000.

e) Marital Status

Seyhan et al(2006)[30] report a higher prevalence of psychiatric morbidity in married females as compared to unmarried individuals .Where as study by Picardi et al,(2000)[34] reports more psychiatric illness in unmarried women.

f) Site of Lesion

Picardi et al(2001) report that those with hand and foot lesions have a higher rate of psychiatric illness. In a study by Seyhan et al(2006), among the 67.7% depressed females with skin lesions, 40% suffered from lesions in the visible areas. Cotteril et al report a finding that, depression and suicidal

behavior are higher when the lesions are dysmorphic and present particularly over the face.

g) Duration of Illness

In a study by Seyhan et al,2006 it was said psychological adjustment occur with longer duration of disease. This study reports in patients with a duration of more than a year of cutaneous illness, the prevalence of psychiatric morbidity was 27.8% and in contrast it was found to be 72.2% in case of a duration of illness less than one year. Another study by Sivanesan AR,2017[60],reported no such correlation between psychiatric illness and duration of illness.

h) Suicide

Skin disorders like Acne conglobata, Dermatitis artefacta syndrome, Body dysmorphic disorder, Progressive systemic scleroderma, Metastasizing malignant melanoma are associated with a increased risk of suicide reported by Cotteril et al(1997)[23]. The Same study report that young patients who have scarring lesions have to undergo a detailed psychiatric assessment. If a co-morbid depressive disorder is suspected, it is important to look into the major depressive symptoms like low mood, easy fatigability, lack of interest in pleasurable activities (anhedonia), sleep disturbance, excessive and inappropriate guilt, psychomotor agitation or retardation, and recurrent thoughts of death with or without suicidal ideations. Barankin et al(2002) report that suicide as a result of depression is common in illnesses like Psoriasis, which have a chronic course. Especially diseases with lesions over

the face are found to have a higher prevalence of suicide. An Indian study in by Ramakrishan et al,(2014),[12] reported 28.3% of suicide in patients with vitiligo. Whereas Garg S,Sarkar R,(2014)[33] reports 3.3% suicide

V. DESCRIPTION OF THE DISEASE UNDER STUDY-VITILIGO

Vitiligo is a common form of localised or generalised depigmentation resulting from progressive loss of melanocytes.It is an acquired condition due to multifactorial etiology characterized by milky white sharply demarcated macules and patches.

Epidemiology

i) Incidence and prevalence

Vitiligo affects 1-4% of the world's population independent of race and gender[34-38].

In Indian population its about 4-8.8%. [39]

ii) Age

Vitiligo begins at any age but most of the cases becomes apparent between the age of 20 and 30 years[40-43].

iii) Sex

The prevalence is almost equal in both sexes . In some studies female preponderance was reported (Arycan et al) and slight male preponderance in another study also reported.

iv) Etiopathogenesis

Various theories have been suggested for the etiology of vitiligo. Multifactorial causation have been proposed, the same mechanism may not apply to all cases. The loss of melanocytes in vitiligo may also be the result of different pathogenetic mechanisms working together (‘convergence’ or ‘integrated’ theory).

1. The Autoimmune/Autoinflammatory Theory

This is currently the leading hypothesis and is supported by strong evidence of clinical association of vitiligo with a number of disorders also considered to be autoimmune or autoinflammatory. The association with vitiligo has demonstrated a shared underlying genetic susceptibility to other autoimmune diseases .A combination of dysregulated innate and adaptive immune responses has been proposed in vitiligo. Interestingly, several components of the innate immune system have been discovered. Role of heat shock proteins 70 (hsp-70) and LL37 has been suggested., others are NLRP-1,XBP-1 which released during cell injury. Accumulating evidence supports a major aetiological role for melanocyte-specific cytotoxic T cells in coordinating the targeted autoimmune tissue destruction of melanocytes in progressive vitiligo. Both helper and cytotoxic T cells from progressing margins generate predominantly type 1 cytokines. This theory is supported by the fact that various effective treatment options in vitiligo have an immunosuppressive effect on the activation and maturation of T cells (e.g. local steroids and topical immunomodulators).

2. Qxidative Stress Theory

Many studies have reported the involvement of oxidative stress in vitiligo and skin conditions like Alopecia Areata(AA) . Oxidative stress is induced by excessive generation of reactive oxygen species (ROS) and other radicals like of hydrogen peroxide (H2O2) leading to accumulation in the epidermal layer of affected skin [44]. The generation of ROS can be associated with a decrease in antioxidant levels at the skin. Recent studies have shown that free radicals was increased and the antioxidant systems were not sufficient in vitiligo and alopecia. Increased lipid peroxidation may relate to decrease in Superoxide dismutase(SOD) activity and vitamin A levels[45]. These results demonstrate the presence of an imbalance in the oxidant-antioxidant system and provide further support for a free radical-mediated damage as an initial pathogenic event vitiligo and AA.

Increased oxidative stress may trigger the process of ‘haptenation’ by increasing the levels of surrogate substrates of tyrosinase resulting in the formation of highly immunogenic neoantigens in vitiligo.

3. The Self Destruction Theory of Lerner

This theory suggested that melanocytes destroyed themselves due to a defect in a natural protective mechanism that removed toxic melanin precursors.

4. Neurogenic Theory

This theory suggest that compounds or substances released from nerve endings have toxic effect on melanocytes leading on defective melanocytes function .Few studies support this states that Neuropeptide Y may play a role in such mechanism.

5. Other Proposed Mechanisms for Vitiligo Include

Defective keratinocyte metabolism with low catalase levels in the epidermis, defective tetrahydrobiopterin and catecholamine biosynthesis and loss of melanocytes through inhibition of their adhesion to fibronectin by extracellular matrix molecules. In vivo, repeated frictional trauma to perilesional skin in non-segmental vitiligo has been shown to induce detachment and death of melanocytes (‘melanocytorrhagy’).

v) Genetics

Polygenic inheritance with variable penetrance have been suggested. Approximately 30% patients have positive family history .Vitiligo has been reported in monozygotic twins. Genome wide association studies identified several susceptibility loci of generalised vitiligo which almost associated with loci encoding components of immune system like NLRP1,PTPN22, variation in as many as 30 genes in different combination have been proposed. Other gene implicated is TYR gene that encodes tyrosinase enzyme which catalyse melanin biosynthesis[84,84].

vi) Environmental Factors

Isomorphic response or The Koebner phenomenon is a well-known phenomenon in vitiligo. It has been defined as the development of lesions at sites of trauma to uninvolved skin of patients with cutaneous diseases. To create a universally acceptable specific system for the evaluation of Koebner phenomenon in vitiligo, the Vitiligo European Task Force (VETF) group introduced a new assessment and classification method for the evaluation of Koebner phenomenon in vitiligo .It has been suggested that the Koebner phenomenon may function as a clinical parameter to assess and predict the clinical profile and course of vitiligo.

vii) Classification of Vitiligo

Vitiligo can be classified as followed

1.NON SEGMENTAL/GENERALISED

Non-segmental vitiligo which is bilateral maculae, often distributed in an acrofacial pattern or scattered symmetrically over the entire body.Which includes the following.

Vitiligo vulgaris, Vitiligo universalis, Acrofacial, Mixed

2. SEGMENTAL/LOCALISED

Segmental vitiligo which is typically unilateral maculae in a segmental/band-shaped distribution. which includes Mucosal, Focal, segmental

3. OTHERS: Unclassified

According to a recent Vitiligo Global Issue Consensus Conference, the term ‘vitiligo’ can be used as an umbrella term for all non-segmental forms of vitiligo including several variants: acrofacial, mucosal, generalized, universal,mixed and rare variants of vitiligo[85].Segmental vitiligo (uni-,bi-, or plurisegmental) is classified separately. Focal lesions small isolated depigmented lesions that are not segmentally distributed and have not evolved into non-segmental vitiligo after 1–2 years and isolated mucosal lesions on one site are considered as undetermined/unclassified vitiligo.

viii) Disease Course and Prognosis

Vitiligo is gradually progressive, sometimes extending rapidly over a period of several months and then remaining quiescent for many years. Spontaneous repigmentation can sometimes be noted in sun-exposed areas, and can have a typical perifollicular appearence. Segmental vitiligo generally starts earlier in life than non-segmental vitiligo and often stabilizes within the first year of onset.

ix) Investigations

The diagnosis of vitiligo is based essentially on clinical examination, because the lesions have a typical appearance. However, if the lesions are not distributed in the pattern of classical vitiligo, confusion with other hypomelanotic disorders can arise. Inspection with the aid of a Wood’s light can then be helpful. The presence of a family history of vitiligo, the Koebner

phenomenon, leukotrichia or associated autoimmune disorders such as thyroid disease can help to support a clinical diagnosis of vitiligo.

x) Management

Treatment of vitiligo is very challenging as the response varies between individuals and often unsatisfactory.Patients explained about koebnerization phenomenon ,combination of treatment with topical corticosteroids ,calcineurin inhibitors like tacrolimus , pimecrolimus, photochemotherapy with UV-A,UV-B, sunscreen ,camouflage creams can be tried. Surgical techniques like tissue graft –punch skin graft ,split skin graft,suction bister graft,cellular graft techniques as third line of management which has variable results can be tried.

Some authors suggest successful repigmentation is mostly the result of combination of various intervention though not necessarily permanent treatment for generalised vitiligo and providing the ways of coping with vitiligo could also be of benefits to patients while the disease has no cure.

VI. PSYCHIATRIC MANIFESTATIONS/MORBIDITIES IN VITILIGO

1. Psychiatric Disorders

The prevalence of psychiatric morbidities in patients with vitiligo range from 25% to as high as 75% reported by various studies. Worldwide its about 25-35% as reported in few International studies [46,22].In India it is around 56-75%[10,11,28]. About 16.2% reported by Sharma et al, 25% (Matoo Handa, 2002), 79.2%(Ramakrishna P, Rajni et al,2014). [12]

According to the literature, vitiligo is considered as both cause and result of some psychiatric problems such as anxiety and depression.[47–53] Thus history of other psychiatric problems could potentially add to the burden of this disorder. As some vitiligo patients with psychiatric illness may not be aware of their own disorder and the illness could have been undiagnosed the association might be even stronger.

A) ANXIETY

Excessive thinking or Apprehension and preoccupation with the skin problem leads to fluctuations in mood may result in fine tremors, dry mouth, increased frequency of mictuirition, palpitation. The intensity of symtoms will increase further course of the disease and moreover leading to Anxiety which may transfer into panic attacks. The neurotic repression leads to severe pathological regression resulting in Delusional thoughts, Somatic, Paranoid, Dysmorphophobic and Nihilistic delusions which may further leads to worsening of skin disorders and vise versa[55-58] .Therefore simultaneous addressing of Skin and Mind is necessary for better outcome.

One study reported Social phobia 67.9%, panic disorder 11.3%,obsessive compulsive disorder(OCD) 3.8% [12].Another study by Sukan and Mannar in 2007 reported Social phobia 26%,Dysthymia 26%, OCD 26% and specific phobia 36%.In a large study of (n=610) patients Anxiety was reported around 22% and depression only 4% in vitiligo patients(prcic et al) [54].

B) ADJUSTMENT DISORDER

Patients with vitiligo have reported to have adjustment problems which is reported commonly in many Indian studies.

Mattoo et al., 2002 reported that 25% of vitiligo patients to have psychiatric manifestations. Majority of the cases had a diagnosis of Adjustment disorder. In another study, General Health Questionnaire assessed psychiatric morbidity rates at 33.63% and 24.7% for vitiligo and psoriasis, respectively, Mattoo et al,2001.Adjustment disorder (56% vs 62%), depressive episode (22% vs 29%), and dysthymia (9% vs 4%) were the most common psychiatric disorders in vitiligo and psoriasis patients, respectively.

C) DEPRESSION

Symptoms appear with increased preoccupation of skin condition followed by loss of interest in all activities of life especially associated with changes in sleep pattern, food intake, inability to express emotions, suicidal thoughts, low self-esteem, nihilistic belief, withdrawn attitude, preference in solititude and deterioration of interpersonal relationship.

One study reported Major Depressive Disorder around 56.6%, suicide 28.3%[12] Another study reported Dysthymia 26%.In 1979 study done by Porter J. et al,(1986) showed Depression 40% of patients with vitiligo and were said to have low self esteem[47]. Study by Wang et al in 2011 reported depression in 25-35 % in their study on vitiligo patients[50] .The above study also show decreased sexual drive in vitiligo patients with co morbid depression ,reports

16% sexual dysfunction. A recent Indian study by Sangma et al in 2015 reported 59% of Depression in patients with vitiligo.

D) SEXUAL DYSFUNCTION

Patients with vitiligo said to have relationship problems with opposite sex. Many face trouble in establishing new relationship and strained relationship in already existing one. A study by Wang et al (2011)[50], reported emotional or sexual problems with new partner. The above study found 16% sexual problem and 25-35% depression with loss of sexual drive.

2. PRURITUS IN VITILIGO

Anxiety and Depression have been associated with pruritus in patients with Vitiligo, as well as those with other inflammatory conditions of the skin. Anxiety and Depression said to have an effect on coping styles of the patients with pruritus. Pruritus is said to be a poorly defined entity in which the patient have persistant itch. The Pruritic episodes are unpredictable with abrupt onset and termination, predominantly occurring at the time of relaxation. It can be generalized or localized. The commonest sites of predilection are legs, arms, back, and genitals. Often there is history of a major psychological stress preceding the onset of pruritus. Majority of patients have associated anxiety and or depression. In a study by Gupta et al, found that pruritus and depression severity were positively correlated[59].Aggression, Lability of emotion, self consciousness and Hostility were the personality traits found to be associated with pruritus.

Pruritus is attributed to the interaction between sensory neuron and the mast cells. This causes release of cytokines and neuropeptides, like Substance P. Similar changes are seen in depression and anxiety and this explains the reason why emotions have an effect on pruritus. Further pruritus may leads to development of lesion at site of persistant or repeated trauma which can be explained by Isomorphic phenomenon, also known as Koebners phenomenon.

3. STRESSFUL LIFE EVENTS IN VITILIGO

Patients with vitiligo often have different perception of the causation of disease. The state of stress is influenced by internal or external factors.

Internal Factors: Attitude and coping skills in facing different situation. Traits, Temperament and Personality, Past Experiences and Individual Needs

External Factors: Life Events, Socio professional factors and Natural Environment.

Potential Stressful Events reported in vitiligo are Marital or Familial problems reported in one study. A study by Silvian et al reported 40% death of close person[9]. Few studies reported stress no correlation with disease onset or course in 50% [62]. Another study by L Quasim et al, (2005), reported stress events acts as preciptating factor in Vitiligo in 54%. Female patients with vitiligo have high perceived stress reported by Misery et al, 2008 and 30% have significant level of distress reported in a study by Gupta and Gupta,2008.

4.QUALITY OF LIFE AND VITILIGO

The Quality of Life in patients with vitiligo is low with associated Psychiatric co morbidities. In a study done by Salzer et al,1995 vitiligo patients found their disfigurement severly or moderately intolerable with occupation difficulties and poorer quality of life, it's around 75%[88].One study reported psychiatric manifestations depends on location of vitiligo whether exposed or unexposed area of involvement and clinical severity has effect on marriage of patient and relatives associated with impaired Quality of life (Daniel SJ, Sivanesan,2017)[60].yet another study reported poorer quality of life in married females[50].

Another study reported Psychotherapy especially cognitive behaviour therapy improved patients treatment response and thereafter better Quality of life and positive effects in the course of disease[61].

VII. RECENT STUDIES

Recent studies emphasis the importance of addressing psychological and psychiatric issues and focus on improving Doctor-patient interaction thereby to provide supportive, informative and caring approach in reducing distress in patients with vitiligo. Also highlight on Psychiatric intervention like cognitive behaviour therapy along with routine management of vitiligo which can improve self esteem, coping skills, ability to with the consequences of vitiligo and quality of life in patients with vitiligo. Thus a need for a biopsychological approach to patients with skin diseases arises. The multidisciplinary approach, namely the collaboration of specialists form the fields of psychiatry and

dermatology and co-leading of the diagnostic process and treatment is essential for patients with psychodermatological diseases[31,32,63]

1. My study in choosing Psychodermatology is to focus on how to reduce stigma and improve the coping mechanisms and to explore the relational factors, important determinants of successful intervention for individuals with skin condition like vitiligo and motivation for psychiatric consultation thereby simultaneous intervention of psychiatric manifestations along with management of vitiligo help to improve the quality of life in patients with vitiligo.

AIMS AND OBJECTIVES

AIM OF THE STUDY

To study the Impact of Vitiligo on Psychiatric manifestations and to assess the frequency and pattern of psychiatric illness in patients with vitiligo and to understand the relationship with stressors, Quality of life and Disease related variables.

OBJECTIVES

- To study the Prevalence and patterns of Psychiatric illness in Patients with Vitiligo
- To study the pattern of Psychiatric illness among different morphological types of Vitiligo.
- To assess the Hostility and direction of Hostility in Patients with Vitiligo.
- To determine the relationship of Psychiatric illness , Life Stressors and Quality of Life in Patients with Vitiligo
- To compare the Quality of life between patients of Vitiligo with and without psychiatric illness.

HYPOTHESIS TO BE TESTED

1. The Prevalence of Psychiatric illness is higher in Female Patients with Vitiligo.
2. Major Depressive disorder is the most common psychiatric disorder comorbid with Vitiligo.

3. Patients with a longer duration of illness have a higher prevalence of psychiatric illness.
4. Stressful life events aggravate the severity of Vitiligo.
5. The presence of Psychiatric illness in Vitiligo Patients results in low Quality of Life.
6. The Prevalence of low self esteem, depression is more common in female patients with Vitiligo
7. Patients with comorbid psychiatric disorder have more intrapunitive hostility.
8. The Prevalence of Psychiatric illness is Higher in Nonsegmental Vitiligo than other types.

MATERIALS AND METHODS

INCLUSION CRITERIA

Patients diagnosed as cases of Vitiligo by Dermatologist as per ICD-10 Criteria (L80)

Age group : Vitiligo Patient between 18 to 65 years of age

Patients who gave consent for the Study

EXCLUSION CRITERIA

Patients with Mental Retardation and Delirium

Patients who have previous psychiatric illness

Patients who have other autoimmune diseases like Systemic Lupus Erythematosus, Cutaneous Lupus erythmatosus and other comorbid dermatological diseases.

METHODOLOGY

A sample of 70 consecutive patients with an established diagnosos of Vitiligo, attending the Dermatological out Patient department were selected for the study.

OPERATIONAL DESIGN

The study was conducted at Government Rajaji Hospital, Madurai a tertiary care centre. The study was approved by the Institutional Ethical Committee, Government Rajaji Hospital. The sample was chosen from patients attending Dermatology out Patient department. Every consecutive patient who

met the inclusion and exclusion criteria were selected, discussed with Senior Psychiatrist and were then included in the study. The subjects were explained about the nature of the study and informed consent was obtained. Socio demographic details and a detailed history were collected from the patient and a reliable informant using a semi-structured proforma. Complete physical examination including neurological evaluation and detailed mental status examination was done, clinical diagnosis based on International classification of diseases -10 (ICD-10) were followed[89]. All the subjects were administered Modified Kuppusamy's Socio economic scale, 2012. The subjects were administered MINI International Neuropsychiatric interview and the Hospital Anxiety Depression Scale.All subjects were assessed with presumptive stressful life event scale, Rosenberg Self-esteem scale, the World Health Organization Quality of Life (WHOQOL)-BREF scale.

Likewise 70 consecutive patients were assessed.

STATISTICAL DESIGN

Statistical design was formulated using the data collected as above, for each of the scales and socio-demographic variables. Statistical analysis was done using SPSS(Statistical Package for Social Studies) trial version 14.0. The central values and dispersion were calculated. In comparison of the data for categorical variables chi-square and for numerical variables student t test were used. For multiple comparisons of more than two numerical variables, ANOVA and Scheffe post hoc tests were used. Correlation among variables was studied

using Pearson's correlation coefficient. Then all variables were subjected to Multiple linear regression, with Quality of Life as the dependent Variable.

TOOLS USED

Proforma

1. 1 .Kuppusamy rating scale for socioeconomic status
2. MINI International Neuropsychiatric Interview
3. Hospital Anxiety and Depression Scale (HADS-A,HADS-D)
4. Presumptive Stressful Life Events Scale(PSLES)
5. Hostility and Direction of Hostility Questionnaire (HDHQ)
6. The World Health Organisation Quality of Life (WHOQOL- BREF)
7. Rosenberg Self esteem scale (RSES)
8. VASI-Vitiligo area and severity Index to calculate clinical severity of Vitiligo.

1.PROFORMA

Proforma includes personal demographic details, present history, past history, Family history, duration of illness, severity of illness, physical and mental status examination and Biochemical Investigations.

2. KUPPUSAMY SOCIO ECONOMIC STATUS SCALE

Kuppuswamy scale is widely used to measure the socio-economic status of an individual based on three variables namely, education, occupation and income. It was originally proposed in 1976. The scale was revised in 2012 were

the monthly family income was modified based on current consumer price index. (BP Ravi Kumar et al, 2012)[66,67]

3.MINI INTERNATIONAL NEUROPSYCHIATRIC INTERVIEW

The M.I.N.I. is a structured interview for diagnosing the major Axis I psychiatric disorders in DSM-IV and ICD-10. The interview is short and takes about 15 minutes to administer. It can be administered after a brief training. It is a useful instrument in epidemiological studies and trials[68,69]. It has precise questions about psychological problems and the answers are in yes or no format. The M.I.N.I. is divided into 16 modules identified by letters, each corresponding to a diagnostic category. Validation and reliability on comparing with several structured interviews were found to be good.It has been validated against the longer structured clinical interview for DSM diagnosis(SCID-P) in English and French and against the composite International Diagnostic Interview for ICD-10(CIDI) in English, Arabic and French.

4.HOSPITAL ANXIETY AND DEPRESSION SCALE

Hospital Anxiety and Depression Scale (HADS), developed to identify states of anxiety, depression, and emotional distress, is a selfs assessment scale and applied among patients who are being treated for an array of clinical disorders (Zigmond & Snaith et al)[70] It has a total of 14 items, with responses scored on a scale of 0-3, with 3 signifying elevated symptom frequencies (Goodinson et al.). Score for each subscale for depression and anxiety ranges from 0 to 21 with scores categorized as:

Normal (0-7)

Borderline abnormal (8-10)

Abnormal (11-21)

Higher Scores on the whole scale assesses emotional distress with scores ranging from 0-42, where higher scores representing distress. It takes upto an average 2 to 5 minutes to complete and is done by the patients on their own. HADS requires the person to answer to the questions in relation to how they felt in the past week. HADS scale has good psychometric properties in requisites of inter correlation, homogeneity, factor structure, and internal consistency.

5. PRESUMPTIVE STRESSFUL LIFE EVENTS SCALE

It was originally devised by Gurmeet Singh et al[71] in 1983 as a modification of the Holmes and Rahes social readjustment rating Questionnaire, for use in the Indian population. Due to the simplicity of the scale, it can be administered to illiterate population as well.

The scale items were divided into personal or impersonal, desirable or undesirable and ambiguous. It consists of 51 items. It measures the mean number of stressful life events in the adult population in their lifetime and in the past year. The norms obtained on studying the Indian population indicated that an average Indian experiences about ten stressful life events, without suffering much physical or psychological distress. They experience an average of two stressful life events in one year. The study also indicated that neurotics

were likely to report a higher number of life events. They also scored a higher stress score for the same event, as compared to the normal subjects.

6. HOSTILITYAND DIRECTION OF HOSTILITY QUESTIONNAIRE:

This was proposed by Caine, Foulds, & Hope in the year 1967. This consists of 51 items and contains 5 subscales. The five are Urge to Act Out Hostility (AH), Criticism of Others (CO), Projected Delusional or Paranoid Hostility (PH), Self-Criticism (SC) and Delusional Guilt (DG). The first 3 subscales are combined to form extrapunitive (blaming others) (AH+CO+PH) and the next two form the intrapunitive (inwardly directed hostility)(SC+DG).

The score to assess the direction of hostility DH=(2SC+DG)-(AH+CO+PH).A positive score indicate intropunitiveness and the negative score indicate extrapunitiveness[72,73].

7. THE WORLD HEALTH ORGANISATION QUALITY OF LIFE SCALE

The WHOQOL-BREF scale was developed as a modification of WHOQOL-100 scale since it is tedious and time consuming in large studies. The WHOQOL-BREF is brief, easy to use and results obtained are accurate. The WHOQOL-BREF Field Trial Version assesses the quality of life at domain level. Of the 24 facets in WHOQOL-100 scale the most determining items were chosen and incorporated in WHOQOL-BREF. This scale assess the quality of life in four domains namely, physical, psychological, social relationship, and environmental domains[74,75]. The score of each domain is

calculated by taking the mean of all items and multiplying by factor of four. This is then transformed to a 0-100.

Cronbach alpha values for each of the four domains demonstrated good internal consistency. It also demonstrates good discriminant validity which is comparable to WHOQOL-100 scale. All four domains of WHOQOL-BREF scale is found to significantly contribute to the overall quality of Life and General Health.

Among the domains the physical health domain is most contributing and social relationships domain is least contributing to the overall quality of life.Thus WHOQOL-BREF is considered as a good alternative to WHOQOL-100 and a faster means of assessment of quality of life.

8. ROSENBERG SELF ESTEEM SCALE (RSES)

A 10-item scale that measures global self-worth by measuring both positive and negative feelings about oneself. The scale is believed to be uni-dimensional. All items are answered using a 4-point Likert scale format ranging from strongly agree to strongly disagree. The Rosenberg Self-Esteem Scale, a broadly used self-report instrument for evaluating individual self-esteem, was investigated using item response theory. Factor analysis identified a single common factor, contrary to some previous studies that extracted separate Self-Confidence and Self-Depreciation factors. A unidimensional model for graded item responses was fit to the data. A model that constrained the 10 items to equal discrimination was contrasted with a model allowing the discriminations to be estimated freely. The test of significance indicated that

the unconstrained model better fit the data-that is, the 10 items of the Rosenberg Self-Esteem Scale are not equally discriminating and are differentially related to self-esteem. The pattern of functioning of the items was examined with respect to their content, and observations are given with implications for validating and developing future personality instruments. The scale ranges from 0-30, with 30 indicating the highest score possible. Scores between 15 and 25 are within normal range; scores below 15 suggest low self esteem[78,79] .

9. VASI-Vitiligo area and severity Index

The percentage of vitiligo involvement is calculated in terms of hand units. One hand unit (which encompasses the palm plus the volar surface of all digits) is approximately equivalent to 1% of the total body surface area[80] . The degree of pigmentation is estimated to the nearest of one of the following percentages: 100% - complete depigmentation, no pigment is present

90% - Specks of pigment present

75% - Depigmented area exceeds the pigmented area

50% - Pigmented and depigmented areas are equal

25% - Pigmented area exceeds depigmented area and

10% - onLy specks of depigmentation present.

The VASI for each body region is determined by theproduct of the area of vitiligo in hand units and theextent of depigmentation within each hand unit measured patch.

Total body VASI = Σ All body sites [Hand Units] ×[Residual depigmentation]

RESULTS & INTERPRETATION

RESULTS AND INTERPRETATIONS

TABLE 1

Table Showing Socio demographic Variables of the Sample Population

S.No	Variable		Cases (N = 70) n	Percentage
1	Age	<35	24	34.3
		36-50	27	38.6
		51 and above	19	27.1
2	Sex	Male	33	47.1
		Female	37	52.9
3	Marital status	Married	43	61.4
		Unmarried	15	21.4
		Widow/Separated/Divorce	12	17.1
4	Socio-economic status	Lower	6	8.6
		Upper Lower	48	68.6
		Lower Middle	16	22.9
5	Religion	Hindu	64	91.4
		Non Hindu	6	8.6

From Table 1, it is inferred that majority (38.6%) of the sample population belongs to the age group between 36 to 50 years. The sample population consists of 52.9% females and 47.1% males. 61.4% were married and 21.4% unmarried. 17.1% were single(widow/separated/divorced). Majority (68.6%) belong to the Upper Lower socioeconomic group. Majority of sample population were Hindus 91.4% and 8.6% Non-Hindus (Christians/ Muslims/others).

CHART 1 : Shows Age distribution in the sample population in percentage.

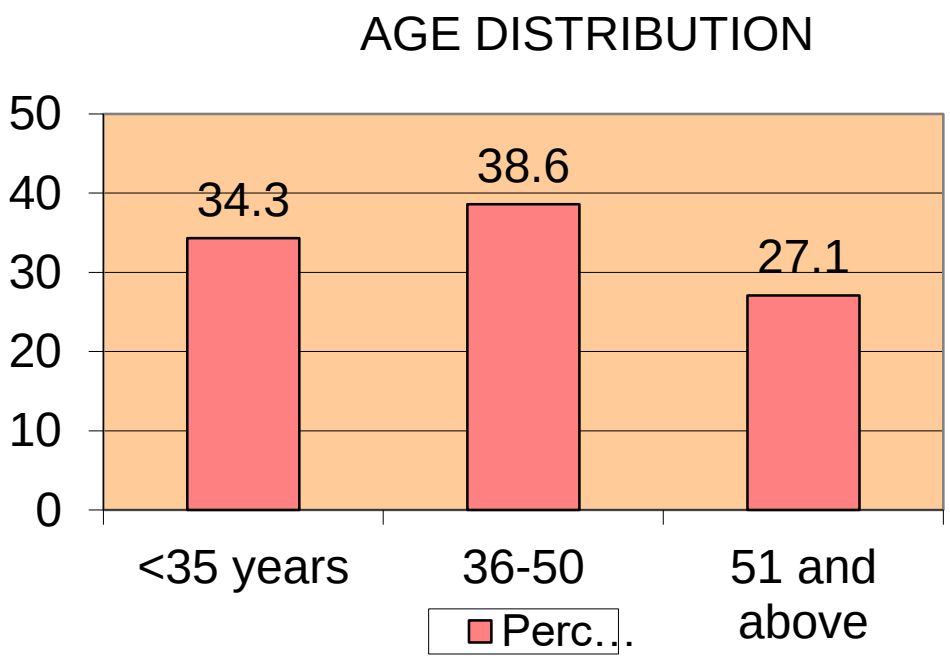

CHART 2: Shows gender distribution in patients with Vitiligo

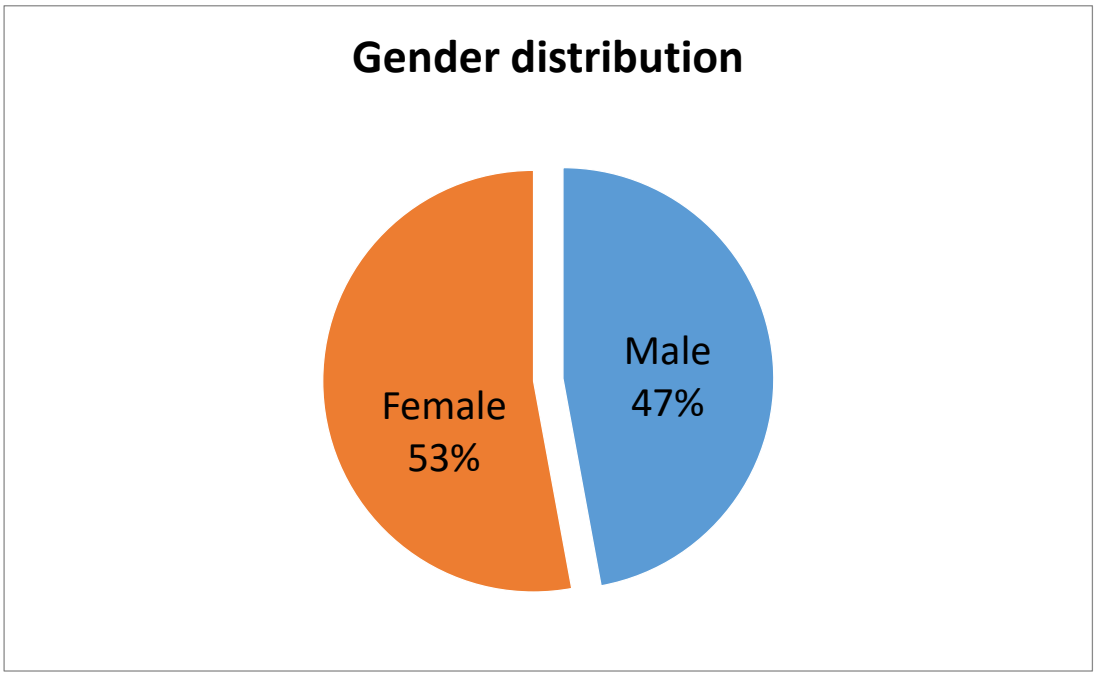

CHART 3: Shows distribution of Socioeconomic Status of patients with Vitiligo

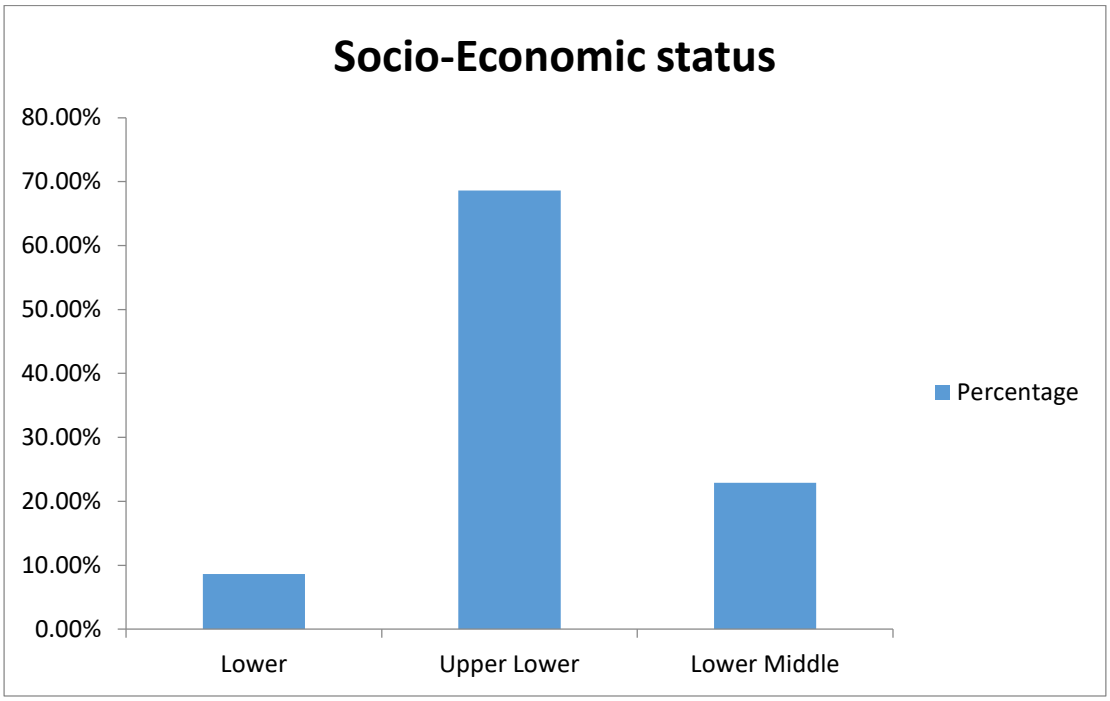

CHART 4: Show marital status in patients with Vitiligo

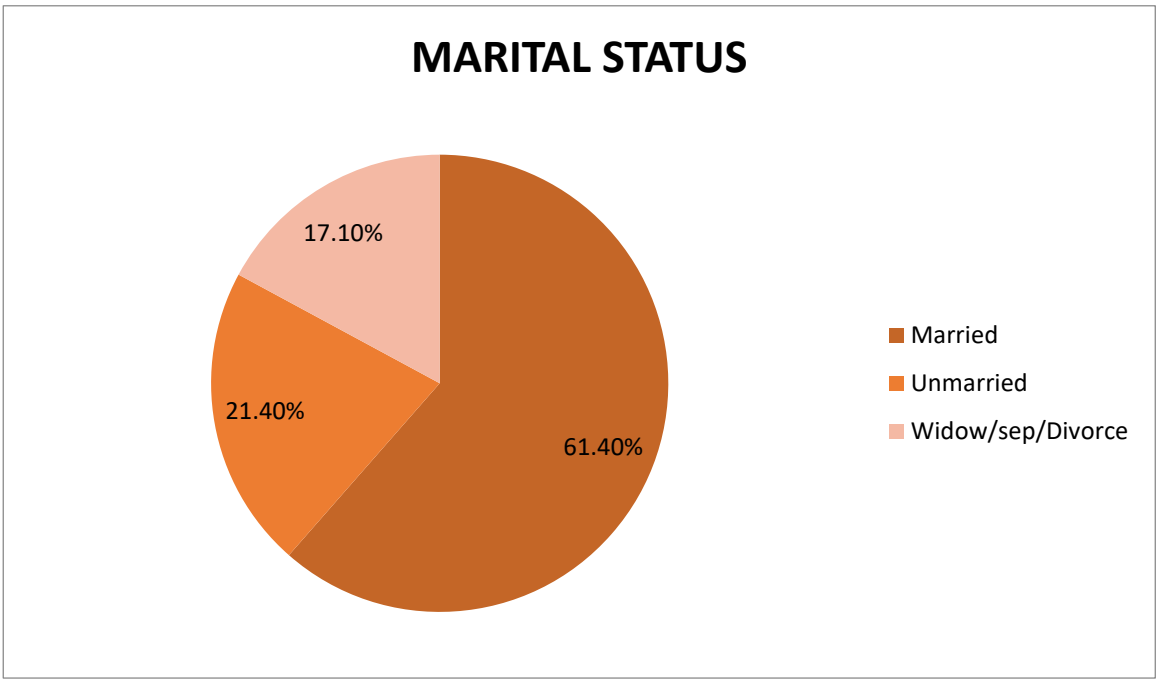

CHART 5: Show distribution of religion in patients with Vitiligo

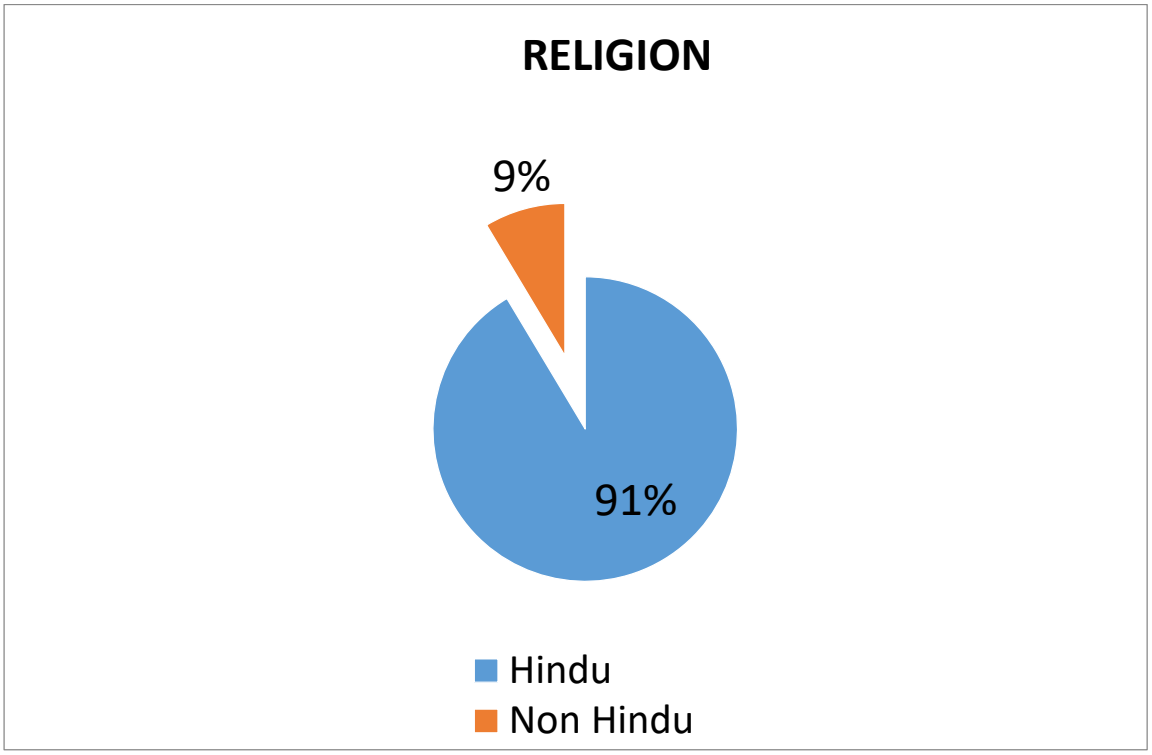

TABLE 2

Table Showing Frequency Distribution of Dermatological Illness Variables

S.No	Variable		Cases (N=70) N	Percentage
1.	Type of vitiligo	Generalised	49	70
		Localised	21	30
2	Duration of illness (Years)	<3	41	58.6
		4-6	18	25.7
		7 and above	11	15.7
3.	Course type	Progressive	23	32.9
		Regressive	9	12.9
		Stationary	25	35.7
		Remission and Exacerbation	13	18.6

Table 2 shows the frequency distribution of the type of Vitiligo, and duration of illness and course among the patients. From the table, we see that 70% of the sample had Nonsegmental(Generalised)vitiligo and 30% localised/segmental type. The duration of illness was <5 years in 81.4% of patients, 6-12 years in 12.9% of patients and in 5.7%, it was > 13 years. The type was 35.7% stationary, 32.9% progressive, 18.6% Remission and exacerbation and 12.9% in Regressive type.

CHART 6: Showing frequency of Major types of Vitiligo

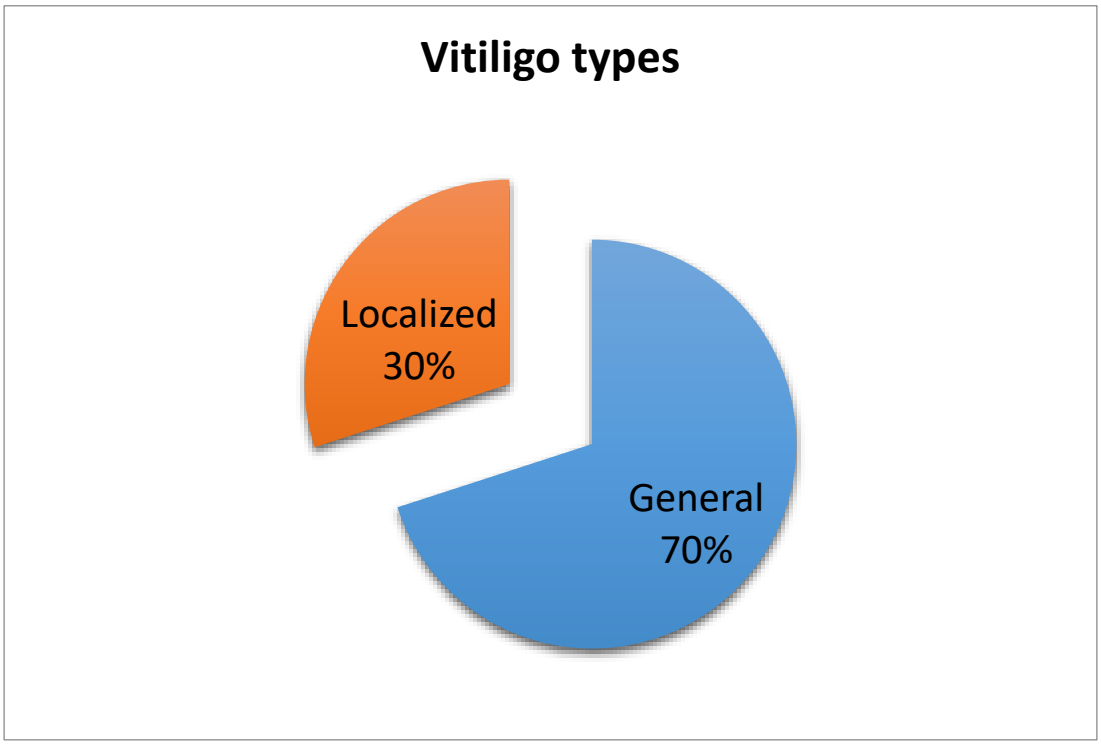

CHART 7 : Shows distribution of subtypes of Vitiligo

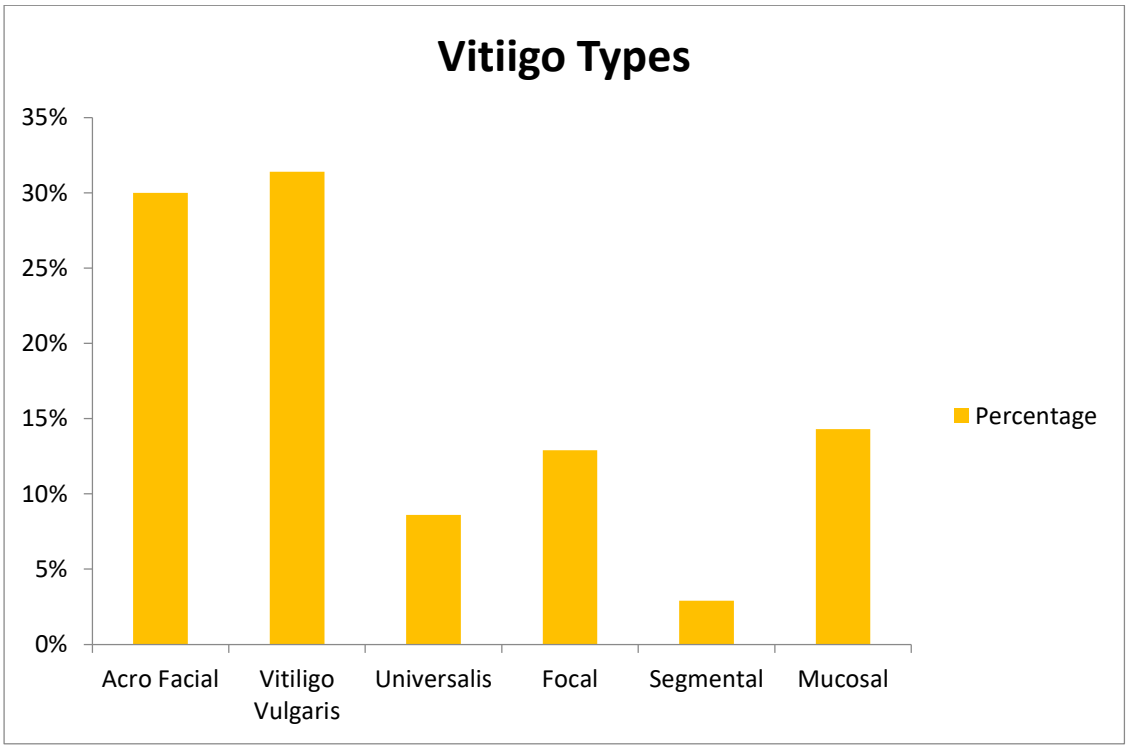

CHART 8: Shows distribution of Duration of illness in patients with Vitiligo

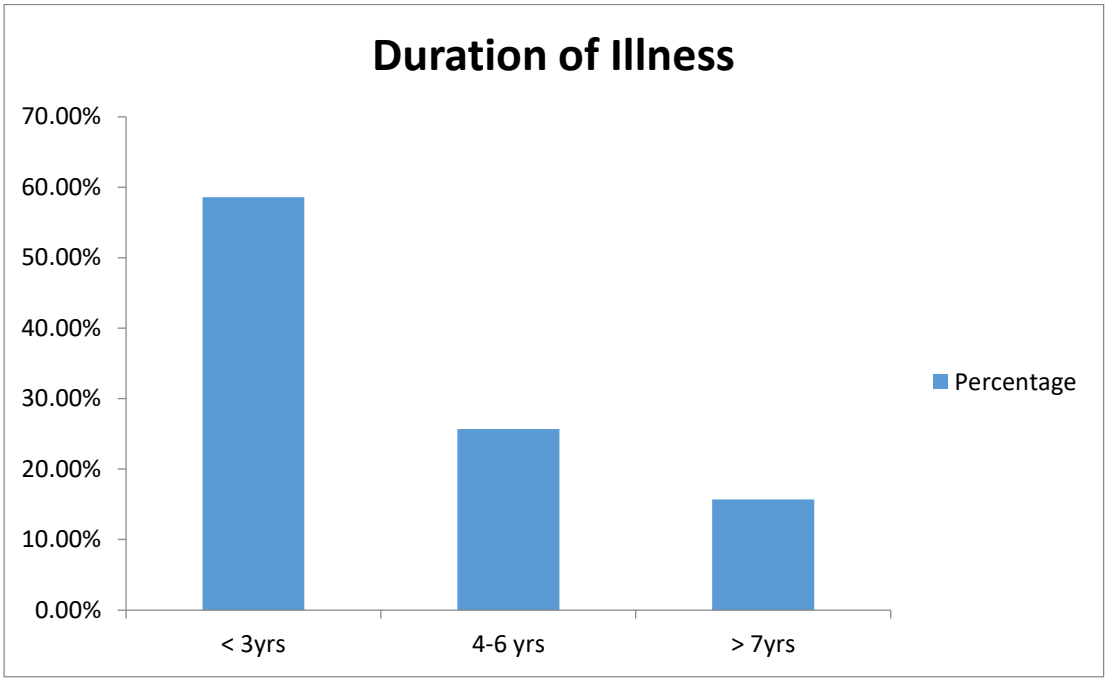

TABLE 3

Table Showing Frequency of Psychiatric Morbidity Among Patients With Vitiligo.

S.No	Psychiatric Morbidity	Cases (N=70) n	Percentage (%)
1	Present	49	70.0
2	Absent	21	30.0

Table 3 shows the frequency of psychiatric illness in patients with Vitiligo. Among the 70 sample population taken up for study 49 patients (70%) had one or the other psychiatric illness and 21(30%) of the patients had no psychiatric illness.

CHART 9: Shows distribution of Psychiatric morbidity in patients with Vitiligo

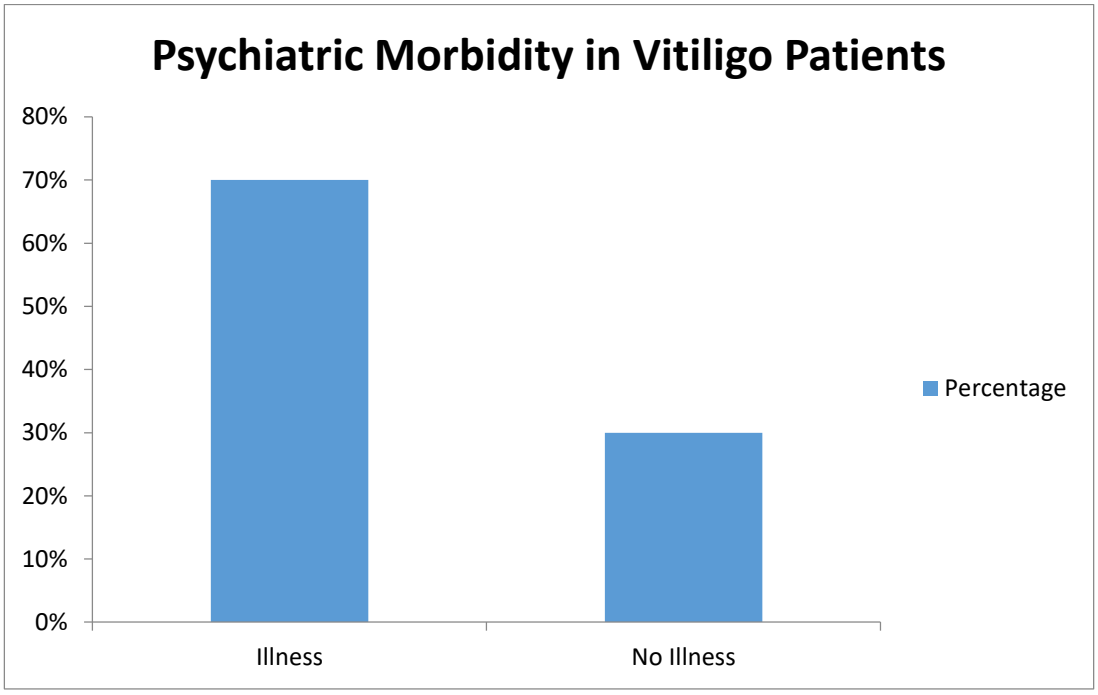

CHART 10: Shows distribution of various psychiatric co morbidity in patients with vitiligo

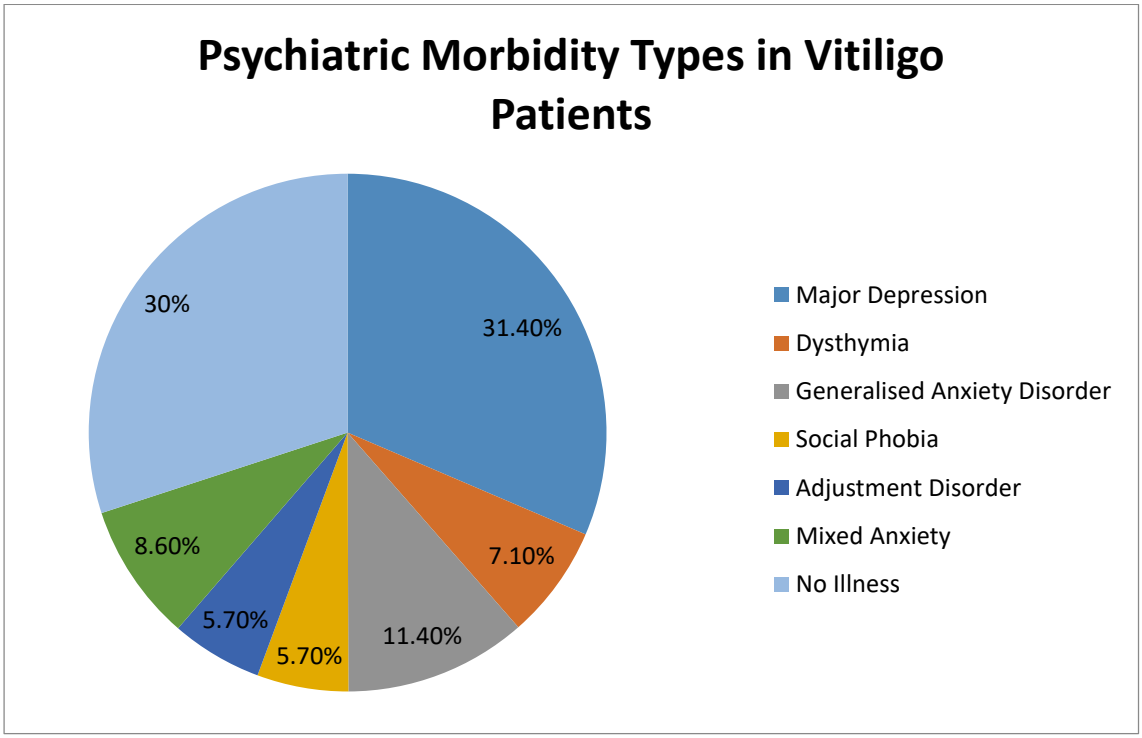

TABLE 4

Table Showing the Type of Psychiatric Morbidity among Patients with Vitiligo

S.No	Psychiatric Morbidity	Cases (N=70) n	Percentage (%)
1	Major Depressive Disorder	22	31.4
2	Dysthymic Disorder	5	7.1
3	Generalised Anxiety Disorder	8	11.4
4	Social Phobia	4	5.7
5	Adjustment Disorder	4	5.7
6	MixedAnxiety And Depressive disorder	6	8.6
5	No Illness	21	30

Table 4 showing the distribution of various psychiatric illnesses among patients with Vitiligo .Among the 49 patients who had psychiatric illness the most common psychiatric illness was major depressive disorder (n= 22) constituting 31.4% followed by generalized anxiety disorder (n=8) constituting 11.4%, dysthymic disorder 7.1%, social phobia and Adjustment disorder 5.7% each and Mixed anxiety and depressive disorder 8.6% the remaining 21(30%) patients had no psychiatric illness.

TABLE 5

Table Showing Frequency Distribution of HADS/Rosenberg /VASI Scores in Patients with Vitiligo

S.No	Variable		n (N=70)	Percentage
1	HADS - A	Normal	19	27.1
		Border line	20	28.6
		Cases	31	44.3
2.	HADS – D	Normal	22	31.4
		Border line	14	20
		Cases	34	48.6
5	Rosen	<15 Low SE	39	55.7
	Inference	>15 Normal	31	44.3
6.	VASI score	Mild	41	58.6
		Moderate	17	24.3
		Severe	12	17.1
7	HDHQ	Intropunitiveness	57	81.4
		Extrapunitiveness	13	18.6

Table 5 show the frequency and percentage scores of variables in the sample population. With respect to HADS score 48.6% for depression and 44.3% for anxiety. Patients with Psychiatric illness were about 70%, no illness group 30%. Among psychiatric Manifestations Major depression contribute more 31.4%. Rosenbergs Self-esteem score 55.7% score for low self-esteem. Majority of the sample population 58.6% score for mild category in VASI score. The above table, infer that the majority of the sample population have intropunitive hostility than extrapunitive hostilty.

CHART 11 : Shows comparison of HADS scores in Vitiligo patients

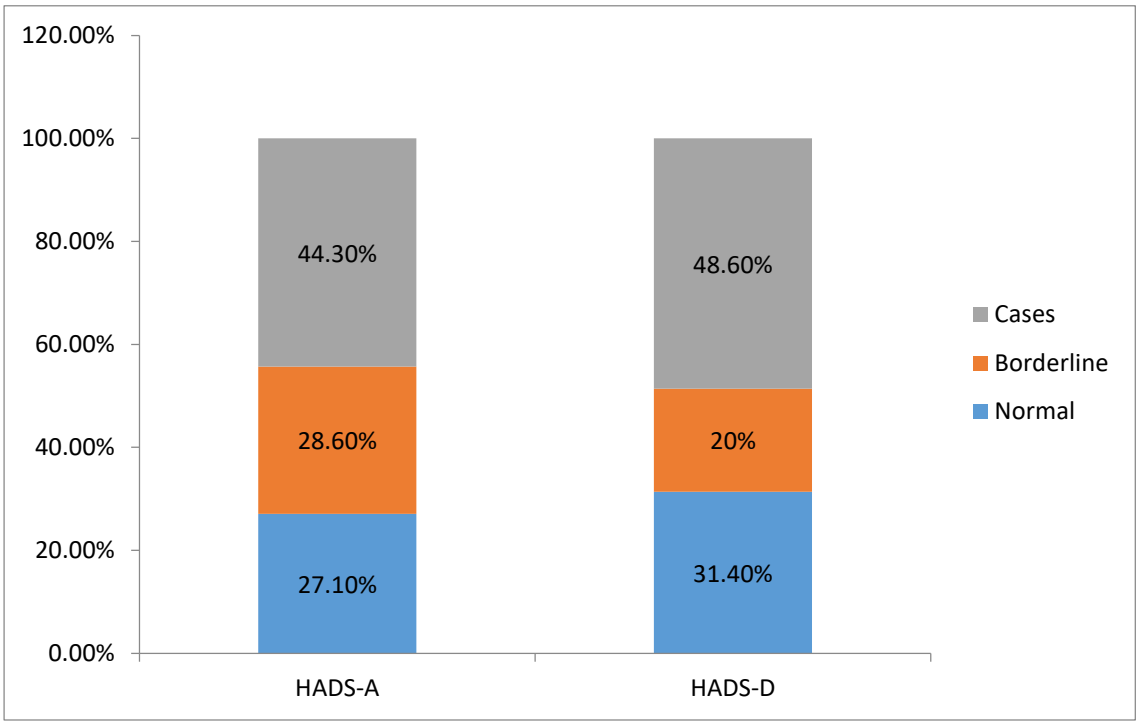

CHART 12: Shows Direction of hostility in the sample population

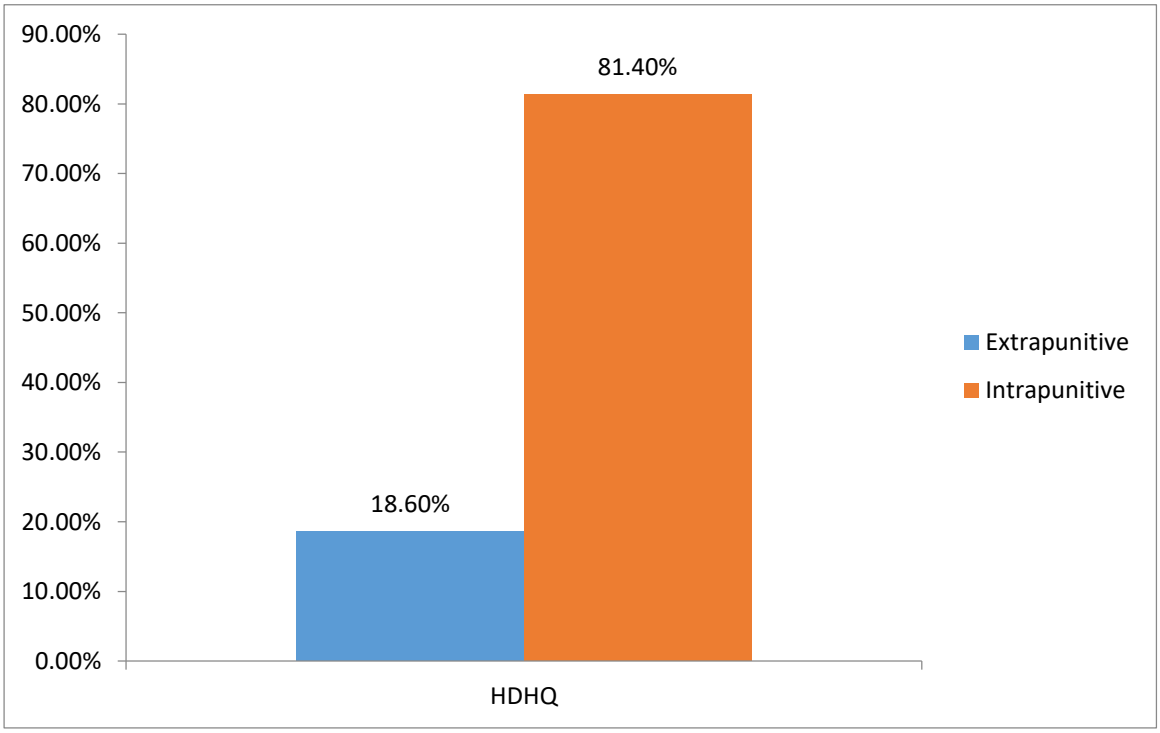

TABLE 6

Table showing socio demographic variables of patients with and without psychiatric morbidity

S.No	Variables		Cases (N=70) n	Psychiatric Morbidity		$\chi 2$
				Present (N=49)	Absent (N=21)	
1	Age	<35 36-50 >51	24 27 19	15 20 14	9 7 5	0.613
2	Sex	Male Female	33 37	22 27	11 10	0.609
3	Marital status	Married Unmarried Widow/separated/ divorce	43 15 12	32 9 8	11 6 4	0.555
4	Socio-economic status	Lower Upper lower Lower Middle	6 48 16	4 35 16	2 13 6	0.721

Table 6 The above table shows the comparison of socio demographic variables among the Vitiligo patients with and without psychiatric comorbidity. None of the variable has significant relationship with Psychiatric morbidity.

TABLE 7

Table Comparing Prevalence of Psychiatric Morbidity and Gender Distribution Between Types of Vitiligo

S.No	Variable		Vitiligo Type		χ^2
			Generalised n (N =49)	**Localised n (N=21)**	
1	Psychiatric Morbidity	Present	38	11	4.435*
		Absent	11	10	
2	Sex	Male	28	5	6.555*
		Female	21	16	

*=P<0.05

Table 7 infer that the prevalence of Psychiatric morbidity is significantly higher in Generalised (Nonsegmental Vitiligo) than localized type. With respect to gender the patients have significant difference between sex, that it infer there is higher prevalence of generalised vitiligo with vitiligo male patients than female patients.

TABLE 8

Table Comparing HADS Scores of Vitiligo Patients with Psychiatric Comorbidity

S.No	Variable		Psychiatric Morbidity		$\chi 2$
			Present n (N=49)	**Absent** n (N=21)	
1	HADS-A	Normal	5	14	27.848**
		Borderline	14	6	
		Cases	30	1	
2	HADS-D	Normal	4	18	43.191**
		Border line	11	3	
		Case	34	0	

** = P<0.01

Table 8 infer that with increase in HADS-A and HADS-D scores there is significant increase in Psychiatric morbidity,

TABLE 9

Table Comparing HADS Scores between the Major Types of Vitiligo

S.No	Variable		Vitiligo Types		$\chi 2$
			Generalised n (N=49)	**Localised n (N=21)**	
1	HADS-A	Normal	8	11	9.665**
		Borderline	16	4	
		Cases	25	6	
2	HADS-D	Normal	12	10	7.391*
		Border line	8	6	
		Case	29	5	

*=P<0.05, ** = P<0.01

Table 9 infer that patients with Generalised Vitiligo score more in HADS-A score which is highly significant and also score high with HADS-D scores which is significant when compared with localized type.

TABLE 10

Table Comparing Prevalence of Psychiatric Morbidity and Gender Distribution between Types of Vitiligo

S.No	Variable		Vitiligo Type		χ^2
			Generalised n (N=49)	**Localised n (N=21)**	
1	Psychiatric Morbidity	Present	38	11	4.435*
		Absent	11	10	
2	Sex	Male	28	5	6.555*
		Female	21	16	

*=P<0.05

Table 10 infer that the prevalence of Psychiatric morbidity is significantly higher in Generalised (Nonsegmental Vitiligo) than localized type. Among gender Male patients have significantly higher prevalence of generalised vitiligo than female patients.

TABLE 11

Table Comparing PSLE Scores with Psychiatric Morbidity

S.No	PSLE	Psychiatric Morbidity	Mean	SD	Statistical Value t Value
1	PSLE Number of Events score	Present	4.14	2.273	-2.902** df=68
		Absent	2.52	1.778	
2	PSLE – Total Score	Present	169.98	79.276	-2.574* df=68
		Absent	106.24	100.74	

* =P<0.05, ** = P<0.01

Table 11 shows the comparison of PSLE events and PSLE Total scores among patients with and without Psychiatric comorbidity. From the above table, it is inferred that there is significant difference between the two groups in terms of both PSLE events and PSLE scores, that is higher the stressfull life events score there is increased in psychiatric morbidity.

TABLE 12

Table Comparing PSLE Scores and the types of Psychiatric Illness

S. No	Variable 1	Variable 2	N	Mean	S.D	F value
1	PSLE number of events	Major depressive disorder	22	5.27	1.761	
		Dysthymic disorder	5	4.33	3.286	
		GAD	8	5.0	2.722	
		Social phobia	4	5.0	2.217	
		Adjustment disorder	4	3.0	1.633	2.187
		Mixed Anxiety and depressive disorder	6	4.33	2.944	
		No illness	21	2.52	1.778	
2	PSLE total score	Major depressive disorder	22	190.36	73.741	
		Dysthymic disorder	5	135.60	148.557	
		GAD	8	167.38	122.955	
		Social phobia	4	135.25	91.667	1.687
		Adjustment disorder	4	115.75	73.650	
		Mixed Anxiety and depressive disorder	6	186.67	144.220	
		No illness	21	106.24	79.276	

Table 12 the above table compares the Presumptive Stressful life events number and total score among Vitiligo patients with different types of psychiatric illness. From the table, it is inferred that there was no significant difference with respect to PSLE events and PSLE scores between and within the groups, on applying Oneway ANOVA.

TABLE 13

Table Comparing Dermatological Illness Variables among Vitiligo Patients with and without Psychiatric Comorbidity

S.No	Variable		Psychiatric Morbidity		$\chi 2$
			Present n (N=49)	**Absent n (N=21)**	
1	*VASI* Score	Mild	25	16	16.738**
		Moderate	15	2	
		Severe	9	3	
2	Duration of Illness	< 3 YRS	25	16	6.347*
		4 – 6YRS	13	5	
		>7 YRS	11	0	

*=P<0.05, ** = P<0.01

Table 13 is a comparison of the dermatological illness variables, the VASI score, Duration of illness and the type of Vitiligo. With respect to VASI score, there is significant higher psychiatric psychiatric morbidity with severe VASI score. Longer the duration of illness has significant increase in psychiatric morbidity.

TABLE 14

Table Comparing PSLE Scores with VASI Scores

S.No	PSLE	VASI Scores	Mean	SD	t Test Value
1	PSLE - Events	Mild	3.22	2.056	0.0965**
		Moderate	3.92	2.392	
		Severe	4.53	2.452	
2	PSLE – Total Score	Mild	135.66	90.943	0.196
		Moderate	162.00	107.740	
		Severe	179.65	108.684	

** = P<0.01

Table 14 compares Presumptive stressful events score with that of vitiligo area severity score. The above results show that the more in the number of events score there is increase in vitiligo severity which is highly significant. This infers stressful life events aggravate the severity of vitiligo.

TABLE 15

Table Showing Comparison of Rosenberg Score with Gender/Psychiatric Morbidity/Type of Vitiligo.

S.No	Variables		Rosenbergs Score		χ^2
			Low(<15) n	Normal(>15) n	
1	Sex	Male	17	16	0.446
		Female	22	15	
2	Psychiatric Morbidity	Present	33	16	8.958**
		Absent	6	15	
3	Vitiligo Type	Generalised	32	17	6.090*
		Localised	7	14	

*=P<0.05, ** = P<0.01

Table 15 show no significant difference in overall scores between gender. Whereas presence of psychiatric morbidity is associated with low self-esteem scores which is highly significant and with respect to vitiligo type there is significant low score in Generalised type. From the table the percentage of Rosenberg scores of female patients with low scores < 15 was 59.5% (n=22) which is more when compared to Males 51.5% (n=17).Whereas males scored above 15 were more, 48.5% (n=16) and females 40.5% (n=15). This shows more number of Female patients with vitiligo have low self-esteem when compared with male patients.

TABLE 16

Table Comparing Hostility among Patients with and without Psychiatric Comorbidity

S.No	Dimensions of Hostility Questionnaire	Psychiatric Morbidity				t Test Value
		Present (N=49)		Absent (N=21)		
		Mean	SD	Mean	SD	
1	Acting out Hostility	40.50	22.63	50.91	21.82	3.506*
2	Delusional Hostility	42.63	21.79	47.61	28.14	5.089*
3	Criticism of Others	51.70	24.53	55.55	22.87	3.806*
4	Delusional Guilt	47.52	36.69	55.10	37.06	0.319
5	Self Criticism	68.27	22.74	71.42	20.18	-2.807*
6	HDHQ Total Score	50.12	21.89	56.12	19.02	2.077*

*=$p<0.05$.

Table 16 compares the Hostility score of Vitiligo patients with and without Psychiatric Manifestations. Five domains of hostility, namely Acting out hostility, Delusional Hostility, Criticism of others, Delusional Guilt and Self criticism were assessed. The total score was calculated. On applying student “t” test to the data, it is found that there is a significant difference between two groups, with respect to Acting out Hostility, Delusional Hostility, Criticism of others, Self critism and Total score.

TABLE 17

Table showing comparison of Sex/psychiatric morbidity/type of vitiligo with Direction of hostility in the sample population

S.No	Variables		Direction of Hostility(DOH)		χ^2
			Intropunitive n(N=57)	Extrapunitive n(N=13)	
1	Sex	Male	27	9	0.006
		Female	30	4	
2	Psychiatric Morbidity	Present	42	7	1.984
		Absent	15	6	
3	Vitiligo Type	Generalised	40	9	0.004
		Localised	17	4	

Table 17 shows frequency and comparison of direction of hostility scores in vitiligo patient with respect to gender, Psychiatric morbidity and major vitiligo types .Majority of patients with vitiligso has intropunitiveness. This table infer that none of them has significant difference in direction of hostility but majority of vitiligo patient with psychiatric co morbidity has inward directed hostility(intropunitiveness) n=42, showing a strong positive association.

TABLE 18

Table shows the Comparison of Quality of Life and Groups with and Without Psychiatric Illness

S.no	Dimensions of QOL	Psychiatric Illness				t Test Value
		Present (N=49)		Absent (N=21)		
		Mean	SD	Mean	SD	
1	Physical Health	49.51	18.03	59.52	18.15	5.517**
2	Psychological	47.40	20.57	60.76	17.16	4.748**
3	Social Relationships	41.02	18.63	53.19	15.47	4.717**
4	Environment	59.45	13.19	66.86	13.19	6.114**
5	Total Who-QOL Score	49.34	16.79	60.31	16.79	5.644**

Table 18 compares the various domains of the WHO Quality of Life BREF scale among Vitiligo patients with and without Psychiatric comorbidity. From the table, we see that patients who have psychiatric comorbidity score less than those without psychiatric comorbidity in all the domains of the Quality Of Life Scale and the difference was statistically significant in all domain. This infer patients having psychiatric morbidity have low quality of life.

TABLE 19

Table Comparing Type of Vitiligo with Hostility Scores

S.no	HDHQ	Vitiligo Type	N	Mean	SD	F value
1	Acting out Hostility	Generalised	49	42.3862	23.2961	1.151
		Localised	21	46.5201	21.6858	
2	Delusional Hostility	Generalised	49	43.9909	24.5284	1.600
		Localised	21	44.4444	22.4983	
3	Criticism of Others	Generalised	49	52.5510	24.5447	0.244
		Localised	21	53.5714	23.0596	
4	Delusional Guilt	Generalised	49	45.4810	38.4293	6.244*
		Localised	21	59.8639	30.8449	
5	Self-Criticism	Generalised	49	66.2338	21.8780	0.376
		Localised	21	76.1905	20.8251	
6	Total Hostility Score	Generalised	49	50.1286	22.4386	3.870
		Localised	21	56.1181	17.4062	

*=$p<0.05$

Table 19 compares Hostility scores QOL with major type of vitiligo except delusional guilt domain there is no difference seen among variables between the type of vitiligo.

TABLE 20

Table comparing types of vitiligo with Quality of life (QOL)

S.no	QOL	VITILIGO TYPE	N	Mean	Std. Deviation	F value
1	Physical Health	Generalised	49	51.163	17.616	3.200
		Localised	21	55.666	20.582	
2	Psychological	Generalised	49	50.755	19.842	1.680
		Localised	21	52.952	22.197	
3	Social Relationships	Generalised	49	45.224	18.546	0.398
		Localised	21	43.381	18.786	
4	Environment	Generalised	49	61.755	12.552	0.067
		Localised	21	61.476	13.113	
5	Total Who-Qol	Generalised	49	52.163	16.123	2.060
		Localised	21	53.738	18.408	

Table 20 infer that there is no significant difference in QOL between the type of vitiligo.

TABLE 21

Table showing correlation matrix of variables included in our study

S. NO	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V 14	V15	V16	V17	V18	V 19
V1	1																		
V2	0.10	1																	
V3	0.20	0.06	1																
V4	0.17	0.12	0.96**	1															
V5	-0.07	0.13	0.33**	0.34**	1														
V6	0.34**	0.33**	0.33**	0.37**	0.25*	1													
V7	-0.30*	-0.12	-0.33**	-0.36**	-0.18	-0.43**	1												
V8	-0.01	0.21	0.19	0.23	0.17	0.22	-0.24*	1											
V9	-0.12	-0.07	-0.23	-0.22	-0.15	-0.13	0.15	0.03	1										
V10	-0.17	0.08	-0.10	-0.08	-0.06	-0.03	0.20	0.08	0.78**	1									
V11	-0.17	-0.12	-0.12	-0.10	-0.01	-0.02	0.12	0.12	0.80**	.81**	1								
V12	0.01	0.03	-0.18	-0.18	-0.08	-0.02	0.16	-0.08	0.74**	0.58**	0.59**	1							
V13	0.16	-0.02	-0.07	-0.06	-0.14	0.01	-0.01	-0.16	0.28*	0.10	0.25*	0.65**	1						

V14	**-0.06**	**-0.01**	**-0.18**	**-0.17**	**-0.10**	**-0.05**	**0.16**	**-0.01**	**0.89****	**0.80****	**0.84****	**0.90****	**0.57****	**1**				
V15	**-0.08**	**-0.15**	**-0.08**	**-0.10**	**-0.24***	**-0.20**	**0.26***	**-0.10**	**0.24***	**0.28***	**0.17**	**0.06**	**-0.18**	**0.14**	**1**			
V16	**-0.03**	**-0.10**	**-0.06**	**-0.10**	**-0.28***	**-0.17**	**0.19**	**-0.03**	**0.22**	**0.22**	**0.07**	**0.02**	**0.21**	**0.07**	**0.91****	**1**		
V17	**-0.13**	**-0.16**	**-0.10**	**-0.11**	**-.30****	**-.26***	**.25***	**-0.10**	**0.23**	**0.18**	**0.08**	**0.05**	**-0.12**	**0.10**	**0.85****	**0.82****	**1**	
V18	**-0.05**	**-0.07**	**-0.02**	**-0.05**	**-0.23**	**-0.17**	**0.20**	**-0.03**	**0.19**	**0.24***	**0.06**	**-0.07**	**-0.32****	**0.02**	**0.80****	**0.91****	**0.78****	**1**
V19	**-0.09**	**-0.14**	**-0.08**	**-0.11**	**-0.28***	**-0.21**	**0.24***	**-0.07**	**0.24***	**0.24***	**0.11**	**0.04**	**-0.211**	**0.106**	**0.95****	**0.96****	**0.91****	**0.91****

Table 21: Correlations among Variables

V1-Age, V2-Duration Of Illness, V3-PSLES Total,V4-Psle Events,V5- HADS Anxiety,V6-HADS Depression, V7-RSES Score,V8 –VASI Score,V9-Acting Out Hostility, V10 –Delusional Hostility, V11-Criticism By Others,V12-Delusional Guilt,V13-Self Criticism,V14-Total Hostility, V15-Physical Health,V16-Psychological Domain Scores,V17 Social Relationship Score,V18 Environment Score, V19 Total QOL Score.

The above Table 21 shows the correlation between various variables included in our study.

1. 1.As with increase in age there was significant high score of HADS-D with $p<0.01$ and significant Negative correlation with Rosenberg self esteem score in with $p<0.05$.
2. As with increase in duration of illness there was increase in the scores of HADS depression significantly high with $p<0.01$.
3. As with increase in PSLES TOTAL score there was increase in PSLES Number of events score at $p<0.01$ and also the scores of HADS depression and HADS anxiety also becomes significantly high with $p<0.01$ and there was a significant decrease in Self esteem score with $p< 0.01$.
4. Higher the number of life events there was higher HADS anxiety and depression scores and it was s significantly high with $p<0.01$.
5. There was positive correlation of HADS anxiety score with depression scores at $p<0.05$ and there was a negative correlation found between the HADS anxiety scores with all other variables but the difference was significant with $p<0.05$ with respect to total Quality of life scores.
6. There was negative correlation of HADS-D scores with that of self esteem score at $p<0.01$ which was highly significant and negative correlation with QOL social domain at $p<0.05$.
7. 7.There was negative correlation between Rosenberg selfesteem score with VASI score at $p<0.05$ and positive correlation with QOL.

8. With respect to VASI there was negative association with scores of hostility and quality of life scores but not satistically significant.
9. There is positive correlation found between the Self criticism score and Total HDHQ scores which was significant at $p<0.01$ and negative correlation with QOL environmental domain scores the difference is significantly high with $p<0.01$.
10. There is a positive correlation found between HDH Acting out and Delusional hostility score and the difference is significant statistically with $p<0.05$.Similarly a positive correlation found between quality of life and direction of hostility and the difference is significant with $p<0.01$.

TABLE 22

Table shows Multiple Linear Regression Results

(Dependable Variable: Total Quality of Life)

S.No	Factor	Corr. (r)	R^2	R^2 change	B	Beta	't' Value
1	HADS-A	0.288	0.083	0.083	-1.301	-0.288	-2.621*
2	HDHQ- Self Criticism	0.384	0.147	0.064	-0.256	-0.335	-2.960*
3	HDHQ- Acting Out Hostility	0.478	0.228	0.081	0.220	0.299	2.631*

Constant = 73.876 F-Ratio = 6.507 (df = 3,66) *= P< 0.05.

The Required Regression Equation is

Total QOL Score = 73.876 + (-1.301) V16-HADS-A

+ (-0.256) HDHQ- Self Criticism

+ (0.220) HDHQ- Acting Out Hostility.

All the 12 subject variables were considered as the Independent Variables and the Total Quality of Life was considered as Dependent Variable for the respondents. The Step wise Multiple Linear Regression technique was adopted. Of the 12 independent variables, it was found that only three independent variables were important ones which could contribute for the Total Quality of Life Score. All the three variables put together could contribute 22.8

per cent for the Dependent Variable. (R^2 =0.228). The V16-HADS-A alone could contribute 8.3 per cent (R^2 =0.083) followed by BDIM5- SELF CRITICISM 6.4 per cent (R^2 =0.064), and BDIM1 ACTING OUT HOSTILITY 8.1 per cent (R^2 =0.081).

The other independent variables were not included in the equation as these variables are not that much contributing variables. The Regression Equation is the best equation as the 't' values for the 'b' values are significant at 0.05 level. Further the F-Ratio value also confirms the strength of the Multiple Regression Equation.

DISCUSSION

DISCUSSION

This study was done to know the Impact of Vitiligo on Psychiatric Manifestations and to assess the frequency and pattern of psychiatric illness in patients with vitiligo and to assess the relationship of Psychiatric illness, Life Stressors, Hostility and Direction of Hostility and Quality of Life in Patients with Vitiligo. In addition Self esteem was assessed in all the patients.

We selected 70 patients of Vitiligo who were attending the Dermatology outpatient Department based on the eligibility criteria and they were assessed using Hospital Anxiety and Depression scale, Presumptive Stressful Life Events Scale, Rosenberg Self esteem scale, Quality of life Among scale and the Hostility and Direction of Hostility Questionnaire.

Among the patients in the sample, the age distribution was, 34.3% of patients below 35 years, 38.6% were between the age of 36 to 50 years, 27.1% belonged to the age group of above 51 years.

47.1% of the population were males and 52.9% were females. A majority of the patients around 61.4 % were married,21.4% of the patients were unmarried and 17.1% were separated/widow/divorced.

On analysing the socio economic status of the patients, a majority of the patients, 68.6% belonged to Upper Lower Socioeconomic status, 22.9% belonged to Lower Middle socioeconomic status and 8.6% belonged to Lower socioeconomic status.

Among the total sample of patients, 70% were suffering from Nonsegmental type/Generalised type, 30% suffering from Localised/Segmental type of vitiligo. Among the subtypes of Non segmental Vitiligo patients 30% was Acro facial, 31.4% vitiligo vulgaris, 8.6% belong to universalis type. In localised variant mucosal type were around 14.3%, focal 12.9% and segmental least common 2.9%. The type of course Progressive was 32.9%, Stationary around 35.7%, patients under remission and exacerbation was 18.6% and Regressive course type seen in 12.9% of total sample. The duration of illness of the sample population is as follows -majority were in less than 3years about 58.6%, between 4 to 6 years around 25.7%, and 15.7% in above 11 years .The severity of Vitiligo was assessed by using the Vitiligo Area Severity Index. Among the 70 patients, majority had mild severity 58.6%, moderate around 24.3% and 12% of patients had severe Vitiligo.

Our study findings similar to the following study done by Daniel and Sivanesan: DLQI and Psychiatric Morbidity in 200 Vitiligo Patients.In the above study there were 122 (61%) patients with generalized vitiligo, 36 (18%) had acro-facial vitiligo,only 2 (1%) patients with segmental vitiligo, and 40 (20%) had localized vitiligo[60]. This was in contrast to a study from Tunisia, where generalized vitiligo was present in 37.5%, acrofacial in 12.5%, and localized type in 25% of the study population[86].A study from South India reported that generalized vitiligo was present in 48%, acrofacial type in 22.7%, and localized type in 16% and segmental type in 13.3%.20 31 (15.5%) of the patients had family history of vitiligo. This was in contrast to the study done by

Gopal et al[80],the prevalence was found to be 36%. 172 (86%) patients had vitiligo involving the uncovered areas in the body. This was similar to Akrem et al[81]., study from Tunisia, where vitiligo in the uncovered areas was seen in 78.33% of the population. Borimnejad et al [82], from Iran reported location of vitiligo lesions over the visible areas in 53(76.4%) patients.

In our study, we found that, among the 70 Vitiligo patients, 49 patients were suffering from psychiatric comorbidity, amounting to a proportion of 70 %. Our study supported by a study done by Ramakrishnan et all,2014[12] reported 79.2% of psychiatric comorbidities.

Among the 70 patients of Vitiligo nearly 49 patients (70%) had one or the other psychiatric illness and 21(30 %) of the patients had no psychiatric illness .Among the 49 patients who had psychiatric illness the most common psychiatric illness was major depression constituting 31.4% followed by generalized anxiety disorder constituting 11.4%, mixed anxiety 8.6%, dysthymia 7.1% Adjustment disorder and social phobia 5.7 % each. This is similar to an Indian study which reveals the prevalence of depressive episode (22%) and dysthymia (9%) in vitiligo (Matoo SK,Handa et al,2001)[11] but it reported Adjustment disorder 56% in contrast to our study. In another recent study in patients with vitiligo , by Garg S & Sarkar R,(2014)[32] reports Dysthymia (7–9%), depression (10%), depressive episode (18–22%), sleep disturbance (20%), suicidal thoughts (10%), anxiety (3.3%) and suicidal attempts (3.3%).Though finding in our study similar with depression,anxiety disorder is less reported which is in contrast with our study.This study also

reports suicide attempt 3.3% but our study did not find any suicide attempts in the study population.Among the subtypes of Vitiligo the prevalence of psychiatric illness is 77.6% is Non segmental (Generalised) vitiligo which is high when compared with Localised Subtype 22.4%.In Nonsegmental type, the prevalence of psychiatric disorders as follows Major Depressive disorder(MDD) 24.3%,Generalised Anxiety Disorder(GAD) 10.0%,Mixed anxiety 8.6%,Adjustment disorder 5.7%, Social phobia 4.3% and Dysthymia 1.4%.Where as in Localised subtype Major Depression was 7.1%,followed by Dysthymia 5.7%, GAD and Social phobia 1.4% each. This shows that Major Depressive Disorder is the Most common psychiatric comorbidity in Patients with vitiligo.

With respect to sex difference among patients with psychiatric illnesses, Frequency in females vitiligo patients was 73.0% and males are only 66.7%. Out of 37 females majority 73% were with psychiatric illness while 10 of them has no illness(27.0%).Out of 33 males majority were with psychiatric illness(66.7%). Therefore the proportion of females with psychiatric illness among the patients with vitiligo is almost similar with male patients with vitiligo. This is similar Hann SK etal, 2000,[90] Ramakrishnan et al study in 2014**.**But studies like picardi et al,2000,O.D.Balaban et al,2011,Aradhya et all,2015 report female have higher prevalence than male.In our study there is no gender difference in overall prevalence of psychiatric illness this is in contrary of our hypothesis.

Among females with illness, majority of them has depression 37.8% followed by generalized anxiety disorder and dysthymia 10.8% each and 5.4% of them had social phobia and 5.4% adjustment disorder. Among men with illness majority of them also had depression 24.2%, followed by mixed anxiety 15.2%, social phobia and generalized anxiety disorder 6.1% each and dysthymia only 3.0%. Irrespective of sex, type of vitiligo depression is the most common psychiatric comorbidity. It is also found that major depression is the most common psychiatric illness in our study.

In previous studies done by Matoo SK, Handa (2002) [10] the psychiatric comorbidity in patients with Vitiligo was around 25%, Another study by Sharma et al, 2001[28] a study on psychiatric morbidity in vitiligo and psoriasis reported psychiatric morbidity of 16.2% in Vitiligo patients and 53.3% in psoriasis. In a study by Aradhya, et al, 2017[64] found the prevalence rate of psychiatric morbidity was 21.7%.

Many socio-demographic variables like mean age, sex, religion, marital status, occupation, were similar to few of the studies done previously. Although no relation was found between gender and psychiatric symptomatology, some earlier study has found a relation between female gender and depression i.e. depression is more commonly reported in females as compared to males. In our study no gender difference seen with respect to depression, it was most commonly reported psychiatric comorbidity in men and women.

In our study, the sample Population was divided into three age groups of less than 35 years, 36 to 50 years, and a third group of above 56 years. The

HADS- A score, HADS- D score and Presumptive Stressful Life Events number and score, Rosenberg self esteem score, were assessed in all the three groups. The Quality of Life was assessed in four domains, namely Physical domain, Psychological domain, Social Relationship domain and Environmental domain. The total score on WHO QOL was then assessed. Mean scores were calculated for all three groups. Likewise, the hostility was assessed in the three groups in five domains of the Hostility and Direction of Hostility Questionnaire, namely Acting out Hostility, Delusional Hostility, Criticism of others, Delusional Guilt and Self Criticism. The total score was also assessed. On analyzing the data no difference was found in between the age groups with respect to HADS scores, PSLE scores, RSES scores, HDHQ scores or WHO QOL scores.

In our study, we assessed the severity of Vitiligo using Vitiligo Area Severity Index. Majority of them belong to mild 58.6% moderate 24.3% and least 17.1% in severe category. There was significant difference found in respect to duration and severity of Vitiligo .Also in our study the association between the higher prevalence of psychiatric illness with increase in duration of illness was statistically significant which is in favour of our hypothesis. This is supported by a study done by Daniel SJ, Sivanesan AR,2007[60] .In the above study Patients with psychiatric co morbidity have a higher VASI severity scores and there was positive correlation between the psychiatric morbidity and the duration of the disease. our study report was in contrast by study done by Matoo SK,Handa ,(2002)[10] it was said that though the psychiatric co-

morbidity correlated significantly, with psychiatric dysfunction and change in the social behavior seen in patients with Vitiligo, it did not correlate well with severity of the disease. In our study on Dermatological illness variables, the VASI score, Duration of illness and the type of Vitiligo, there is significant higher psychiatric psychiatric morbidity with severe VASI score. Longer the duration of illness has significant increase in psychiatric morbidity. In our study there is significant increase in psychiatric morbidity in Nonsegmental type of Vitiligo.

In our study the comparison of PSLE events and PSLE scores among patients with and without Psychiatric comorbidity. From our study it is inferred that there is significant difference between the two groups in terms of both PSLE events and PSLE scores. We Also compared the Presumptive Stressful life events number and total score among Vitiligo patients with different types of psychiatric illness. It is inferred that there was no significant difference with respect to PSLE events and PSLE scores between and within the groups. On further analysing the data using on comparing the scores among the various types of Psychiatric comorbidities in our study, we found a significant difference between patients with no Psychiatric comorbidity and patients with Depression. There was no significant difference between the “No illness” group and other types of Psychiatric comorbidities. The findings suggest that patients with Vitiligo who have comorbid Depression tend to experience more number of Stressful Life Events and consequently score high on the Presumptive Stressful Life Events Scale.

In our study, the results with respect to stressful event score and Vitiligo area severity, there was positive correlation between Number stressful events score with severity of Vitiligo, more number of stressful events aggravate the severity of Vitiligo which in support of our hypothesis.

Our study on Rosenbergs selfesteem scores show no significant difference in overall scores between gender. Whereas presence of psychiatric morbidity is associated with low self-esteem scores which is highly significant and with respect to vitiligo type there is significant low score in Generalised type.

On comparision of Frequency and percentage of Rosenberg scores between Male and Female patients with vitiligo found that The percentage of female patients with low scores < 15 was 59.5% which is more when compared to Males 51.5%.Whereas males scored above 15 were more, 48.5% and females 40.5%. This shows more number of Female patients with vitiligo have low self esteem when compared with male patients.

We applied Pearson's correlation test for the variables PSLE events, PSLE scores, HADS scores, Rosenberg self esteem scores, Hostility scores and QOL scores.

We found that the scores on HADS and scores on PSLES were positive correlated at a significance which means that, the scores on HADS-A and HADS-D increase, as the number of stressful life events and PSLE scores increase.

In our study a negative correlation was also found between all the domains of WHO QOL BREF namely Physical domain, Psychological domain, Environmental domain and Social relationship domain with HADS scores, which was significant. This means that as the scores on HADS-A and HADS-D increase, the scores on QOL score decrease, from which we infer that, patients who scored high on Anxiety or Depression had a poorer quality of Life. A negative correlation was also found between the scores on HADS Anxiety and Depression and the total scores on QOL but statically significance exist for Anxiety scores and not for Depression. Although a negative correlation was also found between stressful life events and scores on PSLE with the QOL score, there was no statistical significance between the two in our study. This shows that, the Quality of Life decreases with increasing number of Stressful Life Events and total PSLE scores, from which it can be said that patients who experience more number of Stressful life Events may have poorer Quality of Life.

In our study we compared the Hostility score of Vitiligo patients with and without Psychiatric Manifestations. Five domains of hostility, namely acting out hostility, Delusional Hostility, Criticism of others, Delusional Guilt and Self-criticism were assessed. The total score was calculated. On analysing the data, it is found that there is a significant difference between two groups, with respect to Acting out Hostility, Delusional Hostility, Criticism of others, Self critism and Total score. The difference was statically significant between the groups with and without psychiatric illness. This infer vitiligo patients with

psychiatric illness have high Hostility scores. We also compared hostility scores between the major types of Vitiligo but no statistical significant found in our study except in delusional guilt domain.

In our study the sample population showed the Direction of Hostility towards intropunitiveness was about 85.7% and extrapunitiveness is 14.3% in patients having psychiatric illness. The score of intropunitiveness is similarly high in patients without psychiatric illness that is 71.4% in patients with vitiligo but less than that of patients with psychiatric illness. This give the inference that overall self directed hostility is higher in patients with vitiligo 81.4% and it is even more higher when psychiatric morbidity coexist but not statistically significant.

In our study we compared the Quality of Life among patients of Vitiligo with and without Psychiatric comorbidity. The Quality of Life was assessed using WHO QOL BREF. The Mean and Standard Deviation were calculated for the four domains of the WHO QOL BREF namely Physical domain, Psychological domain, Social Relationship domain, Environmental domain and finally for the total QOL score. It was found that the patients who have psychiatric comorbidity scored less than those without psychiatric comorbidity in all the domains of the Quality Of Life Scale. The mean value of total score of WHO QOL for those with psychiatric morbidity was less than that of no illness group and the difference was statistically significant. Overall in our study psychiatric morbidities affects QOL in patients with vitiligo, the quality of life is Low in Vitiligo patients with comorbid Psychiatric manifestations

when compared to vitiligo patients without psychiatric illness. This findings is in support of our Hypothesis. We also compared QOL between generalised and localised types of vitiligo but the difference not statistically significant in our study.

We applied Pearson's correlation test for the variables PSLE events, PSLE scores, HADS scores, Rosenberg self esteem scores, Hostility scores and QOL scores. We found that the scores on HADS and scores on PSLES were positive correlated at a significance level, which means that, the scores on HADS-A and HADS-D increase, as the number of stressful life events and PSLE scores increase. A negative correlation was also found between all the domains of WHO QOL BREF namely Physical domain, Psychological domain, Environmental domain and Social relationship domain with HADS scores, which was significant. This means that as the scores on HADS-A and HADS-D increase, the scores on QOL score decrease, from which we infer that, patients who scored high on Anxiety or Depression had a poorer quality of Life. A negative correlation was also found between the scores on HADS Anxiety and Depression and the total scores on QOL but statistically significance exist for Anxiety scores and not for Depression. Although a negative correlation was also found between stressful life events and scores on PSLE with the QOL score, there was no statistical significance between the two in our study. This shows that, the Quality of Life decreases with increasing number of Stressful Life Events and total PSLE scores, from which it can be said that patients who

experience more number of Stressful life Events may have poorer Quality of Life.

On applying the Pearson's correlation test to the mean scores on the Hostility and Direction of Hostility Questionnaire, we found that there was a positive correlation between the scores on "Self Criticism" whereas Delusional hostility, Delusional guilt, criticism by others and Total Hostility scores all are at high positive correlation at level .This shows there is significance correlation but there was variability in correlation in different domains. Also in our study there is association with respect to HADS scores positive correlation with HADS depression with Self criticism domain but it was not statistically significant. From this, we infer that, patients who scored more on Self criticism also scored high HADS-D. The inference is although statistical significance not found in our study, Vitiligo patients with Depression score high on Intropunitive hostility showing a positive association.

In our study there was highly significant negative correlation at between PSLES scores with that of RSES scores. Also in our study there was positive correlation between RSES scores and total score of QOL. This gives the inference that patient who have decreased scores on self esteem have Low Quality of life since there is statistically positive correlation.

Finally Multiple linear Regression analysis applied to the data collected, keeping Quality Of Life as the Dependent Variable. On analysing the data, among all other independent variables, the score of HADS-A, HDHQ-SELF

CRITICISM AND ACTING OUT DOMAIN SCORES has been found to influence the quality of life of patients with Vitiligo.

The following studies support our study, Matoo et al,2002[10], Garg S,Sarkar R,2014[32],report same and studies like Papadopoulas L et al,1999[61] highlight the importance for supportive care, psychotherapeutic interventions to help the patient to live with their disease and to manage the associated psychosocial and psychiatric manifestations and there by a better outcome in the Quality of life among these patients.

LIMITATIONS

LIMITATIONS OF THE STUDY

1. This study is a cross sectional descriptive study, hence the longitudinal course and outcome of the patients could not be assessed.
2. The study sample is small. Further studies on a larger sample are needed.
3. As it is a hospital based study the prevalence of psychiatric illnesses may be high and the results cannot be generalized to the general population.

CONCLUSION & FUTURE DIRECTIONS

CONCLUSION

The study findings reveal, with respect to the Hypothesis that

1. No difference in gender was found in prevalence of psychiatric illness among the patients with Vitiligo.
2. Major depression disorder is the most frequent psychiatric disorder seen in patients with vitiligo.
3. Longer duration of vitiligo associated with increased prevalence of psychiatric illness.
4. Higher the number of stressful life events the severity of vitiligo increases and it was statistically significant in our study.
5. Patients who have psychiatric illness have low quality of life when compared to those who do not have psychiatric illness among patients with vitiligo.
6. Though Female patients of vitiligo have low self esteem and depression more common than male patients of vitiligo but was not statistically significant.
7. Patients with psychiatric comorbidity showed more of Intropunitive hostility.
8. The prevalence of Psychiatric illness is Higher in patients of Nonsegmental/Generalised Vitiligo.

FUTURE DIRECTIONS

Based on the findings in our study, it is understood that patients with Vitiligo have a high risk of Psychiatric Manifestations and when emotional factors are not addressed adequately, the morbidity of these patients may increase. Early recognition and treatment of Psychiatric Manifestations may lead to a better outcome with respect to both disease process in Vitiligo as well as overall quality of life. Further studies needed to characterize the pattern of Psychiatric illness based on biological factors, disease symptomatology and their impact on daily life and longitudinal studies to observe improvement with pharmacotherapy and psychotherapy are necessary.

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ANNEXURES

ANNEXURES

PROFORMA - A STUDY ON IMPACT OF VITILIGO ON PSYCHIATRIC MANIFESTATIONS

NAME:

AGE & SEX:

ADDRESS:

CONTACT NO:

LOCALITY:1)URBAN 2)RURAL 3)SLUM 4)OTHERS

RELIGION: 1)HINDU 2)CHRISTIAN 3)MUSLIM 4)OTHERS

EDUCATION:1)Profession 2)PG or graduate 3)+2 4)10^{th} 5)middle school 6)Primary school 7)Illiterate

OCCUPATION: Profession/Semi-profession/Clerical,shop-owner,farmer/Skilled worker/ semi-skilled worker/Unskilled worker/Unemployed

CHANGE OF JOB & NATURE

LOSS OF JOB & DURATION

TOTAL INCOME: >32050/16020-32049/12020-16019/8010-12019/4810-8009/

(family income in Rs.) 1601-4809/<1600

TYPE OF FAMILY: NUCLEAR/JOINT

NUMBER OF FAMILY MEMBERS:

INFORMANT

CURRENT DERMATOLOGICAL ILLNESS

1)SYMPT0M:

2)DURATION:

3)DIAGNOSIS:

4)TREATMENT: YES/NO , IF YES REGULAR/IRREGULAR.

CURRENT PSYCHIATRIC COMPLAINTS

PAST HISTORY: MEDICAL ILLNESS;HT/DM/BA/JAUNDICE/SEIZURES/TB/HIV

PSYCHIATRIC ILLNESS:

SURGICAL ILLNESS:

FAMILY HISTORY

1)MEDICAL/SURGICAL ILLNESS:

2)PSYCHIATRIC ILLNESS:

3)VITILIGO/OTHER SKIN DISORDERS:

A.YES/NO – IF YES DURATION

DIAGNOSIS

TREATMENT

B.MISSING PERSONS:

C.SUICIDE/HOMICIDE:

SUBSTANCE HISTORY: NIL/ALCOHOL/NICOTINE/OTHERS

TYPE			
DURATION			
CURRENT PATTERN			
QUANTITY			
LAST USE			

MARITAL HISTORY: 1) MARRIED 2) SEPARATED 3) DIVORCED 4) SINGLE

PREMORBID PERSONALITY: Extrovert/ Introvert/ Ambivalent

GENERAL EXAMINATION:

B.P: mm. Hg P.R: /Min **MSE:**

Self-Inflicted Wounds/scars: General appearance/cooperation:

INSPECTION: Psychomotor activity:

C.V.S: Talk :

R.S: Thought :

ABDOMEN: Perception:

C.N.S: Mood :

DERMATOLIGAL EXAMINATION

1. VITILIGO M0RPHOLOIGAL TYPES:

Generalised : Acrafacial / Vulgaris /Mixed / Universalis

Localised : Focal / Segmental / Mucosal

Others:

2. DIEASE COURSE : First time / Progressive/Regressive/Stationary/Remission and Exacerbations / Relapse
3. PRECIPITATING FACTORS: NIL / Psychic trauma / trauma/ infections / pruritus /steroids /drugs /others

INVESTIGATIONS

CBC	URINE	RFT& SUGAR	LFT	RADIOLOGY
TC: DC	SUGAR :	UREA:	BILIRUBIN	USG
HB%	ALBUMIN:	CREATININE:	SGOT	X-RAY
PLATELET:	DEPOSITS:	BLOOD SUGAR:	SGPT	CT/MRI

TREATMENT HISTORY

Duration of treatment:

Treatment : Regular / Irregular

DRUGS & DURATION

OTHERS

MOTIVATED FOR REFERRAL TO PSYCHIATRY

THESIS SCALES

Kuppuswamy's socio-economic status scale-2012

	(A) Education	Score
1	Profession or Honours	7
2	Graduate or post graduate	6
3	Intermediate or post high school diploma	5
4	High school certificate	4
5	Middle school certificate	3
6	Primary school certificate	2
7	Illiterate	1

	(B) Occupation	Score
1	Profession	10
2	Semi-Profession	6
3	Clerical, Shop-owner, Farmer	5
4	Skilled worker	4
5	Semi-skilled worker	3
6	Unskilled worker	2
7	Unemployed	1

	(C) Monthly family income in Rs	**Score**	**Modified for 1998 in Rs**	**Modified for 2012 in Rs**
1	≥ 2000	12	≥ 13500	≥32050
2	1000-1999	10	6750 – 13499	16020 – 32049
3	750-999	6	5050 – 6749	12020 – 16019
4	500-749	4	3375 - 5049	8010 – 12019
5	300-499	3	2025 - 3374	4810 – 8009
6	101-299	2	676 - 2024	1601 – 4809
7	≤ 100	1	≤ 675	≤ 1600

Total Score	Socioeconomic class
26-29	Upper (I)
16-25	Upper Middle (II)
11-15	Middle/Lower middle (III)
5-10	Lower/Upper lower (IV)
<5	Lower (V)

MINI INTERNATIONAL NEUROPSYCHIATRIC INTERVIEW

	MODULES	TIME FRAME	MEETS CRITERIA	DSM-IV	ICD-10	
A	MAJOR DEPRESSIVE EPISODE	Current (2 weeks)	☐	296.20-296.26 Single	F32.x	☐
		Recurrent	☐	296.30-296.36 Recurrent	F33.x	☐
	MDE WITH MELANCHOLIC FEATURES Optional	Current (2 weeks)	☐	296.20-296.26 Single 296.30-296.36 Recurrent	F32.x F33.x	☐ ☐
B	DYSTHYMIA	Current (Past 2 years)	☐	300.4	F34.1	☐
C	SUICIDALITY	Current (Past Month) Risk: ☐ Low ☐ Medium ☐ High	☐			☐
D	MANIC EPISODE	Current	☐	296.00-296.06	F30.x-F31.9	☐
		Past	☐			
	HYPOMANIC EPISODE	Current	☐	296.80-296.89	F31.8-F31.9/F34.0	☐
		Past	☐			
E	PANIC DISORDER	Current (Past Month)	☐	300.01/300.21	F40.01-F41.0	☐
		Lifetime	☐			
F	AGORAPHOBIA	Current	☐	300.22	F40.00	☐
G	SOCIAL PHOBIA (Social Anxiety Disorder)	Current (Past Month)	☐	300.23	F40.1	☐
H	OBSESSIVE-COMPULSIVE DISORDER	Current (Past Month)	☐	300.3	F42.8	☐
I	POSTTRAUMATIC STRESS DISORDER	Current (Past Month)	☐	309.81	F43.1	☐
J	ALCOHOL DEPENDENCE	Past 12 Months	☐	303.9	F10.2x	☐
	ALCOHOL ABUSE	Past 12 Months	☐	305.00	F10.1	☐
K	SUBSTANCE DEPENDENCE (Non-alcohol)	Past 12 Months	☐	304.00-.90/305.20-.90	F11.1-F19.1	☐
	SUBSTANCE ABUSE (Non-alcohol)	Past 12 Months	☐	304.00-.90/305.20-.90	F11.1-F19.1	☐
L	PSYCHOTIC DISORDERS	Lifetime	☐	295.10-295.90/297.1/	F20.xx-F29	☐
		Current	☐	297.3/293.81/293.82/ 293.89/298.8/298.9		
	MOOD DISORDER WITH PSYCHOTIC FEATURES	Lifetime	☐	296.24/296.34/296.44	F32.3/F33.3/ ☐	
		Current	☐	296.24/296.34/296.44	F30.2/F31.2/F31.5 F31.8/F31.9/F39 ☐	
M	ANOREXIA NERVOSA	Current (Past 3 Months)	☐	307.1	F50.0	☐
N	BULIMIA NERVOSA	Current (Past 3 Months)	☐	307.51	F50.2	☐
	ANOREXIA NERVOSA, BINGE EATING/PURGING TYPE	Current	☐	307.1	F50.0	☐
O	GENERALIZED ANXIETY DISORDER	Current (Past 6 Months)	☐	300.02	F41.1	☐
P	ANTISOCIAL PERSONALITY DISORDER Optional	Lifetime	☐	301.7	F60.2	☐

Modified Mini Screen

The Modified Mini Screen (MMS) is a 22-item scale designed to identify persons in need of an assessment in the domains of Mood Disorders, Anxiety Disorders and Psychotic Disorders. The questions are based on gateway questions and threshold criteria found in the Diagnostic and Statistical manual IV (DSM-IV), the Structured Clinical Interview for Diagnosis (SCID) and the Mini International Neuropsychiatric Interview (M.I.N.I.).

Section A			
#		**Yes**	**No**
1	Have you been consistently depressed or down, most of the day, nearly every day, for the past 2 weeks?		
2	In the past 2 weeks, have you been less interested in most things of less able to enjoy the things you used to enjoy most of the time?		
3	Have you felt sad, low or depressed most of the time for the last two years?		
4	In the past month, did you think that you would be better off dead or wish you were dead?		
5	Have you ever had a period of time when you were feeling up, hyper or full of energy or full of yourself that you got into trouble or that other people thought you were not your usual self? (Do not consider times when you were intoxicated on drugs or alcohol)		
6	Have you ever been so irritable, grouchy or annoyed for several days, that you have arguments, verbal or physical fights, or shouted at people outside your family? Have you or others noticed that you have been more irritable or overreacted, compared to other people, even when you thought you were right to act this way?		
Section B			
#		**Yes**	**No**
7a	Have you had one or more occasions when you felt intensely anxious, frightened, uncomfortable or uneasy even when most people would not feel this way?		
7b	If yes, did these intense feelings get to be their worst within 10 minutes?		

8	Do you feel anxious or uneasy in places or situations where you might have the panic-like symptoms we just spoke about? Or do you feel anxious or uneasy in situation where help might not be available or escape might be difficult? Examples include: Being in a crowd Standing in a line Being alone away from home or alone at home Crossing a bridge Traveling in a bus, train or car.		

9	Have you worried excessively or been anxious about several things over the past months? If no, skip question #10.		
10	Are these worries present most days?		
11	In the past month, were you afraid or embarrassed when others were others were watching or when you were the focus of attention? Were you afraid of being humiliated? Examples include: Speaking in public Eating in public or with others Writing while someone watches Being in a social situation.		
12	In the past month, have you been bothered by thoughts, impulses, or images that you couldn't get rid of that were unwanted, distasteful, inappropriate, intrusive or distressing? Examples include: Were you afraid that you would act on some impulse that would be really shocking? Did you worry a lot about being dirty, contaminated or having germs? Did you worry a lot about contaminating others, or that you would harm someone even though you didn't want to? Did you have fears or superstitions that you would be responsible for things going wrong? Were you obsessed with sexual thoughts, images or impulses? Did you hoard or collect lots of things? Did you have religious obsessions?		

13	In the past month, did you do something repeatedly without being able to resist doing it? Examples include: Washing or cleaning excessively Counting or checking things over and over Repeating, collecting, or arranging things Other superstitious rituals		
14	Have you ever experienced or witnessed or had to deal with an extremely traumatic event that included actual or threatened death or serious injury to you or someone else? Examples include: Serious accidents Sexual or physical assault Terrorist attack Being held hostage Kidnapping Fire Discovering a body Sudden death of someone close to you War Natural disaster		
15	Have you re-experienced the awful event in a distressing way in the past month? Examples include: Dreams Intense recollections Flashbacks Physical reactions		

	Section C		
#		Yes	No
16	Have you ever believed that people were spying on you, or that someone was plotting against you, or trying to hurt you?		
17	Have you ever believed that someone was reading your mind or could hear your thoughts, or that you could actually read someone's mind or hear what another person was thinking?		
18	Have you ever believed that someone or some force outside of yourself put thoughts in your mind that were not your own, made you act in a way that was not your usual self? Or, have you ever felt that you were possessed?		
19	Have you ever believed that you were being sent special messages through the TV, radio, or newspaper? Did you believe that someone you did not personally know was particularly interested in you?		
20	Have your relatives or friends ever considered any of your beliefs strange or unusual?		
21	Have you ever heard things other people couldn't hear, such as voices?		
22	Have you ever had visions when you were awake or have you ever seen things other people couldn't see?		

The Hospital Anxiety and Depression Scale (HADS)

Hospital Anxiety and Depression Scale

~ Scoring Sheet ~

	Yes definitely	Yes sometimes	No, not much	No, not at all
1. I wake early and then sleep badly for the rest of the night.	3	2	1	0
2. I get very frightened or have panic feelings for apparently no reason at all.	3	2	1	0
3. I feel miserable and sad.	3	2	1	0
4. I feel anxious when I go out of the house on my own.	3	2	1	0
5. I have lost interest in things.	3	2	1	0
6. I get palpitations, or sensations of "butterflies" in my stomach or chest.	3	2	1	0
7. I have a good appetite.	0	1	2	3
8. I feel scared or frightened.	3	2	1	0
9. I feel life is not worth living.	3	2	1	0
10. I still enjoy the things I used to.	0	1	2	3
11. I am restless and can't keep still.	3	2	1	0
12. I am more irritable than usual.	3	2	1	0
13. I feel as if I have slowed down.	3	2	1	0
14. Worrying thoughts constantly go through my mind.	3	2	1	0

Anxiety 2, 4, 6, 8, 11, 12, 14

Depression 1, 3, 5, 7, 9, 10, 13

Scoring 3, 2, 1, 0 (For items 7 & 10 the scoring is reversed)

GRADING: 0 - 7 = Non-case 8 – 10 = Borderline case 11+ = Case

Presumptive Stressful Life Events Scale (PSLES)

Rank No.	***LIFE EVENTS***	**Mean stress scores**	**Yes/ No**
1.	Death of spouse	95	
2.	Extra- marital relation of spouse	80	
3.	Marital separation/divorce	77	
4.	Suspension or dismissal from job	76	
5.	Detention in jail of self or close family member	72	
6.	lack of child	67	
7.	Death, of close family member	66	
8.	Marital conflict	64	
9.	Property or crops damaged	61	
10.	Death of friend	60	
11.	Robbery or theft	59	
12.	Excessive alcohol /drug use by family member	58	
13.	Conflict with in laws (other than over dowry)	57	
14.	Broken engagement or love affair	57	
15.	Major personal illness or injury	56	
16.	Son or daughter leaving home	55	
17.	Financial loss *or* problems	54	
18.	Illness of family member	52	

19.	Trouble at work with colleagues, superiors	52	
20.	Prophecy of astrologer or palmist etc.	52	
21.	Pregnancy of wife (wanted or unwanted)	52	
22.	Conflict over dowry (self or spouse)	51	
23.	Sexual problems	51	
24.	Self or family member unemployed	51	
25.	Lack of son	51	
26.	Large loan	49	
27.	Marriage of daughter or dependant sister	49	
28.	Minor violation of law	48	
29.	Family conflict	47	
30.	Break-up with friend	47	
31.	Major purchase or construction of house	46	
32.	Death of pet	44	
33.	Failure in examination	43	
34.	Appearing for an examination of interview	43	
35.	Getting married or engaged	43	
36.	Trouble with neighbour	40	
37.	Unfulfilled commitments	40	
38.	Change in residence	39	
39.	Change or expansion of business	37	
40.	Outstanding personal achievement	37	

41.	Begin or end schooling	36	
42.	Retirement	35	
43.	Change in working conditions or transfer	33	
44.	Change in sleeping habits	33	
45.	Birth of daughter	30	
46.	Gain of new family member	30	
47.	Reduction in number of family functions	29	
48.	Change in social activities	28	
49.	Change in eating habit	27	
50.	Wife begins or stops work	25	
51.	Going on pleasure trip or pilgrimage	20	

No stress (<40)

Less/moderate stress (40-200)

Severe stress (>200)

WHOQOL-BREF

The following questions ask how you feel about your quality of life, health, or other areas of your life. I will read out each question to you, along with the response options. **Please choose the answer that appears most appropriate.** If you are unsure about which response to give to a question, the first response you think of is often the best one.

Please keep in mind your standards, hopes, pleasures and concerns. We ask that you think about your life **in the last four weeks.**

		Very poor	Poor	Neither poor nor good	Good	Very good
1.	How would you rate your quality of life?	1	2	3	4	5

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
2.	How satisfied are you with your health?	1	2	3	4	5

The following questions ask about **how much** you have experienced certain things in the last four weeks.

		Not at all	A little	A moderate amount	Very much	An extreme amount
3.	To what extent do you feel that physical pain prevents you from doing what you need to do?	5	4	3	2	1
4.	How much do you need any medical treatment to function in your daily life?	5	4	3	2	1
5.	How much do you enjoy life?	1	2	3	4	5
6.	To what extent do you feel your life to be meaningful?	1	2	3	4	5

		Not at all	A little	A moderate amount	Very much	Extremely
7.	How well are you able to concentrate?	1	2	3	4	5
8.	How safe do you feel in your daily life?	1	2	3	4	5
9.	How healthy is your physical environment?	1	2	3	4	5

The following questions ask about how completely you experience or were able to do certain things in the last four weeks.

		Not at all	A little	Moderately	Mostly	Completely
10.	Do you have enough energy for everyday life?	1	2	3	4	5
11.	Are you able to accept your bodily appearance?	1	2	3	4	5
12.	Have you enough money to meet your needs?	1	2	3	4	5
13.	How available to you is the information that you need in your day-to-day life?	1	2	3	4	5
14.	To what extent do you have the opportunity for leisure activities?	1	2	3	4	5

		Very poor	Poor	Neither poor nor good	Good	Very good
15.	How well are you able to get around?	1	2	3	4	5

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
16.	How satisfied are you with your sleep?	1	2	3	4	5
17.	How satisfied are you with your ability to perform your daily living activities?	1	2	3	4	5
18.	How satisfied are you with your capacity for work?	1	2	3	4	5
19.	How satisfied are you with yourself?	1	2	3	4	5

20.	How satisfied are you with your personal relationships?	1	2	3	4	5
21.	How satisfied are you with your sex life?	1	2	3	4	5
22.	How satisfied are you with the support you get from your friends?	1	2	3	4	5
23.	How satisfied are you with the conditions of your living place?	1	2	3	4	5
24.	How satisfied are you with your access to health services?	1	2	3	4	5
25.	How satisfied are you with your transport?	1	2	3	4	5

The following question refers to how often you have felt or experienced certain things in the last four weeks.

		Never	Seldom	Quite often	Very often	Always
26.	How often do you have negative feelings such as blue mood, despair, anxiety, depression?	5	4	3	2	1

Do you have any comments about the assessment?

_____

_____

[The following table should be completed after the interview is finished]

		Equations for computing domain scores	Raw score	Transformed scores*	
				4-20	0-100
27.	**Domain 1**	(6-Q3) + (6-Q4) + Q10 + Q15 + Q16 + Q17 + Q18 ☐ + ☐ + ☐ + ☐ + ☐ + ☐ + ☐	a. =	b:	c:
28.	**Domain 2**	Q5 + Q6 + Q7 + Q11 + Q19 + (6-Q26) ☐ + ☐ + ☐ + ☐ + ☐ + ☐	a. =	b:	c:
29.	**Domain 3**	Q20 + Q21 + Q22 ☐ + ☐ + ☐	a. =	b:	c:
30.	**Domain 4**	Q8 + Q9 + Q12 + Q13 + Q14 + Q23 + Q24 + Q25 ☐ + ☐ + ☐ + ☐ + ☐ + ☐ + ☐ + ☐	a. =	b:	c:

* See Procedures Manual, pages 13-15

HDHQ

[HOSTILITY AND DIRECTION OF HOSTILITY QUESTIONNAIRE

E-1 ATTITUDE SCALE]

1. I have enemies who really want to hurt me.
2. I get angry sometimes.
3. I am entirely self confident.
4. I sometimes tease animals.
5. Most people are honest chiefly through fear of being caught.
6. I know who is responsible for most of my troubles.
7. I usually expect to succeed in thing I do.
8. I do not blame anyone for trying to grab everything he can get in this world.
9. I have often lost out on things because I could not make up my mind soon enough.
10. Much of the time I feel as if I have done something wrong or evil.
11. I am easily downed in an argument.
12. I have very few quarrels with members of my family.
13. I have several times given up doing a thing because I thought too little of my ability.
14. I wish I could get over worrying about things I have said that I have injured other people's feelings.
15. I get mad easily and then got over it soon.
16. When someone does me a wrong I feel I should pay him back if I can, just for the principle of the thing.
17. I am sure I get a raw deal from life.
18. I shrink from facing a crisis or difficulty.
19. It is safer to trust nobody.
20. At times I think I am no good at all.
21. Some of my families have habits that bother and annoy me

very much.
22. At times I have a strong urge to do something harmful or shocking.
23. I think most people would lie to get ahead.
24. Someone has been trying to rob me.
25. I have sometimes felt that difficulties were piling up so high that I could not overcome them.
26. I have not lived the right kind of life.
27. I can easily make other people afraid of me, and sometimes do so for the fun of it.
28. Most people make friends because friends are likely to be useful to them.
29. I think I am not being watched.
30. At times I feel like picking a fist fight with someone.
31. Often I cannot understand why I have been so cross and grouchy.
32. Some people are so bossy that I feel like doing the opposite of what they request, even though I know they are right.
33. I believe I am being followed.
34. I seem to be about as capable.
35. My hardest battles are with myself.
36. In school I was sometimes sent to the principal for misbehaving.
37. I think nearly anyone would tell a lie to keep out of trouble.
38. If people had not it in for me I would have been much more successful.
39. I believe I am a condemned person.
40. Sometimes I feel as if I must injure either myself or someone else.
41. I do not blame a person for taking advantage of someone who lays himself open to it.

42. I certainly feel useless at times.

43. Sometimes I enjoy hurting persons I love.

44. I easily become impatient with people.

45. I have often found people jealous of my good ideas, just because they had not thought of them first.

46. Someone has it in for me.

47. I believe my sins are unpardonable.

48. I believe I am being plotted against.

49. I am certainly lacking in self confidence.

50. At times I feel like smashing things.

51. I have at times stood in the way of people who were trying to do something not because it amounted too much but because of the principle of the thing.

ATTITUDE: SCORING KEY

1. T 11.T 21.T 31.T 41.T

2. F 12.F 22.T 32.T 42.T

3. T 13.F 23.T 33.T 43.T

4. T 14.T 24.T 34.F 44.T

5. T 15.T 25.T 35.T 45.T

6. F 16.T 26.T 36.T 46.T

7. T 17.T 27.T 37.T 47.T

8. T 18.T 28.T 38.T 48.T

9. T 19.T 29.F 39.T 49.T

10.T 20.T 30.T 40.T 50.T

51.T

1. Acting out Hostility

1,3,7,11,15,22,27,30,36,40,43,44,50

2. Delusional Hostility (Or) Paranoid Hostility

5,8,17,24,29,33,46,48,38

3. Criticism of Others

4,12,16,19,21,23,28,32,37,41,45,51

4. Delusional Guilt

10,14,20,26,39,42,47

5. Self Criticism

2,6,9,11,13,18,25,31,34,35,49

Hostility: 1+2+3+4+5

Direction of Hostility: [2x5+4]-[1+2+3]

Positive score: Intro punitive (inwardly directed hostility)

Negative score: Extra punitive (Blaming Others)

Rosenberg Self-Esteem Scale (Rosenberg, 1965)

The scale is a ten item Likert scale with items answered on a four point scale - from strongly agree to strongly disagree. The original sample for which the scale was developed consisted of 5,024 High School Juniors and Seniors from 10 randomly selected schools in New York State.

Instructions: Below is a list of statements dealing with your general feelings about yourself. If you strongly agree, circle **SA**. If you agree with the statement, circle **A**. If you disagree, circle **D**. If you strongly disagree, circle **SD**.

1.	On the whole, I am satisfied with myself.	SA	A	D	SD
2.*	At times, I think I am no good at all.	SA	A	D	SD
3.	I feel that I have a number of good qualities.	SA	A	D	SD
4.	I am able to do things as well as most other people.	SA	A	D	SD
5.*	I feel I do not have much to be proud of.	SA	A	D	SD
6.*	I certainly feel useless at times.	SA	A	D	SD
7.	I feel that I'm a person of worth, at least on an equal plane with others.	SA	A	D	SD
8.*	I wish I could have more respect for myself.	SA	A	D	SD
9.*	All in all, I am inclined to feel that I am a failure.	SA	A	D	SD
10.	I take a positive attitude toward myself.	SA	A	D	SD

Scoring: SA=3, A=2, D=1, SD=0. Items with an asterisk are reverse scored, that is, SA=0, A=1, D=2, SD=3. Sum the scores for the 10 items. The higher the score, the higher the self esteem.

INFORMED CONSENT FORM

Title of the study

A STUDY ON IMPACT OF VITILIGO ON PSYCHIATRIC MANIFESTATIONS

Name of the Participant:

Name of the Principal ,Co-Investigator:

DR. M. VIJAYALAKSHMI .,

DR. S. ANANDA KRISHNA KUMAR., M.D., D.P.M.,

DR. M.RAJASUNDARI., M.D., D.C.H.,

Name of the Institution :

DEPARTMENT OF PSYCHIATRY, MADURAI MEDICAL COLLEGE, MADURAI-20.

Name and address of the sponsor / agency (ies) (if any): Nil

Documentation of the informed consent

I, have read the information in this form (or it has been read to me).I was free to ask any questions and they have been answered. I am over 18 years of age and, exercising my free power of choice, hereby give my consent to be included as a participant in the Study on Prevalence and Pattern of Psychiatric illness in Vitiligo Patient

1. I have read and understood this consent form and the information provided to me.

2. I have had the consent document explained to me.

3. I have been explained about the nature of the study.

4. I have been explained about my rights and responsibilities by the investigator.

5. I have been informed the investigator of all the treatments I am taking or have taken in the past_____ months including any native (alternative) treatment.

6. I have been advised about the risks associated with my participation in this study.*****

7. I agree to cooperate with the investigator and I will inform him/her immediately if I suffer unusual symptoms. *****

8. I have not participated in any research study within the past _____month(s). *****

9. I have not donated blood within the past _____ months—Add if the study involves Extensive blood sampling. *****

10. I am aware of the fact that I can opt out of the study at any time without having to give any reason and this will not affect my future treatment in this hospital. *****

11. I am also aware that the investigator may terminate my participation in the study at any time, for any reason, without my consent. *****

12. I hereby give permission to the investigators to release the information obtained from me as result of participation in this study to the sponsors, regulatory authorities, Govt. agencies, and IEC. I understand that they are publicly presented.

13. I have understand that my identity will be kept confidential if my data are publicly presented

14. I have had my questions answered to my satisfaction.

15. I have decided to be in the research study. I am aware that if I have any question during this study, I should contact the investigator. By signing this consent form I attest that the information given in this document has been

clearly explained to me and understood by me, I will be given a copy of this consent document

For adult participants

Name and signature / thumb impression of the participant (or legal representative if participant incompetent)

Name _____ Signature_____

Date_____

Name and Signature of impartial witness (required for illiterate patients)

Name _____ Signature_____

Date_____

Address and contact number of the impartial witness.

Information to Participants

Sponsor: Nil

Investigator (principal and at least one Co-investigator):

DR. M. VIJAYALAKSHMI & DR.S. ANANDA KRISHNA KUMAR., M.D.,D.P.M.,

Name of Participant:

Title: A STUDY ON IMPACT OF VITILIGO ON PSYCHIATRIC MANIFESTATIONS

You are invited to take part in this research/ study /procedures. The information in this document is meant to help you decide whether or not to take part. Please feel free to ask if you have any queries or concerns. You are being asked to participate in this study being conducted in Madurai Medical College.

Purpose of the Research

1. To study the Prevalence and patterns of Psychiatric illness in Patients with Vitiligo
2. To study the pattern of Psychiatric illness among different morphological types of Vitiligo.
3. To assess the Hostility and direction of Hostility in Patients with Vitiligo.
4. To determine the relationship of Psychiatric illness , Life Stressors and Quality of Life in Patients with Vitiligo
5. To compare the Quality of life between patients of Vitiligo with and without psychiatric illness.

Details of the study

1.DESIGN OF STUDY : Cross Sectional Study

2.PERIOD OF STUDY : Three months

3.COLLABORATING DEPARTMENT : Dermatology

4.PARTICIPANTS : Patients Diagnosed to have Vitiligo attending Outpatient department service of Dermatology, Government Rajaji Hospital, Madurai.

5. Data collection by clinical interview

6. METHODS :

1) Obtaining approval from the Instituitional Ethical Committee (IEC).
2) First 70 consecutive patients who have been diagnosed have Vitiligo by Dermatologist, who fulfil the inclusion and exclusion Criteria are subjected to the study after getting an informed consent.
3) Applying Semi structured Clinical Interview, MINI International Neuropsychiatric Interview, Hospital Anxiety and Depression Scales, Presumptive stressful life events scale, Modified Kuppuswamy rating scale for socio economic status, Rosenberg Self esteem scale, WHO

Quality of Life scale, HDHQ- Hostility and direction of Hostility Questionairre.

4) Descriptive Statiscal Analysis for Socio demographic profile, Psychiatric Morbidities, Life Events and Quality of Life.

7. Ethical committee clearance: To be obtained

Confidentiality of the information obtained from you

You have the right to confidentiality regarding the privacy of your medical information (personal details, results of physical examinations, investigations, and your medical history). By signing this document, you will be allowing the research team investigators, other study personnel, sponsors, IEC and any person or agency required by law like the Drug Controller General of India to view your data, if required. The information from this study, if published in scientific journals or presented at scientific meetings, will not reveal your identity.

Possible benefits to other people

The result of the research may provide benefits to the society in terms of advancement of medical knowledge and/or therapeutic benefits to future patients.

How will your decision to not participate in the study affect you?

Your decisions to not participate in this research study will not affect your medical care or your relationship with investigator or the institution. Your doctor will still take care of you and you will not loose any benefits to which you are entitled.

Can you decide to stop participating in the study once you start?

The participation in this research is purely voluntary and you have the right to withdraw from this study at any time during course of the study without giving any reasons. However, it advisable that you talk to the research team prior to stopping the study.

பங்கேற்பாளர் ஒப்புதல் படிவம்

ஆய்வு : வெண்புள்ளி சரும நோய் பிரச்சனை உள்ளவர்களுக்கு ஏற்படும் உளவியல் தொந்தரவுகள் பற்றி கண்டறியும் ஒரு ஆய்வு

துறை : மனநலம் துறை மற்றும் தோல் நோய் பிரிவு துறை

1. இந்த ஆய்வின் நோக்கம் மற்றும் அதை பற்றிய விபரங்கள் என்னுடைய உள்ளூர் தாய் மொழியில் விளக்கப்பட்டன.
2. இந்த ஆய்வினால் நேரடியாக எனக்கு எந்த பயனும் இல்லை எனினும் மறைமுகமாக சமூகத்திற்கு பயனாக இருக்கும் என்று புரிந்து கொண்டேன்.
3. என்னைப்பற்றிய விபரங்கள் அனைத்தும் இரகசியமாக பாதுகாக்கப்படும் என அறிவேன்.
4. இந்த ஆய்விலிருந்து விலகிக்கொள்ளவும் மற்றும் என்னுடைய தகவல்களை விலக்கிக்கொள்ளவும் எனக்கு முழு உரிமை உண்டு என அறிவேன்.
5. என்னிடமிருந்து பெறப்படும் தகவல்கள் அனைத்தும் வெண்புள்ளி நோயால் பாதிக்கப்பட்டவர்களுக்கு ஏற்படும் மனஉளவியல் சம்பந்தமான தொந்தரவுகளை பற்றி நன்கு அறிந்து கொள்ள பயன்படுத்தப்படும் என்று புரிந்து கொண்டேன்.
6. ஆய்வு முடிவுகளை வெளியிட ஆய்வாளர்களுக்கு ஒப்புதல் தெரிவிக்கிறேன்.
7. என்னுடைய தகவல்களை பிற்காலத்தில் இதுபோன்ற ஆய்வுக்கு பயன்படுத்த ஒப்புதல் அளிக்கிறேன்.
8. இந்த ஆய்வில் பங்கு கொள்ள முழு மனதோடு சம்மதிக்கிறேன். ஆய்வாளர் இந்த ஆய்வை பற்றி விளக்கியது மனநிறைவு அளிக்கிறது. இந்த ஆய்வில் பங்கு பெற மனதார ஒப்புதல் அளிக்கிறேன்.

பங்கேற்பாளர் பெயர் கையொப்பம்

முகவரி

சாட்சி பெயர் கையொப்பம்

தேதி இடம்

MASTER CHART

serial no	age	sex	religion	EDU	occu	income	SES	MS	VITILIGO type	Duration in YEARS	COURSE	LOCALITY	TREATME	PSLESTOT	PSLESEVE	HADS-A	HADS-AINF	HADS-D	HADS-DINF	PSY	ROSTS	ROSEN	VASI%	VASI-IN
1	20	2	1	6	1	4	3	2	1	1	3	1	1	55	2	15	3	7	1	4	19	2	16	1
2	48	2	1	2	2	1	2	1	1	1	1	2	1	153	2	19	3	9	2	5	20	2	10	1
3	55	1	1	2	4	3	2	3	1	3	4	2	1	187	3	11	3	12	3	7	8	1	5	1
4	47	1	1	3	1	2	2	1	2	10	4	2	1	289	7	16	3	10	2	4	10	1	60	2
5	30	1	1	2	3	3	2	2	2	4	4	1	2	381	9	18	3	8	2	4	8	1	70	3
6	58	1	3	4	3	3	2	1	2	5	1	2	2	455	10	15	3	12	3	7	13	1	65	2
7	30	2	1	6	1	4	3	1	1	20	3	1	2	206	5	12	3	14	3	1	20	2	20	1
8	46	2	2	1	1	3	2	1	6	2	3	2	1	107	3	6	1	11	2	2	13	1	1	1
9	43	2	1	3	1	3	2	1	6	5	3	2	2	126	3	5	1	10	2	2	23	2	1	1
10	34	2	1	1	1	2	1	1	2	15	4	2	2	55	2	9	2	12	3	1	13	1	68	2
11	25	1	1	6	1	1	5	2	6	5	3	2	1	47	1	12	3	5	1	5	23	2	1	1
12	61	1	1	3	4	3	2	1	1	3	3	2	1	212	5	9	2	13	3	1	11	1	10	1
13	60	2	1	1	1	2	1	3	2	10	4	2	2	245	5	8	2	18	3	1	12	1	70	3
14	59	2	2	4	1	5	2	1	1	7	4	1	2	184	5	10	2	17	3	1	8	1	18	1
15	65	1	1	1	4	3	2	1	2	3	4	2	1	212	5	10	2	12	3	1	8	1	65	2
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17	60	1	1	3	5	2	2	1	5	40	3	1	2	44	1	9	2	19	3	1	16	2	20	1
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19	32	2	2	2	4	3	2	1	6	1	3	2	1	341	8	8	2	7	1	8	8	1	1	1
20	60	2	1	3	1	3	2	3	2	10	1	1	2	168	4	10	2	9	2	4	8	1	60	2
21	52	2	1	4	4	4	3	3	6	2	2	2	1	28	1	5	1	7	1	8	23	2	1	1
22	55	1	1	3	4	3	2	1	1	1	1	1	1	28	1	5	1	6	1	8	20	2	26	1
23	49	2	1	2	3	2	2	1	6	1	2	2	1	161	2	6	1	4	1	8	20	2	1	1

24	55	2	1	1	3	3	2	3	1	2	1	2	1	85	2	10	2	7	1	8	11	1	10	1
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26	20	1	1	3	4	3	2	2	2	5	1	1	2	28	1	10	2	7	1	8	20	2	75	3
27	47	2	1	1	1	2	1	3	6	1	1	1	2	131	3	6	1	1	1	8	23	2	1	1
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29	35	2	1	3	2	2	2	3	6	1	3	2	2	273	6	11	3	19	3	1	11	1	1	1
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33	58	1	1	6	6	4	4	1	1	7	4	1	2	184	5	11	3	19	3	1	13	1	30	2
34	48	2	1	1	3	2	2	1	2	5	1	1	2	212	5	11	3	19	3	1	13	1	80	3
35	47	2	1	1	1	2	1	1	4	1	2	1	1	27	1	4	1	2	1	8	18	2	5	1
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37	65	1	1	3	1	3	2	3	1	2	2	1	1	168	4	6	1	7	1	8	8	1	15	1
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67	20	1	1	3	5	4	3	2	3	2	3	1	2	184	5	5	1	7	1	8	24	2	85	3
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QUALITY OF LIFE SCORES

s.no	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1	3	1	4	4	2	2	3	3	3	3	2	2	3	2	3	2	2	3	3	3	4	2	3	3	4	4
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HOSTILITY SCORES

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KEY TO MASTERCHART

1.AGE

2.SEX:

MALE-1

FEMALE-2

3.RELIGION

Hindu-1

Christian-2

Muslim-3

Others-4

4.EDUCATION:

ILLITRATE-1

PRIMARY SCHOOL-2

MIDDLE SCHOOL-3

HIGH SCHOOL-4

DIPLOMO-5

GRADUATE-6

PROFESSION-7

5.OCCUPATION

UNEMPLOYED-1

UNSKILLED WORKER-2

SEMISKILLED WORKER-3

SKILLED WORKER-4

CLERICAL,SHOP OWNER,FARMER-5

SEMI PROFESSIONAL-6

PROFESSIONAL-7

6.INCOME:

<1600 – 1

1601 – 4809 – 2

4810 – 8009 – 3

8012 – 12019 – 4

12020 – 16019 – 5

16020 – 32049 – 6

>32050 - 7

7.SOCIOECONOMIC STATUS:

LOWER-1

UPPER LOWER-2

LOWER MIDDLE-3

UPPER MIDDLE-4

UPPER -5

8.MARITAL STATUS:

MARRIED-1

UNMARRIED-2

WIDOW/SEPERATED/DIVORCED-3

9.VITILIGO TYPE

ACRO FACIAL – 1

VITILIGO VULGARIS -2

UNIVERSALIS – 3

FOCAL – 4

SEGMENTAL – 5

MUCOSAL -6

OTHERS -7

10.DURATION IN YRS

Less than 3 YRS -1

4-6YRS -2

More than 7 YRS-3

11.COURSE:

PROGRESSIVE – 1

REGRESSIVE -2

STATIONARY -3

REMISSION & EXACERBATION – 4

RELAPSE – 5

12.LOCALITY:

RURAL – 1

URBAN -2

13.TREATMENT:

REGULAR – 1

IRREGULAR -2

14.PSLES – TOTAL SCORE

PSLES – NO OF EVENT

15.HADS A SCORE

16.HADS A INTERPRETATION

0-7 – 1 (NORMAL)

8- 10 – 2 (BORDERLINE)

>11 - 3 (CASES)

17.HADS D SCORE

18.HADS D INTERPRETATION

0-7 – 1 (NORMAL)

8- 10 – 2 (BODERLINE)

>11- 3 (CASES)

19.PSYCHIATRIC DIAGNOSIS:

DEPRESSION – 1

DYSTHMIA –2

ADJUSTMENT DISORDER – 3

GENERALISED ANXIETY DISORDER – 4

SOCIAL PHOBIA – 5

PANIC DISORDER – 6

MIXED ANXIETY & DEPRESSION – 7

NO ILLNESS – 8

20.ROSENBERG TOTAL SCORE

21.ROSENBERG INTERPRETATION:

<15 – 1(LOW SELF ESTEEM)

>15 – 2 (NORMAL)

22.VITILIGO AREA SEVERITY INDEX

1- 29% - MILD - 1

30 – 69 % - MODERATE - 2

70-100%- SEVERE - 3

QUALITY OF LIFE(SECOND XL SHEET)

HOSTILITY AND DIRECTION OF HOSTILITY QUESTIONNAIRE(HDHQ) 3RD XL SHEET

TRUE-**1**

FALSE-**2**

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MADURAI, TAMILNADU, INDIA -625 020
(Affiliated to The Tamilnadu Dr.MGR Medical University, Chennai, Tamil Nadu)

ETHICS COMMITTEE CERTIFICATE

Name of the Candidate	:	Dr.M.Vijayalakshmi
Course	:	PG in MD., Psychiatric
Period of Study	:	2015 - 2018
College	:	MADURAI MEDICAL COLLEGE
Research Topic	:	A study on Impact of vitiligo on Psychiatric Manifestations
Ethical Committee as on	:	11.09.2017

The Ethics Committee, Madurai Medical College has decided to inform that your Research proposal is accepted.

Member Secretary

Chairman

Prof Dr V Nagaraajan
M.D., MNAMS, D.M., Dsc.,(Neuro), Dsc (H
CHAIRMAN
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