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OF SCIENCES AND LITERATURE

**EFFECT OF HORMONAL IMBALANCE ON MENTAL HEALTH
AMONG YOUNG WOMEN**

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DECLARATION

I do hereby attest that I, Nidhi Jain, am the sole author of this thesis and that its contents are only the result of the readings and research I have done.

Nidhi Jain

Student's signature

ABSTRACT

Hormonal imbalances play a critical role in shaping both the physical and mental health of young women. This research focuses on women aged 18-25, investigating how fluctuations in hormones, such as estrogen and progesterone impact mental health outcomes, particularly anxiety, depression, insomnia, overthinking, panic attacks and mood disorders. The study explores how key hormonal phases, including the menstrual cycle, hormonal tablets use, and conditions like polycystic ovary syndrome (PCOS), influence emotional well-being in this age group. This study examines the neurobiological mechanisms linking hormonal changes to mental health, while also considering external factors like stress and lifestyle.

Emotional problems are those problems in which a person turns the problems inwardly and exhibits in the form of emotional symptoms such as anxiety, depression, and withdrawal or in the form of psychosomatic disorders. The behavioral problems, on the other hand, are problems such as cognitive problems, sleep disturbances and aggression or irritability particularly in menstrual days.

The present study aims to develop the effect of hormone imbalances on mental health among young women. A total of 324 young women between 18 and 25 years with a mean age of 19.60 (SD=1.43) years participated in the study to examine the hormonal imbalance on emotional and behavioral problems of young women and to determine whether problems varied according to place, age and weight. Data was obtained from administering the English version of Adult Self Report (ASR).

The major findings of the study indicate that women with PCOS have more emotional and behavioral problems. Females with town background experience more emotional and behavioral problems. Further, above 20 years women experience more emotional and behavioral problems. The findings of the thesis are discussed and implications for interventions are examined.

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Chapter-1
INTRODUCTION & AIM OF STUDY

AIM OF STUDY

1. Background of the Study

The mental health of young women has emerged as a critical area of concern, particularly at the intersection of hormonal and reproductive health. Research indicates that hormonal fluctuations and disorders—such as Polycystic Ovary Syndrome (PCOS), irregular menstruation, and the usage of hormonal contraceptives—can significantly impact mental health. However, an insufficient body of comprehensive research exists that specifically investigates the effects of hormonal changes and associated health conditions on the mental well-being of young women.

PCOS, recognized as one of the most prevalent endocrine disorders among women of reproductive age, is associated not only with physical manifestations such as irregular menstrual cycles and infertility but also with notable mental health ramifications, including anxiety, depression, and emotional distress. Although existing studies have demonstrated that women diagnosed with PCOS are predisposed to experience these psychological challenges, the underlying hormonal mechanisms and their interplay with lifestyle and environmental factors require further exploration.

Moreover, the influence of menarche—the onset of menstruation—on mental health has been documented; however, the specific effects of menarche occurring at distinct ages (i.e., before or after the age of 20) remain inadequately understood. The hormonal transitions accompanying puberty and menstruation can exert profound effects on emotional and psychological health, potentially shaping long-term mental health trajectories.

Stress, another significant determinant of mental health, is posited to be exacerbated in young women by hormonal imbalances or reproductive health disorders. For instance, conditions such as PCOS and irregular menstruation can precipitate chronic stress, which in turn may intensify issues related to anxiety and depression. Additionally, the administration of hormonal treatments including oral contraceptives and hormone replacement therapy (HRT) can result in mood fluctuations and various psychological effects as side effects of these medications.

In conjunction with reproductive and hormonal health, other physical conditions such as breast-related issues, dermatological and hair disorders, respiratory or cardiovascular problems, and musculoskeletal complications may also contribute to mental health challenges. These somatic symptoms, whether directly or indirectly associated with hormonal health, may trigger a cascade of psychological repercussions that adversely impact the emotional and social well-being of young women.

The interaction between psychological disorders—such as depression, anxiety, and insomnia—and hormonal dysfunctions, which may encompass endocrine disturbances like thyroid dysfunction and abnormal glucose levels, suggests a complex interrelation between mental and bodily health. In addition, factors such as weight changes, safety concerns, and experiences of harassment or violence can exacerbate mental health challenges, ultimately leading to deterioration in quality of life.

Consequently, this study aims to investigate the hormonal influences on mental health among young women, with a particular focus on the effects of hormonal disorders such as PCOS, stress, therapeutic hormone interventions, and concomitant physical health issues on emotional and behavioral outcomes, as measured through the Adult Self Report (ASR). By examining these interrelations, the study aspires to provide novel insights into the manner in which hormonal health and related conditions affect mental well-being, thereby contributing to a more nuanced understanding of the mental health requirements of young women and the role of hormonal influences in shaping their

psychological outcomes. This research is notably timely, given the global mental health crisis affecting individuals of all ages, with young women exhibiting particular vulnerability to both mental health disorders and hormonal disruptions. Through analyzing the discrepancies in mental health between women with and without PCOS and other relevant conditions, this study intends to augment the existing body of knowledge regarding the interplay between hormonal health and mental well-being.

2. Statement of the Problem

An increasing incidence of mental health challenges among young women is observed in relation to hormonal imbalances and reproductive health conditions, including PCOS, irregular menstruation, and the use of hormonal contraceptives. These conditions are frequently correlated with psychological issues such as anxiety, depression, and stress. Nevertheless, the precise relationship between hormonal health and mental wellness remains inadequately elucidated. Factors such as the timing of menarche, menstrual cycle regularity, and the effects of hormonal treatments are yet to be thoroughly explored concerning their impact on mental health.

Furthermore, physical manifestations associated with hormonal imbalances—including breast discomfort, dermatological alterations, and fluctuations in body weight—may amplify mental distress. The interactions between these factors, alongside stress, socioeconomic status, and environmental conditions, create a complex framework for understanding how hormonal health influences the emotional well-being of young women.

This study seeks to address the existing gap in knowledge by examining the impact of hormonal conditions and related health issues on mental health outcomes among young women. The findings could inform the development of enhanced healthcare practices and mental health interventions tailored to this demographic.

3. Research Objective/Aim

The principal aim of this study is to assess the influence of hormonal health on mental well-being among young women.

3.1 Specific Objectives

1. Investigate differences in mental health challenges between young women diagnosed with PCOS and those without.
2. Examine the impact of stress on mental health, specifically focusing on emotional and behavioral issues.
3. Analyze the influence of personal factors, including age, weight, and residential location, on mental health outcomes.
4. Explore the effects of age at menarche and menstrual regularity on mental health.

5. Study the implications of hormonal treatments (e.g., contraceptives, hormonal tablets) on mental well-being.
6. Assess the impact of physical health issues, including breast-related, dermatological, respiratory, cardiovascular, and musculoskeletal problems, on mental health.
7. Investigate the relationship between psychological issues (e.g., anxiety, depression, insomnia) and mental health outcomes.
8. Understand the contribution of safety concerns and other environmental factors to mental health challenges among young women.

By investigating these variables, the study endeavors to furnish a comprehensive understanding of the manner in which hormonal imbalances, reproductive health conditions, and related physical and psychological factors influence the mental health of young women.

4. Research Questions

1. Is there a significant disparity in mental health challenges between young women with PCOS and those without?
2. How does stress impact mental health outcomes, particularly with regard to emotional and behavioral difficulties, among young women?
3. What is the effect of personal factors such as age, weight, and place of residence (urban vs. rural) on mental health issues among young women?
4. Does the age at which menarche occurs (before 20 years versus after 20 years) affect mental health outcomes in young women?
5. What is the impact of hormonal treatments (e.g., contraceptive pills, hormonal tablets) on mental health among young women?
6. How does menstrual regularity (regular vs. irregular cycles) affect mental health in young women?
7. What is the relationship between psychological issues such as depression, anxiety, insomnia, and other mental health challenges among young women?
8. Do breast-related issues (e.g., lumps, pain, and nipple discharge) contribute to mental health problems in young women?
9. How do dermatological and hair-related issues (e.g., hair loss, skin changes) influence mental health among young women?
10. How do respiratory conditions (e.g., wheezing, shortness of breath) affect mental health in young women?
11. What is the effect of cardiovascular issues (e.g., irregular heartbeat, chest pain) on mental health among young women?

12. How do urinary infections (e.g., frequent or painful urination) impact mental health in young women?
13. Do musculoskeletal issues (e.g., back pain, joint pain) contribute to mental health challenges in young women?
14. What is the relationship between neurological conditions (e.g., headaches, dizziness) and mental health in young women?
15. How do endocrine disorders (e.g., thyroid dysfunction, abnormal blood sugar levels) influence mental health in young women?
16. How does the presence of hormonal disorders, including PCOS and menstrual irregularities, affect mental health among young women?
17. Do safety concerns (e.g., fear of harassment or violence) contribute to mental health issues in young women?

These inquiries are designed to explore the intricate interactions between hormonal health, physical conditions, and mental well-being in young women.

5. Significance of the Study

The significance of this research is underscored by its potential to elucidate the intricate relationship between hormonal health and mental well-being among young women. This study addresses several pivotal gaps within the existing literature, and it offers the following principal contributions:

a) Enhanced Understanding of Hormonal Impacts on Mental Health

Through the exploration of the effects of hormonal conditions, such as PCOS and menstrual irregularities, on mental health, this study aims to provide profound insights into the ramifications of hormonal imbalances and reproductive health on emotional and psychological well-being. This understanding could facilitate improved identification of mental health risks among women with hormonal disorders, thus enabling earlier interventions and more personalized treatment strategies.

b) Informed Healthcare Interventions

The findings of this study have the potential to assist clinicians, gynecologists, and mental health professionals in devising integrated care plans tailored to the needs of young women. Such interventions could comprehensively address both hormonal health and mental well-being, ensuring treatment strategies encompass the full spectrum of symptoms, from physical discomfort to emotional distress.

c) Public Health Implications

Gaining insight into the effects of conditions like PCOS and hormonal imbalances on mental health can inform public health policies and mental health initiatives specifically aimed at young women. The research may lead to the creation of targeted awareness campaigns and resources that emphasize the necessity for mental health support among this population.

d) Contribution to Mental Health Research

While extensive research has concentrated on the physical dimensions of reproductive health, the mental health implications have been relatively underexplored. This study aims to bridge this gap by investigating the psychological consequences of hormonal disorders and associated physical health issues, thereby broadening the scope of mental health research to encompass hormonal and reproductive health factors, resulting in a more holistic perspective.

e) Supporting Women's Mental Health in Diverse Contexts

By including variables such as age, geographical location (urban vs. rural), and socioeconomic status, the study will probe how different life contexts shape the relationship between hormonal health and mental health. Insights derived from this analysis may contribute to the development of interventions sensitive to the socio-cultural and geographical factors influencing young women's mental health, particularly in rural contexts where healthcare access is often limited.

f) Promoting Mental Health Awareness

The findings of this study are intended to elevate awareness regarding the role of hormonal health as a crucial factor in mental well-being. This awareness can aid in reducing the stigma associated with mental health challenges and encourage more young women to seek assistance when experiencing problems related to hormonal conditions.

g) Guiding Future Research

This study may serve as a foundation for subsequent research in this domain. By elucidating specific causal relationships between hormonal health and mental disorders, it could lead to more targeted studies that investigate the biological, psychological, and social mechanisms underlying these interactions.

6. Scope of the Study

The scope of this investigation is concentrated on the examination of the influence of hormonal health and related factors on mental health among young women aged 18 to 25. The study encompasses:

1. Hormonal Health Factors - PCOS, menstrual irregularities, age at menarche, the utilization of hormonal treatments, and menstrual regularity.
2. Physical Health Conditions - Issues related to breasts, dermatological and hair challenges, respiratory problems, cardiovascular conditions, musculoskeletal disorders, neurological issues, and endocrine dysfunctions.
3. Mental Health Outcomes - Emotional and behavioral difficulties, anxiety, depression, stress, insomnia, and other psychological disorders.
4. Personal Factors - Age, weight, residential location (urban vs. rural), and safety concerns.

The geographical focus is confined to young women residing in both rural and urban settings within the East Godavari District, aiming to provide insights into the relationship between hormonal health and mental well-being.

7. Organization of the Study

The structure of the study is delineated into the following chapters:

Chapter 1: Introduction & Aim of Study

- Outlines the background of the study, emphasizing the relationship between hormonal health and mental health in young women.
- Provides the statement of the problem, research objectives, and research questions.
- Discusses the significance, scope, and limitations of the study.

Chapter 2: Literature Review

- Summarizes existing research regarding hormonal health (e.g., PCOS, menstrual irregularities) and its association with mental health issues such as anxiety, depression, and stress.
- Identifies gaps in the literature and establishes a rationale for the current study.

Chapter 3: Data & Methodology

- Details the research design, including sample selection (young women aged 18-25), data collection methods, and analytical techniques (e.g., t-tests).
- Describes the instruments utilized, inclusive of the Adult Self Report (ASR) and symptom checklist.

Chapter 4: Contents and Results

- Presents the statistical analysis of the aggregated data.
- Discusses the findings in relation to the research questions, including variations in mental health outcomes across different hormonal and health-related factors.

Chapter 5: Discussion

- Interprets the results within the context of extant research.
- Analyzes the influence of hormonal health conditions on mental health outcomes in young women.

Chapter 6: Conclusion

- Summarizes the principal findings of the study.
- Proposes recommendations for healthcare providers, mental health practitioners, and policymakers.
- Suggests directions for future research based on the study's limitations and findings.

Bibliography

- Lists all sources cited throughout the study.

Appendices

- Includes survey instruments, data collection forms, and other pertinent materials utilized in the research.

INTRODUCTION

Hormones are molecules made by multicellular organisms that facilitate communication and signaling between various body parts, including tissue, organs, and the brain. In general, hormones play a role in controlling a wide range of an organism's physiology and behavior through this signaling, including in humans, mood, stress, digestion, insomnia, and sexual function. Proteins, fatty acids, amino acids, or steroids can be used to describe hormones.

Hormones are produced and released by the endocrine system, a network of glands. These hormones are secreted into the bloodstream, allowing them to travel to various organs and help regulate body functions and overall health. Key components of the endocrine system include the adrenal glands, pineal gland, pituitary gland, ovaries, testes, pancreas, and hypothalamus.

There are dozens of hormones currently known and studied. Those that play a key role in psychological and behavioral functions include:

Adrenaline: Adrenaline is a hormone and neurotransmitter that is mostly released during stressful, thrilling, or extremely emotional events by the adrenal glands (located near the kidneys) and certain brain neurons. Adrenaline, also referred to as epinephrine, increases the heartbeat and blood flow to the brain and muscles, enabling the body to respond rapidly and, if needed, go into fight-or-flight mode.

Cortisol: An adrenal gland-produced hormone that helps the body handle stress and controls important bodily processes like blood sugar regulation and inflammation dampening. Throughout the day, cortisol is consistently released; it peaks in the early morning and falls during the night. The body generates more cortisol in stressful situations to reduce inflammation and boost blood glucose levels; however, prolonged high cortisol levels may result in negative effects on the body and mind, such as weakened immunity.

Dopamine: A neurotransmitter and hormone that the brain releases when engaging in pleasurable activities including eating, exercising, and having sex. Dopamine, also referred to as the "feel-good" hormone, encourages humans and other animals to pursue enjoyable activities and adds to sensations of pleasure. It is also important for emotion, learning, and attention.

Estrogen: The sex hormone estrogen is found in both sexes and has a major role in the development and operation of female sexuality. Estrogen is primarily produced in the ovaries and plays a role in controlling both sexes' libido and vaginal function during menstruation. It is also essential for maintaining brain health because it affects mood disorders, memory, and emotional regulation, especially as age rises and the menopause begins in women.

Ghrelin: Ghrelin is an appetite-controlling hormone that is mostly produced by the gastrointestinal system, particularly the stomach. Hunger increases with the release of

ghrelin. Ghrelin production decreases when the body sends a signal that it is full, and this, combined with a rise in the hormone leptin, prompts the individual to quit eating. Blood sugar levels, the timing of the last meal, and the circadian rhythm of the body all influence ghrelin levels. Stress and sleep deprivation, on the other hand, can interfere with ghrelin levels and cause dysregulated hunger.

Growth: A hormone that promotes cell division, repair, and growth. It is sometimes referred to as human growth hormone, or HGH, and the pituitary gland produces it. Although production happens continuously throughout life, it increases dramatically throughout puberty in order to enhance bone growth and strengthening, increase muscle mass, and improve height. In addition, HGH is necessary for the synthesis of collagen, which improves the health of the skin and hair, as well as for immune system regulation and the renewal of tissues and organs.

Insulin: A hormone that controls blood sugar and metabolism that is produced in the pancreas. When the body converts carbs to glucose, insulin is released, allowing glucose to enter cells and being transported to the liver in excess. Diabetes can occur in people who produce very little insulin or who grow resistant to its effects, frequently as a result of obesity, metabolic syndrome, or heredity.

Leptin: The hormone leptin, which is released by adipose tissue, or fat, cooperates with ghrelin to control appetite. Ghrelin increases hunger, while leptin is released after food is eaten to indicate fullness and prevent further consumption. Over time, the body becomes less sensitive to leptin's effects, which increases the risk of obesity. Additionally, leptin receptor deficiency, a condition that causes near-constant hunger, can also contribute to obesity (and psychological distress).

Melatonin: A hormone that controls the body's sleep-wake cycle, mostly secreted by the pineal gland in the brain. Naturally, melatonin levels rise and fall during the day, reaching their highest point in the evening to encourage feelings of drowsiness prior to bedtime and falling to their lowest point in the morning. The 24-hour cycle of day and night has a significant impact on the melatonin cycle, but other factors that may also have an impact include diet, exercise, genetics, and travel.

Norepinephrine: The hormone and neurotransmitter norepinephrine is secreted by the adrenal glands and the brain. Norepinephrine is essential for the fight-or-flight response, among other things. Increased norepinephrine speeds up respiration, heart rate, and blood pressure in the body while aiding in the regulation of attention, alertness, vigilance, and anxiety in the brain. Similar to adrenaline, norepinephrine is produced more when confronted with stressful or exciting circumstances.

Oxytocin: The hypothalamus produces the hormone and neurotransmitter oxytocin, which is then secreted by the pituitary gland. Often referred to as the "love hormone," oxytocin is released during group activities, physical contact, sexual stimulation, childbirth, and lactation. It is essential for romantic relationships, socializing, and parent-child bonding. However, oxytocin can also set off hostility toward those who belong to the "out-group."

Progesterone: A sex hormone largely implicated in the female reproductive cycle. Though it's also important for male sexual function (since it aids the creation of testosterone), progesterone's main tasks are to control the menstrual cycle, the development of female sex characteristics, such as breasts, and pregnancy. Progesterone is created in the ovaries of women and functions in tandem with estrogen.

Testosterone: The primary sex hormone responsible for male libido and sexual growth; it also has a little impact on female sexual function. Many people believe that testosterone causes violence, and while it does contribute to aggression to some extent, testosterone also has an impact on language development, cognitive function, physical health, and growth. Both the ovaries and the testicles of males and females produce testosterone.

Vasopressin: A hormone that the pituitary gland secretes and the hypothalamus produces, it regulates blood pressure and circulatory function among other physiological processes. Vasopressin may help with social bonding with oxytocin and may also be involved in illnesses like autism, according to recent study (mostly in animals).

Hormones and everyday life

Hormones play a silent role in determining behavior and personality, and they have a chemical fingerprint on a wide range of daily behaviors and events, from appetite to attraction. Although the human endocrine system is so complicated that the same chemical may behave very differently in various people, decades of research in biology and psychology has discovered that certain hormones are linked to particular features, emotions, and behavior. All throughout their lives, hormones have varying effects on people, and during physical or emotional changes, hormone levels can raise sharply. Teenagers starting middle school and rookie athletes on sports teams, for example, are hit with a hormonal rush.

Hormones are essential for the growth of children, fertility in women, as well as regulating sleep and managing stress. Hormones affect behavior in myriad, complex ways that are often dependent on the situation. For instance, testosterone has been connected to competition when necessary and violent or antisocial behavior. On the other hand, testosterone has been linked to protectiveness, generosity, and prosocial behavior in non-competitive contexts.

Aggression, dominance, risk aversion, warmth, generosity, and other traits that impact behavior, thought, and emotion are all influenced by hormones. Although the exact relationship between hormones and personality models like the Big 5 is unclear, some research has indicated that higher amounts of dopamine and testosterone are associated with higher levels of extraversion.

Hormonal imbalance

An excess or deficiency of a specific hormone in the blood is referred to as an imbalance in hormones. Negative physical or psychological symptoms, including mood swings or depression, weight gain or loss, irregular menstruation cycles, persistent exhaustion, muscle soreness, and a host of other symptoms, could be brought on by it.

An imbalance in hormone secretion can result in several issues that significantly impact one's quality of life. Hormone imbalance is increasingly recognized as a significant health issue, both in India and globally, and is being referred to as a silent killer. The rapid development of society, along with the privatization, modernization, and globalization, has increased the susceptibility of individuals to feelings of irritation, tension, restlessness, mood swings, anger, sadness, intolerance, and abruptness in conduct. This vulnerability is further exacerbated by the intensive advances in agriculture, overpopulation, and unemployment. Hormone imbalance is a result of all these symptoms. The intensity of these impacts amplifies with age and becomes more prominent and challenging to address. Furthermore, extensive research has been carried out on both rats and humans, demonstrating that environmental pollution has severe consequences on individuals' health at all stages of life. This includes hormone disturbances and the development of several illnesses. Women are more susceptible to such imbalances in comparison to men.

Hormone secretion variations become more noticeable during menstruation, pregnancy, and menopause. Occasionally, the use of medication for a particular illness might disrupt and impede the synthesis and release of hormones. The aim of this study is to examine the symptoms and indications related to hormonal imbalance in women. There are numerous risk factors and symptoms associated with hormone imbalance in women. High levels of unbound estrogen (Hyperestrogenism) in females have been associated with the occurrence of early onset of menstruation, eating disorders, premenstrual syndrome, endometriosis, uterine fibroids, monthly irregularities including severe cramps, discomfort, and excessive bleeding, infertility, and breast cancer. Hyperestrogenism can be caused by dietary practices that involve excessive food consumption leading to obesity, as well as the enhanced conversion of testosterone to estrogen facilitated by the enzyme aromatase. The cause of this condition, known as hyperinsulinism, is an abnormal regulation of insulin secretion, leading to low blood sugar levels ranging from mild to severe. It stimulates the production of testosterone in the ovaries and decreases the amounts of sex hormone-binding globulins, leading to an increase in the amount of estrogen that is not bound to proteins in the bloodstream. Thus, the food significantly influences the production, breakdown, and functioning of estrogen receptors. Alcohol use hinders the liver's ability to detoxify estrogen, leading to an increase in estradiol levels in the bloodstream. Elevated concentrations of estradiol have been linked to the development of breast cancer.

The primary causes of exogenous estrogen (xenoestrogen) exposure are environmental poisons or chemicals. These substances can include phytoestrogens (estrogen derived from plants), mycoestrogen (estrogen derived from fungi), and mycotoxin. Several commercial synthetic chemicals that have xenoestrogenic properties include Phthalates, PCB

(polychlorinated biphenyl), and BPA (bisphenol A). For both individuals and the general public, the main health concern is the existence of an estrogenic chemical in dairy products and other food. Xenoestrogenic compounds enter our food supply via the use of pesticides and herbicides. Human sensitivity to environmental estrogen is increased by hormones used to boost milk production and cattle. Antibiotics found in the food supply may increase the risk of breast cancer by affecting the gut bacteria that are involved in the process of circulating estrogen in the body. Multiple parts of life are affected by hormone imbalance resulting from numerous events.

Imbalance of hormones, stress, and sleep

Both sleep and rest are essential components of a healthy, prosperous, and cheerful existence. Sleep primarily focuses on the restoration and rejuvenation processes of the body. Hence, insufficient sleep can disrupt a multitude of metabolic processes. After the disruption is established, it gradually gets more noticeable as time passes and as the individual ages. It might be challenging to determine whether hormone imbalances or sleep deprivation are the result of one another. As women typically sleep more than males do throughout most life phases, they are far more likely to report having sleep issues. Women have insomnia at a rate that is twice as high as males. The hormone estrogen has a direct correlation with sleep. Physical stressors such as excessive exercise, low-fat or low-carbohydrate diets, insufficient food intake or fasting, and significant weight loss can cause fluctuations or reductions in estrogen levels. These changes in estrogen can result in symptoms such as anxiety, restlessness, and sleep disturbances. Disrupted sleep has an impact on fertility by modifying the pattern of ovulation. Leptin, a hormone produced by adipocytes, has been found to have connections with sleep and fertility. It inhibits the desire to eat.

Sufficient levels of leptin are produced during regular sleep. Reducing the duration of sleep leads to a decrease in the production of leptin and an increase in the levels of ghrelin. Ghrelin is a highly effective appetite stimulant that is synthesized by specific cells in the stomach and pancreas. Leptin affects the central nervous system by reducing food intake and increasing energy expenditure. Leptin insufficiency results in an enhanced desire to eat and contributes to the development of obesity. There have been reports indicating that increased levels of leptin reduce hunger and decrease the basal metabolic rate, which is linked to obesity. Leptin may have a detrimental effect on fertility, as supported by research findings. Increased levels of leptin in the bloodstream have been found to be a significant factor in causing infertility in women. Leptin indirectly controls ovarian folliculogenesis by controlling the levels of LH (Luteinizing Hormone) and FSH (Follicle Stimulating Hormone). A moderate negative correlation has been seen between leptin levels and the timing of LH surge and ovulation. Disturbed sleep can impact leptin levels, which in turn can influence ovulation. This can lead to irregular menstrual cycles and a decline in fertility, making it more difficult to conceive. Female individuals employed in night shift positions may experience irregular menstrual cycles and struggle to maintain consistent sleep patterns. The production of the hormone melatonin in shift workers is influenced by irregular periods of

light and darkness. Insomnia can lead to feelings of irritation and heightened stress levels. Antidepressants are prescribed to alleviate stress. Feeling stress leads to a decrease in progesterone levels. Progesterone levels decline throughout the peri-menopause phase, particularly in women experiencing stress. Both aging and stress have a negative impact on the production of progesterone by the ovaries.

Management and treatment of hormone imbalance

Individuals who think they may have an imbalance in their hormones should see a doctor to check their levels and rule out other potential reasons for their unfavorable symptoms. Treatment options for diagnosed hormonal imbalances include hormonal supplementation or hormone-blocking drugs (e.g., anti-androgens). A healthy diet or weight losses are examples of lifestyle modifications that may aid the body in better hormone regulation.

Sex hormones men and women

Naturally, the first hormones that come to mind when laypeople think of hormones are those related to sex, including estrogen and testosterone. In addition to being important for sexual function, libido, and reproduction—areas that many people find fascinating—the sex hormones also play a role in romantic bonds and long-term relationships. The sex hormones are more complicated than is generally recognized, despite their fame. Furthermore, although they undoubtedly have an impact on sexual activity, they do not determine a person's level of romantic and sexual happiness.

Hormones impact on women's interest in men

Past research has shown that heterosexual women are more drawn to men with "masculine" faces—strong jaws, thick eyebrows, etc.—during ovulation, when hormone levels like estrogen rise. Nonetheless, more recent and well planned studies reveal no connection between women's mate choice and ovulation, indicating that the importance of hormones in determining a woman's sexual desire may be exaggerated.

More desire of sex due to hormones

According to research, heterosexual women definitely seem to be more interested in having sex during ovulation, whether it's with a man they are dating or not. It makes logical sense from an evolutionary standpoint that they would be more likely to conceive if they desired sex during the fertile phase of ovulation.

Female reproductive hormones

Estrogen- Estrogen is a group of hormones primarily responsible for the development and regulation of the female reproductive system and secondary sexual characteristics. It plays a crucial role in various bodily functions, including the menstrual cycle, pregnancy, and bone health. While estrogen is mainly produced in the ovaries, it is also synthesized in smaller amounts by the adrenal glands and, in men, the testes.

Estrone- This type of estrogen is present in the body after menopause. It is a weaker form of estrogen and one that the body can convert to other forms of estrogen, as necessary. Estrogen in females during their reproductive years. Too much estradiol may result in acne, loss of sex drive, osteoporosis, and depression. Very high levels can increase the risk of uterine and breast cancer. However, low levels can result in weight gain and cardiovascular disease.

Estradiol- Both males and females produce estradiol, and it is the most common type of estrogen in females during their reproductive years. Too much estradiol may result in acne, loss of sex drive, osteoporosis, and depression. Very high levels can increase the risk of uterine and breast cancer. However, low levels can result in weight gain and cardiovascular disease.

Estriol- Levels of estriol rise during pregnancy, as it helps the uterus grow and prepares the body for delivery. Estriol levels peak just before birth.

Estrogen hormone is in charge of numerous bodily processes. It aids in the development and maintenance of the reproductive system and features such as the breasts and pubic hair in females allocated at birth.

Functions of estrogen

As you hit puberty, your estrogen levels increases. The lining of your uterus then becomes ready for fertilization each month when your estrogen levels rise. Menstruation starts when those levels fall.

Your estrogen levels starts to decline as you get older, which causes menopause, which ends the reproductive years.

According to Dr. Kollikonda, "ovarian function declines and the number of egg sacs decrease in the ovaries as we age." "That lowers the estrogen levels. It's a natural part of aging.

The benefits of estrogen

Estrogen is now known to benefit nearly every organ system, although it is most commonly associated with its effects on the reproductive system.

Protects the heart- Estrogen benefits the heart by maintaining the health of the cardiovascular tissue. Maintaining normal blood pressure is another benefit of it. Furthermore, elevated estrogen levels decrease LDL cholesterol (the bad kind), raise HDL cholesterol (the good kind), and helps in maintaining low blood triglycerides (a form of fat). Research on the relationship between estrogen and heart health is on-going. Research has demonstrated, for instance, that those who get a bilateral oophorectomy—the removal of both ovaries—prior to menopause are more likely to develop heart disease.

Protects the brain- Estrogen helps to maintain healthy blood flow, which protects the brain. It also protects against illness and inflammation. It even helps to support fine motor skills and memory. Low estrogen may be the cause of brain fog, which is the inability to concentrate or lose one's train of thought. However, studies indicate that brain fog reduces after menopause; however it's not totally apparent if estrogen levels play a role in this. According to one study, an individual's brain health improves with age the longer they have been exposed to estrogen.

Increases bone density and muscular mass- The hormone is essential for both increasing muscle mass and bone formation. It helps in preventing osteoporosis, a disorder that causes bones to weaken and fracture due to tissue loss.

According to Dr. Kollikonda, "Bone mass decreases in menopause due to the decrease of estrogen and makes them weak and fragile with an increased tendency to break easily.

Elevates your mood- The fluctuations in estrogen levels may be the reason for the mood swings you experience just before your menstrual period. The hormone is well known for promoting regular serotonin levels—the "feel-good hormones"—and for enhancing endorphin efficacy. It may even help to protect and promote the formation of nerves.

Enhances sexual relations- When it comes to your sexual life, estrogen is essential. In order to make sex enjoyable, the hormone maintains your vagina lubricated. Your vaginal walls become thinner and secrete less lubrication when your estrogen levels drop. The flexibility of your vagina will decrease throughout menopause, according to Dr. Kollikonda. "Having sex can hurt so much." Fortunately, using lotions or creams for the vagina can be helpful.

Physical and mental effects

Ovulation and premenstrual syndrome can cause breast tenderness, bloating, and skin outbreaks. Menstruation is accompanied by abdominal pain and tiredness. Pregnancy entails a myriad of physiological transformations. Menopause can result in symptoms such as hot flashes, nocturnal perspiration, and vaginal dryness.

Additionally, there are psychological effects. Women frequently express dissatisfaction with mood fluctuations, anxiety, irritability, insomnia, and other alterations in behavior during the course of these hormonal changes.

Hormones exert a profound influence on both mood and anxiety levels. Various hormones are responsible for this. “Estrogen is actually an antidepressant chemical in your brain. If the thyroid is too low or too high, you can have depression or anxiety. Cortisol, the stress hormone, affects mood. So it's across the board kind of major effects on the brain” (Dr. Hermann).

Reproductive Hormones and Female Mental Wellbeing

Women suffer from mood and anxiety disorders up to two times more than men, depending on the specific disorder in question (Kessler, R.C.; Berglund, P.; Demler, O.; Jin, R.; Merikangas, K.R.; Walters 2005, Rainville, J.R.; Hodes, G.E,2019). Several factors contribute to this gap, including men's elevated self-esteem in comparison to women's, the impact of sex hormones, a greater inclination for rumination and body shaming among women, and societal influences such as discrimination, stress, and gender inequity (Riecher-Rossler, 2017). It is believed that the condition is caused by fluctuating hormone levels. During a typical menstrual cycle, there is an initial increase in the levels of follicle-stimulating hormone (FSH) and luteinizing hormone (LH), which stimulates the development of the ovarian follicle. Furthermore, there is a progressive rise in the synthesis of estradiol (E2), culminating in its peak soon before ovulation. The increase in estradiol causes a significant rise in LH and FSH levels, which then prompts the corpus luteum to produce progesterone. The progesterone concentration reaches its maximum level around 6-8 days after ovulation (Van Wingen, G.A.; Ossewaarde, L.; Backstrom, T.; Hermans, E.J.; Fernandez, G, 2011). The fluctuations in reproductive hormones in women have been linked to alterations in mood and the development of mental health disorders. Therefore, it is crucial to assess whether this information can be utilized to enhance comprehension, control, and anticipation of mental health disorders, as well as to enhance patients' outcomes during treatment monitoring. Our objective is to examine the potential correlation between hormone measures and mental health outcomes, and determine the nature of this relationship. Furthermore, as far as we are aware, there is no existing research that specifically investigates the use of hormone monitoring for predictive modeling of exacerbations. By employing cutting-edge technology and advanced predictive modeling techniques, such as wearable and data collection apps, it is now feasible to forecast alterations in hormone levels as a means to anticipate mood shifts and mental health disorders (Shah, R.V.; Grennan, G.; Zafar-Khan, M.; Alim, F.; Dey, S.; Ramanathan, D.; Mishra, J, 2021).

Female hormonal imbalance and effects on health

Because hormones have so many different roles in the mind and body, when they become imbalanced, they can trigger unpleasant physical or psychological symptoms, or even medical conditions. Endocrine disorders and hormonal imbalances are difficult to diagnose and may need testing; however, some hormonal imbalances can be treated with lifestyle modifications or by treating the symptoms directly; in other cases, however, additional hormones may be given to correct the imbalances. In the end, hormones—even the same

hormone—can have a variety of effects, including increasing and inhibiting the immune system as well as delaying or stopping growth. Hormones affect almost every aspect of the human body; therefore, when they are disrupted, the consequences might manifest in several ways.

Depression

Depression is a severe medical condition that causes persistent feelings of sadness and loss of interest (Chand, 2022). The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) divides it into five different categories of disorders.

In childhood, there is no significant difference in the occurrence of depression between boys and girls. However, at approximately 15 years old, after the start of menstruation, there is a sudden rise in estrogen levels, which leads to a higher occurrence of depression in females (Deecher, 2008; Pfeifer, 2021). Moreover, the difference in depression rates between men and women is only apparent during the reproductive phase, and it becomes equal again after menopause (Guo, Rubakis, 2018).

Hormonal changes are one of the elements that contribute to the behavioral and emotional changes that occur during puberty. (Angold, 1999) have identified estradiol and testosterone levels as reliable indicators of depression. During puberty, there is a specific stage where the rise in testosterone and estrogen reaches a critical level, rendering girls more vulnerable to the onset of depression. The recognition of additional elements, such as life experiences and cognitive style, is essential in determining individual instances of depression (Angold, 1999).

A Harvard study investigated the influence of hormones on emotions and menstrual cycles during the reproductive phase. The study included a sample of 976 women aged 36 to 45. The results indicate that women who had lower levels of estradiol and greater levels of FSH and LH, and also had a documented history of depression episodes (Gordon, 2016).

Pregnancy is a period in women's lives characterized by substantial alterations in hormone regulation. Pregnant individuals have increased rates of depression compared to women who are not pregnant. The occurrence of depressed and anxious symptoms is associated with the gestational age, with a prevalence of 7.5% in the first trimester, which then rises to 12.8% in the second trimester and 12.0% in the third trimester (Bennett, 2004). Women who have experienced depressive symptoms during pregnancy are more likely to develop postpartum depression (PPD) after giving birth. The fluctuations in endogenous estrogen and progesterone levels during childbirth play a role in the development of postpartum depression in vulnerable women (Bloch, 2007).

The evidence also confirms the presence of a correlation between reproductive hormones prior to and throughout the menopausal transition and depressive symptoms. Georgakis et al. conducted a systematic review with a meta-analysis and found that women who undergo menopause at a later age and have a longer time of reproductive function are

less likely to suffer depression in their later years. The Penn Ovarian Aging Study, undertaken by Freeman, 2004 involved the examination of blood hormone levels in women with a prior history of depression. This examination was carried out through six evaluations conducted over a span of four years. 12 samples were obtained at various intervals ranging from 2 to 6 days during the follicular phase. Depression scores were shown to be connected with the variability (standard deviation) in the results. This investigation provided evidence that years characterized by higher fluctuations in E2 levels were linked to a higher likelihood of acquiring depressive symptoms.

Recent research, employing more frequent hormone measurements, has provided more evidence that evaluating the variability of E2 levels using four blood samples taken over a period of 14 months reveals a favorable correlation between the frequency of changes and depressed symptoms (Gordon, 2019). Consistent findings were obtained when assessing the levels of E2 in saliva and E3G in urine throughout duration of four weeks.

The variations were found to have a positive correlation with symptoms of depression and were able to predict a higher amount of negative emotions on a weekly basis (Gordon, 2010). This implies that variations in E2 hormone levels enhance susceptibility to psychosocial stressors while going through the perimenopause phase, and might possibly be employed to anticipate periods of heightened vulnerability. A study was conducted on 436 women between the ages of 35 and 47 to investigate depression levels during the follicular phase.

During the study, blood samples were taken and depression scale scores were assessed. Individuals who had a sudden rise in follicle-stimulating hormone (FSH) were shown to have a lower likelihood of showing depression symptoms ($p < 0.001$). The symptoms also diminished as individuals aged after going through the menopausal transition ($p = 0.02$). During bivariate analysis, it was observed that participant profiles with higher E2 levels, which are related to the initial stage of transitioning to menopause, were connected to depressed symptoms ($p = 0.053$). However, this association did not reach statistical significance. These findings indicate that the hormonal changes that take place during the transition to menopause play a role in causing dysphoric mood. This is evidenced by the rise in depressed symptoms during this timeframe and the subsequent decline in these symptoms in postmenopausal women.

A study was undertaken on 265 older postmenopausal women to investigate the correlation between the actual physiological levels of estrogen and mood/cognitive performance in postmenopause. The results indicated that elevated physiological levels of estradiol and Estrone are associated with reduced levels of depression and anxiety (Almeida, 2005). In contrast, a separate study conducted with a group of 138 women who had gone through menopause investigated the connection between naturally occurring hormones and symptoms of depression. The findings suggest that there was no statistically significant association between depressed symptoms and the absolute concentrations of sex-hormone binding globulin, testosterone, free androgen index, estradiol, free estradiol, or FSH. These

findings suggest that monitoring fluctuations in hormone levels may be more efficient than measuring exact values (Ryan, 2009).

PMS and PMDD

Pre-menstrual syndrome (PMS) is a condition characterized by emotional symptoms and clinically significant psychological and physical symptoms that occur during the luteal phase of the menstrual cycle (Gudipalli, 2022). A small study including 41 women between the ages of 18 and 45 used blood samples to investigate the connections between progesterone and estradiol levels during menstruation and symptoms of premenstrual syndrome (PMS) (Roomruangwong, 2019). Lower levels of progesterone and, to a lesser level, estrogen during the luteal phase can be used to predict the intensity of pre-menstrual symptoms, as assessed by the Daily Record of Severity of Problems (DRSP) scale. While hormone levels in many studies do not show therapeutic utility in diagnosing or treating conditions, they may have the potential to predict symptoms (Ford, 2012). A comparable study has shown that the daily levels of progesterone in saliva significantly declined three days prior to menstruation in women experiencing PMS symptoms. In contrast, healthy individuals had a much more gradual fall over a span of eight days (Lovick, 2017).

Premenstrual dysphoric disorder (PMDD) is a psychiatric condition marked by the emergence of adverse mood and somatic symptoms in the seven days preceding menstruation. It exhibits a more intense manifestation compared to PMS. During the luteal phases of their menstrual cycle, women with premenstrual dysphoric disorder (PMDD) encounter a range of symptoms, including irritability, in contrast to those without the disorder. Research has shown that women with premenstrual dysphoric disorder (PMDD) had stronger reactions to unpleasant sounds during the luteal phase of their menstrual cycle. This suggests that they are more responsive to negative stimuli at certain stages of their cycle (Epperson, 2007). Like PMS, models have suggested that the fast cessation of progesterone has a role in the symptoms of PMDD. This encompasses the notable function of allopregnanolone, one of the primary metabolites (Hantsoo, 2015). Research has indicated that there is a negative relationship between the fluctuation of progesterone levels before menstruation and the tendency of women with PMDD to engage in fun-seeking activities. Consequently, women are less inclined to participate in social activities before to menstruation (KO, C.-H.; 2014).

Additionally, researchers have examined the impact of estrogen on the intensity of PMDD symptoms. Research has shown that decreased levels of estrogen in the early luteal phase are linked to negative psychological effects (Yen, 2019). Individuals with premenstrual dysphoric disorder (PMDD) typically exhibit heightened sensitivity to hormonal fluctuations. This is attributed to a reduction in the expression of serotonin transporters prior to the menstrual cycle, as evidenced by positron emission tomography imaging (Sacher, 2023).

Anxiety disorders

DSM-5 identifies several anxiety disorders, such as panic disorder (PD) and generalized anxiety disorder (GAD). Women with PD have been reported to experience a higher occurrence and greater intensity of panic attacks during the luteal phase, which takes place 5-8 days prior to menstruation (Nillni, 2021). Women diagnosed with Generalized Anxiety Disorder (GAD) also report a higher occurrence of anxiety symptoms during the premenstrual phase in comparison to the follicular phase, as described in a study (McLeod, 1993).

Existing literature has demonstrated a clear connection indicating that women with anxiety disorders are more susceptible to the effects of gonadal hormones (Veen, 2009). A recent review (Kundakovic, 2022) proposes that the cessation of estrogen raises the probability of acquiring anxiety-related disorders. This occurrence is commonly referred to as premenstrual exacerbation (PME) and can be found in individuals experiencing both sadness and anxiety. During this period, women may undergo a deterioration of mental health symptoms.

Women's susceptibility to reproductive hormones has been suggested to occur through two mechanisms: one that supports the persistence of anxiety symptoms after they emerge, and another that modifies certain sensitivity elements associated with the onset of anxiety. Reduced levels of estradiol and progesterone during menstruation result in a decline in serotonin and allopregnanolone. This leads to a decrease in GABAergic inhibition and disrupts the regulation of the HPA axis, resulting in an increased susceptibility to anxiety disorders (Gonda, 2008).

In a study investigating the development of non-associative emotional memory, female participants were subjected to unpleasant video clips or images, and their reactions were documented. Research revealed that women experienced a notably higher number of spontaneous intrusive recalls (SIRs) during the luteal phase as compared to the follicular phase. The levels of progesterone in saliva were found to have a positive correlation with the frequency of SIR ($r^2 = 0.23$, $r = 0.48$, $p = 0.001$).

Nevertheless, there was no significant correlation observed between estrogen and the variable in question ($p > 0.7$). These findings indicate that progesterone may have a role in influencing anxiety symptoms (Ferree, 2011).

Research on fear extinction indicates that variations in estrogen, particularly reductions in estrogen levels, can elevate the risk of developing anxiety disorders. These variations hinder the natural mechanisms that are involved in emotional responses to traumatic situations, therefore raising the likelihood of developing anxiety disorders. Wegerer, 2014 conducted a study on 37 healthy women and found a substantial linear correlation ($p = 0.026$) between estradiol levels and conditioned responses during extinction. It is also important to evaluate the impact of menstrual cycle phases on treatment alternatives, such as cognitive behavioral therapy (CBT) or exposure therapy, because lower reactions during specific phases could lead to inadequate treatment results. There is currently limited

study on the differences between male and female individuals in Cognitive Behavioral Therapy (CBT) interventions. Specifically, there have been no studies conducted on the possible effects of hormones in these interventions.

Post-Traumatic Stress Disorder (PTSD)

Post-traumatic stress disorder (PTSD) is an anxiety disorder that may develop after exposure to painful or traumatic situations. It is frequently distinguished by intrusive thoughts, memories, nightmares, anxiety, and negative behavioral patterns. This mental health disorder has a prevalence that is twice as high in women compared to men (Glover, 2005). Research also indicates that women with low levels of estrogen and fear-potentiated startle responses have a higher likelihood of experiencing post-traumatic stress disorder (PTSD), compared to women with normal or high estrogen levels. This implies that estrogen levels could be utilized to assess women's susceptibility to fear conditioning and potentially identify groups that are at danger (Glover, 2005).

One significant drawback of these investigations is the frequent exclusion of women from trials, which is done to minimize the potential for unpredictability. Due to this factor, the available evidence pertaining to women is somewhat restricted. Although there are significant connections in literature, a review highlights the overall inconsistency in the clinical application of PTSD studies, which might be related to the diverse methodologies employed in these studies (Garcia, 2018).

Obsessive–Compulsive Disorder (OCD)

Obsessive–compulsive disorder (OCD) is a mental disorder characterized by unwanted and compulsive thoughts, as well as repetitive and compulsive behaviors. Karpinski et al. propose in their critical review that hormone levels in this illness are linked to the unpleasant appearance of symptoms, as previously mentioned. Women have an increase in symptom severity before menstruation, as well as during the first and second trimesters of pregnancy when estrogen levels are comparatively lower.

In general, both estrogen and progesterone are shown to have controlling effects on serotonin signaling, which is implicated in the adjustment of symptoms related to obsessive-compulsive disorder (OCD) (Karpinski, 2017). According to Stein et al., alterations in the serotonergic system during pregnancy are linked to the development of OCD. They found that there is a higher occurrence of OCD during pregnancy and an increase in depressive symptoms after giving birth (Stein, 1993). Furthermore, Weiss et al. have determined that there is a potential connection between gonadal hormones and the initiation and intensification of OCD (Weiss, 1995). Women who have high levels of estrogen and progesterone, such as those who take oral contraceptives, may experience similar symptoms to those seen during pregnancy. The similarity in symptoms may be due to a common mechanism that causes the symptoms to appear.

Schizophrenia

Schizophrenia is a mental disorder characterized by abnormal perceptions of reality, disorganized thinking and speech, and significant social and occupational dysfunction.

Schizophrenia is a severe psychiatric disorder that remains little comprehended. Individuals with schizophrenia display a variety of symptoms, treatment responses, and long-term results. The main approach to therapy involves the use of antipsychotic medications and psychological support. There is compelling evidence of resistance to antipsychotic medicines, and the development of alternative methods has grown increasingly challenging. This suggests the presence of a possibility in biological categorization that impacts the fundamental neurobiology and could explain variations in the efficacy of treatments (Thomas, 2021).

There is an increasing amount of data indicating that estradiol and progesterone have an impact on cellular processes and can affect both positive and negative psychological symptoms (Brand, B.A.; de Boer, J.N.; Sommer, I.E.C ;2021). The presence of a deficiency in both males and females has been linked to the initiation of psychotic symptoms. Due to their capacity to modulate drugs, premenopausal women necessitate reduced dosages of antipsychotics (Markham, J.A., 2012). Like bipolar illness, symptoms exacerbate after estrogen withdrawal, such as in the postpartum period. Furthermore, episodes of elevated estrogen levels at various stages of a woman's life are linked to a lower occurrence of relapses (Brzezinski-Sinai, N.A.; Brzezinski, A; 2020). The association between progesterone has been reported in the literature as being ambiguous. Several investigations have indicated the neuroprotective functions of hormones, while others have demonstrated a harmful impact (Sun, J.; Walker, A.J.; Dean, B.; van den Buuse, M.; Gogos; 2016).

Hormone levels have demonstrated promise in forecasting the results of hormonal interventions in individuals with schizophrenia. Endogenous estradiol levels have been assessed as a biomarker to

Evaluate the effectiveness of treatment. Based on the research findings, it seems that there are two clearly defined subgroups within the group being researched, which received a treatment of 200 µg of estradiol. One subset referred to as treatment responders, experienced a decline in Positive and Negative Syndrome Scale (PANSS) levels over time. In contrast, the other subset, known as treatment non-responders, maintained consistent PANSS values during the same timeframe. These measures indicate the possibility of precisely predicting groups of individuals who will respond to treatment, suggesting that there is variation in treatment response and sensitivity to hormonal changes. Furthermore, it has been demonstrated that the levels of FSH in the blood serum can accurately forecast the group of individuals who would not respond to treatment.

Approximately 80% of individuals in the treatment group exhibited improvement, while the baseline PANSS scores of the other participants who did not react to therapy were notably higher. Therefore, higher levels of E2 are linked to a reduction in overall PANSS

symptom scores, which supports the theory that estrogen treatment directly enhances the well-being of individuals with schizophrenia (Thomas, 2021).

A further study examined the relationship between FSH/LH ratios, evaluated using chemiluminescent immunoassays, and found no positive correlation with changes in mood ratings and general well-being in women diagnosed with schizophrenia (Gonzalez-Rodriguez;2017).

Recent studies have indicated that raloxifene, a type of selective estrogen receptor modulator, may help decrease the occurrence of manic episodes in individuals with schizophrenia when used in addition to regular dosages of antipsychotic medications (Khan; 2018). A placebo-controlled clinical research including 110 participants indicated that the addition of raloxifene resulted in a reduction of psychotic symptoms and improvement in cognition, social functioning, and quality of life (Brand B.A; 2020). Currently, there is a lack of comprehensive literature regarding the usage of this drug in various mental health diseases. However, it is highly recommended to conduct research specifically focused on bipolar disorder.

Schizophrenia, a complex and debilitating condition, is associated with distinct sex differences. Decades of research have established a link between sex hormones, notably estrogen, and schizophrenia. Estrogen's significant influence on the central nervous system, particularly on the neurotransmitter systems involved in the development of schizophrenia, has been shown in both animal and human research. The presence of sex disparities in the age at which schizophrenia begins, as well as the worsening, recurrence, or emergence of schizophrenia during periods of decreased estrogen levels (such as premenstrual or menopausal phases), has prompted the hypothesis that estrogen might have a safeguarding impact against schizophrenia. Clinical trials conducted thus far on the supplementary use of estradiol provide support for this idea. This narrative review provides a comprehensive and up-to-date summary of the studies on schizophrenia, focusing on sex differences, the influence of estrogen, the relationship between estrogen and hyperprolactinemia, and the potential use of estrogen as a treatment. Furthermore, the study offers insights into potential areas for future research and clinical advancements.

Bipolar disorder

Bipolar disorder is a mental health condition characterized by profound fluctuations in mood, energy, activity and focus. There are three distinct types that have been identified: Type I, Type II, and Cyclothymic disorder. Beginning of the illness frequently aligns with puberty, indicating a potential influence of reproductive hormones. Likewise, certain women may also encounter the emergence of symptoms prior to their menstrual cycle, similar to other specific mental health disorders. While pregnancy appears to provide a safeguarding effect, the period after childbirth is linked to a deterioration of symptoms and the emergence of postpartum psychosis (Wesseloo, R.; Kamperman, A.M.; Munk-Olsen, T.; Pop, V.J.M.; Kushner, S.A.; Bergink, V;2016).

Meinhard et al. conducted a review that identified two research examining the association between serum estrogen levels and bipolar disorder in women, as well as four studies investigating the efficacy of tamoxifen in creating antimanic effects. The findings from the estrogen trials indicate that women suffering from postpartum psychosis exhibited reduced levels of estrogen and shown notable alleviation of symptoms following administration of estrogen therapy. The investigations on tamoxifen indicate that the medicine was successful in generating antimanic effects (Meinhard, N.; Kessing, L.V.; Vinberg, M; 2014).

Estradiol has also been shown to have a role in the treatment of psychosis and manic episodes. A study was conducted on 10 women with postpartum psychosis to assess their serum estradiol levels. The measurements were taken at the beginning and during a 6-week treatment period, using solely sublingual estradiol. The symptoms in all individuals showed a significant decrease ($p < 0.001$) once the estrogen concentrations returned to the normal range (Ahokas, A.; Aito, M.; Rimon, R; 2000)

At now, there is a lack of research specifically investigating the use of hormone monitoring for predicting exacerbations. The majority of studies concentrate on therapeutic methods that try to replenish estrogen levels in order improve the effectiveness of antipsychotic drugs.

Menopause

Female experiences many stages of life as the years go by, from childhood to adulthood. As she ages, her body continues to change on all fronts, including morphological, physiological, and hormonal changes. Similar to puberty, menopause is merely another stage of life. It is the point at which ovaries cease to produce eggs.

In Latin, menopause is defined as "month" and pause as "to stop." Menopause has been referred to by a variety of names in different languages, such as "alssnn yas" in Arabic and "Haiz ka band hona" in Urdu.

It is simply a normal physiological occurrence of female aging from the transition of reproductive life to no longer being able to reproduce. It is not a sickness, ailment, pathology, or condition of being unwell. It has no impact on a woman's sexual orientation. Menopausal symptoms are brought on by changes in the female endocrine system's hormones, particularly estrogen, during this transition.

The menopausal phase is regarded as the climacterium, or middle adulthood, for women. It is a time in life marked by a decline in biological and physiological functioning and has the potential to cause psychosocial disruption in the form of interpersonal interactions. Although it usually manifests between the ages of 47 and 53, it can begin at any point between the 40s and the early 50s.

The Julian calendar, the Islamic calendar, and other ancient calendars are used by a sizable number of people who belong to specific regions and religions. When considering the onset of menopause, one must keep in mind the differences between days per year in various calendars. For example, Muslims use a lunar year of 354 days, while the solar year is 365. Despite this, the later, also known as the Gregorian calendar, is widely used. Men's andropause and menopause are similar conditions. The climacterium is not clearly defined in men; male hormones are rather steady in the 40s and 50s before starting to drop.

Menopause affects women differently, both in terms of when it starts and how it feels. Aside from a typical reaction, which could be a good thing like relief from discomfort or at least the stress of managing monthly menstruation, a lot of premenopausal women worry that this is the time they will experience mental instability, abrupt signs of aging, and a decline in their sexuality. Menopausal symptoms are influenced by a variety of factors, including lifestyle choices, health, past experiences with mood disorders, and whether menopause was brought on by surgery, chemotherapy, or natural causes. Women who underwent surgical menopause or early menopause have a higher risk of psychological morbidity [2]. A famous American psychologist who specializes in adult development and the psychology of aging, Bernice Neugarten, conducted a study in which she found that more than 50% of women found menopause to be an unpleasant experience, that some felt their lives had not changed significantly, that many women had no negative side effects, and that some felt sexually free after menopause without worrying about getting pregnant.

Psychological factors

Individual susceptibility to psychological harm

Extensive epidemiological research has demonstrated that neither greater psychiatric morbidity nor higher use of health services by women is linked to the 45–55 years that are typically associated with natural menopause. A woman's menopausal experience can be influenced by a number of personal variables. Such as follows:

Past experiences with mental health issues.

Negative thoughts about aging and the menopause: women who have more negative views about the menopause in general report experiencing more symptoms when they go through the menopausal transition.

Life events, character, and coping.

Self-esteem: women with a low self-esteem used to have more severe menopausal complaints.

Life stressors

They may include the following:

- Lack of social support
- Unemployment
- Surgical menopause
- Poor overall health status

Interpersonal relationships

The impact of social interpersonal interactions on an individual's life and overall well-being is noteworthy. They play a significant role in a woman's social support system and aid in her stress and problem-solving, which has a positive impact on her mental health. These could consist of the following:

- Relationship with a partner
- Relationship with children
- Relationship with friends/social support

Because of societal norms that are gradually changing and ideas about fertility, menopause can be a stressful time in life. The Empty Nest Syndrome has been linked to menopausal depression. A phenomenon linked to depression that some men and women experience just before their youngest kid leaves the house. On the other hand, a lot of women say that having children has improved their sense of wellbeing and given them the chance to pursue aspirations they had put off.

Social factors

Menopause symptoms have been reported to be significantly influenced by education and socioeconomic status. It is impossible to overlook the significance that psychological, lifestyle, body image, interpersonal connections, role, and societal factors play in predicting menopausal depression and anxiety levels.

Menopausal symptoms are greatly influenced by role, social factors, and culture. A small number of studies have found that Japanese women had much lower rates of depressive symptoms and hot flashes or sweats than American and Canadian women. These cultural variances could be a reflection of varying attitudes toward menopause and aging. It has been noted that women anticipate getting pregnant even after menopause in countries with low literacy rates. This could be because women's success was traditionally associated with having many children, especially boys.

The fluctuation in the reproductive cycle, which spans from the commencement of menses (also known as the "menarche") to the menopause.

There is variance in life expectancy between countries; for example, women's life expectancy in Sierra Leone can be as low as 50.8 years and as high as 86.8 years. As reproductive life can differ greatly between nations, we can take the average menarche age of 13 years and the average age of menopause to be 51 years. Then, we can calculate the reproductive period for women in developing

nations, where the average life expectancy is 50 years, and find that these women's reproductive life accounts for 74% of their total life, whereas women in developed nations, where the average life expectancy is 86 years, would have reproductive life accounting for only 44% of their life from birth.

Since the menstrual cycle simulates reproductive age or fertility, which is roughly half of a person's life, losing fertility or reproductive life can be stressful, especially in tribes where having a long reproductive age is valued due to the cultural belief that having a large family size is a sign of success.

Secondary effects on menopause, mood, and psychiatric morbidity

The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) and the WHO International Classification of Diseases (ICD-10) are two popular psychiatric nomenclature systems that are unclear concerning this condition; as a result, insurance for its management needs to be addressed.

ICD-10 coding for menopause and related disorders

Menopause does not provide a significant risk for psychiatric disorders, although it can be a period of psychological stress for women. During the premenopausal years, certain women may have psychiatric symptoms. Given that numerous women experience modest emotional symptoms throughout the premenopausal period, it is crucial to determine if these symptoms are severe and long-lasting enough to be classified as major depression, generalized anxiety disorder, or panic disorder. Females with disrupted sleep tend to exhibit higher levels of psychological distress. Midlife sleep disturbances might arise from psychological pressures or menopausal symptoms such as hot flashes and night sweats. Fluctuations in female reproductive hormones can have an impact on neurotransmitters in the brain, specifically the serotonin and gamma amino butyric acid systems. Estrogen regulates the reabsorption of serotonin in the brain, influences the levels of norepinephrine, reduces the levels of monoamine oxidase, impacts the turnover of dopamine, enhances brain activity, changes the levels of endorphins, and may potentially interact with gamma amino butyric acid. Progesterone has been discovered to elevate levels of monoamine oxidase. Progesterone, when administered in high amounts, exhibits an anesthetic effect and can reduce brain excitability by interacting with the gamma amino butyric acid system. The drop in estrogen levels during premenopausal and menopause can lead to hot flashes that disturb sleep.

This can lead to anxiety, fears, and mood swings.

The increased frequency of symptoms in the years leading up to the cessation of menstruation and the subsequent decrease in symptoms after menopause indicate that emotional symptoms are influenced by fluctuating hormone levels rather than low hormone levels.

The hormonal changes that occur during menopause are responsible for mood abnormalities, including depression. Nevertheless, the menopausal status continues to be a distinct factor that can predict depressive symptoms. Certain women may experience anxiety and depression; however, those with a previous record of inadequate response to stress are more prone to developing the menopausal syndrome.

The ICD-10 and DSM provide diagnostic criteria for depressed disorder

The relationship between anxiety and menopause

Women with higher levels of anxiety tend to experience more severe menopausal symptoms. Several symptoms of anxiety and menopause overlap, such as sweating, palpitations (elevated heart rate), restlessness, and sleep disruption, which can cause confusion for some individuals. However, no significant links have been discovered between hormonal changes that occur after menopause and the occurrence of anxiety disorders. Various psychological factors can lead to the development of anxiety in middle-aged women.

Symptoms of anxiety includes

- Apprehension
- Irritability
- Impatience
- Fearfulness
- Restlessness
- Difficulty concentrating
- Trouble falling asleep
- Increased frequency of urination
- Hyperventilation
- Sweating, especially in the palms
- Muscle tension

Lifestyle modifications- A healthy lifestyle can help to reduce symptoms of menopause

- Exercise

Being physically active helps with hot flashes, stress and mood. Exercise has beneficial effects on hot flashes, well-being, and Body Mass Index (BMI) and Coronary

Heart Diseases risks. Activities that stimulate the brain can help rejuvenate memory such as doing crossword puzzles, longhand mathematics, and reading books.

- Diet

A nutritious diet helps with fatigue and moodiness. A healthy diet, low in fat, high in fibre, with plenty of fruits, vegetables, and whole-grain foods. Intakes of foods which contain phytoestrogens, Phytoestrogens are estrogen-like substances found in some cereals, vegetables, legumes and herbs. They might work in the body like a weak form of estrogen. The first widely attributed health benefit of phytoestrogen consumption was relief from vasomotor perimenopausal symptoms, including hot flushes and night sweats. Moderation is a likely key and the incorporation of real foods, as opposed to supplements or processed foods to which soy protein is added, is probably essential for maximizing health benefits. Consumption of 30 mg/day of soy isoflavones reduces hot flashes by up to 50%. Ensure enough calcium and vitamin D intake on regular basis. Avoid smoking and alcohol, as it is known to make hot flushes worse.

Foods that should be avoided in menopause:

- Caffeine
- Spicy foods

Chapter-2

LITERATURE REVIEW

The present study aims to develop and standardize the equivalent ASEBA adult form and to examine the effect of hormonal imbalance on mental health among young women. In this chapter a review of studies done on the prevalence of emotional and behavioral problems on young women is conducted and is present under different sections.

EMOTIONAL AND BEHAVIORAL PROBLEMS

Sarah- Jayne Blakemore, Stephanie Burnett and Ronald E. Dahl (2010) examined on the role of puberty in the developing adolescent brain. Adolescence refers to the period of physical and psychological development between childhood and adulthood. The beginning of adolescence is loosely anchored to the onset of puberty, which brings dramatic alterations in hormone levels and a number of consequent physical changes. Puberty onset is also associated with profound changes in drives, motivations, psychology, and social life; these changes continue throughout adolescence. There are an increasing number of neuroimaging studies looking at the development of the brain, both structurally and functionally, during adolescence. Almost all of these studies have defined development by chronological age, which shows a strong—but not unitary—correlation with pubertal stage. Very few neuroimaging studies have associated brain development with pubertal stage, and yet there is tentative evidence to suggest that puberty might play an important role in some aspects of brain and cognitive development. In this, we describe and suggest that, in the future, developmental neuroimaging studies of adolescence should consider the role of puberty.

Naeimeh Tayebi, Shahrzad Yektatalab & Marzieh Akbarzadeh (2020) investigated on Emotional and behavioral problems of 9–18-year-old girls and its relationship to menarche age. Adolescence is associated with rapid changes in behavioral patterns which affect the functioning of the person in adulthood. The purpose of this research was to study the emotional and behavioral problems of 9–18-year-old girls and their relationship to menarche age. This cross-sectional study was done on girls aged 9–18 years old in Shiraz city. A cluster sampling method was used to select about 2000 students in 2015. Then, a questionnaire including demographic characteristics and strengths and difficulties (SDQ) was completed for each of them. The SPSS software was used to analyze the collected data via descriptive statistics and chi-square tests. The results shown were among the 2000 tested samples, the highest mean and standard deviation (4.2 ± 2.25) were related to emotional symptoms. Most of them (960 individuals = 48%) scored abnormally. The mean and standard deviation was 15.61 ± 5.89 , and the highest value was 33. The highest mean and standard deviation (16.69 ± 5.4) ranged from 17 to 18 years old in 289 subjects. There was a significant relationship between the age of menarche and emotional and behavioral problems ($p = 0.001$). Most individuals (638 subjects) (46%) had abnormal emotional and behavioral problems in the menarche age of 11–12 years old. This concluded that the Emotional symptoms were the most common emotional-behavioral problems of adolescents. There was a significant relationship between the menarche age and emotional and behavioral problems. It is necessary to be familiar with the problems of adolescent girls during adolescence and the way to deal with their problems.

Martina Smorti ORCID, Annarita Milone, Luisa Fanciullacci, Alessia Ciaravolo and Carmen Berrocal, (2024) studied on Parenting and Emotional and Behavioral Difficulties in a General Population. Research has shown that both parenting and emotional dysregulation are associated with

mental health outcomes in youth. This cross-sectional research was developed to replicate these noted findings and explore the mediating role of emotional dysregulation to explain the relationship between parenting and emotional and behavioral difficulties (internalizing and externalizing problems) in adolescents. A total of 104 adolescents (61.5% females; $M = 15.62$ yrs., $SD = 1.38$) participated in the study. Participants completed the Parental Bonding Instrument (measuring care, promotion of autonomy, and overprotection) referring to the mother and father, the Difficulties in Emotion Regulation Scale, and the Youth Self-Report. The results showed that difficulties in emotion regulation fully mediated the relationship between overprotection (in both parents) and low maternal care with internalizing problems, on the one hand, and the relationship between maternal overprotection and low care (in both parents) with externalizing problems, on the other hand. Furthermore, emotional dysregulation partially mediated the effect of paternal care on internalizing problems. These findings help to clarify one of the mechanisms through which parenting can affect mental health in youth. Theoretical and clinical implications are discussed.

Jiska S. Peper and Ronald E. Dahl (2013) reviewed on Surging Hormones with brain and behavior interactions during Puberty. In this paper, we discuss the surging hormones of puberty and their influences on adolescent behavior. We describe why these issues represent an interesting and important area of investigation, emphasizing their contributions to a specific set of developmental processes at the heart of the transition from childhood to adolescence. We briefly review the neuroendocrine underpinnings of human puberty. Our review focuses on evidence for behavioral (and neurobehavioral) effects of gonadal hormones, and emphasizes the social and affective dimensions of these hormonal effects. More broadly, we consider how these hormonal events contribute to brain-behavior interactions that can bias early adolescent trajectories in both positive and negative directions, and in ways that may begin as small influences, but can spiral into large-scale effects over time. These influences also appear to play an important role in functional and structural brain development during adolescence.

K. Jean Forney, a Pamela K. Keel, a Shannon O'Connor, b Cheryl Sisk, C S. Alexandra Burt, B and Kelly L. Klump (2018) investigated on interaction of hormonal and social environments in understanding body image concerns in adolescent girls. During adolescence, peer approval becomes increasingly important and may be perceived as contingent upon appearance in girls. Concurrently, girls experience hormonal changes, including an increase in progesterone. Progesterone has been implicated in affiliate behavior but inconsistently associated with body image concerns. The current study sought to examine whether progesterone may moderate the association between perceived social pressures to conform to the thin ideal and body image concerns. Secondary analyses were conducted in cross-sectional data from 813 girls in early puberty and beyond (ages 8-16) who completed assessments of the peer environment, body image concerns, and progesterone. Models for mediation and moderation were examined with BMI, age, and monarchical status as covariates. Belief that popularity was linked to appearance and the experience of weight-related teasing were both positively associated with greater body image concerns, but neither was associated with progesterone once adjusting for covariates. Progesterone significantly interacted with perceived social pressures in predicting body image concerns. At higher progesterone levels, appearance-popularity beliefs and weight-related teasing were more strongly related to body image concerns than they were at lower progesterone levels. Findings support a moderating role for progesterone in the link between social pressures and body image concerns in girls. This study adds to a growing literature examining how

girls' hormonal environments may modulate responses to their social environments. Longitudinal and experimental work is needed to understand temporal relations and mechanisms behind these associations.

Ronald E. Dahl and Erika E. Forbes (2009) studied on pubertal development and behavior in adolescence. Adolescence is a time of dramatic changes including rapid physical growth, the onset of sexual maturation, the activation of new drives and motivations, and a wide array of social and affective changes and challenges. This review focuses on behavioral changes in this interval and is organized by the claim that a key set of these adolescent changes are part of a more general re-orientation of social behavior. More specifically we hypothesize that pubertal maturation is associated with the activation of social and motivational tendencies, which in turn influence behavior and emotion in adolescence depending upon interactions with social context. We focus on evidence for two examples of these motivational changes: 1) increases in sensation seeking (motivational tendency to want to experience high-intensity, exciting experiences) and 2) stronger natural interest in—and pursuit of—contact with peers and potential romantic partners. We consider how these motivational changes contribute to the broader social re-orientation of adolescence, including exploration of social experiences, the development of skills and knowledge relevant to taking on adult social roles, individuation from family, and the establishment of an individual identity, all of which represent core developmental tasks during this period in the life span. This emphasizes the importance of investigating and understanding the direct influences of puberty on behavior and disentangling these from the broader set of changes during adolescent development.

Pilar Vigil, Juan Pablo Del Río, Barbara Carrera, Florencia C. ArÁnguiz, Hernán Rioseco, and Manuel E. Cortés studied on the influence of sex steroid hormones on the adolescent brain and behavior. This review explains the main effects exerted by sex steroids and other hormones on the adolescent brain. During the transition from puberty to adolescence, these hormones participate in the organizational phenomena that structurally shape some brain circuits. In adulthood, this will propitiate some specific behavior as responses to the hormones now activating those neural circuits. Adolescence is, then, a critical “organizational window” for the brain to develop adequately, since steroid hormones perform important functions at this stage. For this reason, the adolescent years are very important for future behaviors in human beings. Changes that occur or fail to occur during adolescence will determine behaviors for the rest of one's lifetime. Consequently, understanding the link between adolescent behavior and brain development as influenced by sex steroids and other hormones and compounds is very important in order to interpret various psycho-affective pathologies. The effect of steroid hormones on the development of the adolescent brain, and therefore, on adolescent behavior, is noticeable. This review presents their main activation and organizational effects. During the transition from puberty to adolescence, organizational phenomena triggered by steroids structurally affect the remodeling of brain circuits. Later in adulthood, these changes will be reflected in behavioral responses to such hormones. Adolescence can then be seen as a fundamental “organizational window” during which sex steroids and other hormones and compounds play relevant roles. The understanding of the relationship between adolescent behavior and the way hormones influence brain development help understand some psychological disorder.

Sheri A. Berenbauma and Adriene M. Beltzb examined on how early hormones shape gender development. Many important psychological characteristics show sex differences, and are influenced by sex hormones at different developmental periods. We focus on the role of sex hormones in early development, particularly the differential effects of prenatal androgens on aspects of gender development. Increasing evidence confirms that prenatal androgens have facilitative effects on male-typed activity interests and engagement (including child toy preferences and adult careers), and spatial abilities, but relatively minimal effects on gender identity. Recent emphasis has been directed to the psychological mechanisms underlying these effects (including sex differences in propulsive movement, and androgen effects on interest in people versus things), and neural substrates of androgen effects (including regional brain volumes, and neural responses to mental rotation, sexually arousing stimuli, emotion, and reward). Ongoing and planned work is focused on understanding the ways in which hormones act jointly with the social environment across time to produce varying trajectories of gender development, and clarifying mechanisms by which androgens affect behaviors. Such work will be facilitated by applying lessons from other species, and by expanding methodology. Understanding hormonal influences on gender development enhances knowledge of psychological development generally, and has important implications for basic and applied questions, including sex differences in psychopathology, women's underrepresentation in science and math, and clinical care of individuals with variations in gender expression.

PSYCHOLOGICAL PROBLEMS

Esperanza Navarro-Pardo, Carol A. Holland and Antonio Cano (2018) studied on sex hormones and healthy psychological aging in women. Besides their key role in reproduction, estrogen has effects in several organs in the body, as confirmed by the identification of estrogen receptors (ER) in multiple tissues. Experimental evidence has shown that estrogen have significant impacts on the central nervous system (CNS), and a key question is to what extent the fall in estrogen levels in the blood that occurs with increasing age, particularly around and following the menopause, has an impact on the cognitive function and psychological health of women, specifically regarding mood. This review will consider direct effects of menopausal changes in estrogen on the brain, including cognitive function and mood. Secondary pathways whereby health factors affected by changes in estrogen may interact with CNS functions, such as cardiovascular factors, will be reviewed as well insofar as they also have an impact on cognitive function. Finally, because decline in estrogen may induce changes in the CNS, there is interest in clarifying whether hormone therapy may offer a beneficial balance and the impact of hormone therapy on cognition will also be considered?

Kimberly H. McManama O'Brien, Miriam Rowan, Kyra Willoughby, Kelsey Griffith and Melissa A. Christino (2021) investigated on psychological resilience in young female athletes. Psychological resilience is an important construct that can enhance athletic performance and foster valuable life skills. Through positive adaptation to adversity and stressors in the athletic arena, athletes are able to cultivate their ability to effectively respond to negative stimuli, ultimately evolving to personal growth. For young female athletes, development of resilience may be particularly important. Young female athletes face distinct challenges in sport including sport inequity, body image issues, eating disorders, increased mental distress, and internalization of emotions. The aim of this review is to define and describe the construct of resilience and discuss the implications and applications relevant to young female athletes. By understanding how to foster resilience strategies in this population, we

can enhance sport performance and enjoyment, as well as bolster valuable life skills that facilitate personal growth.

ANXIETY

Naima Z. Farhane-Medina, Bárbara Luque, Carmen Tabernero and Rosario Castillo-Mayén (2022) investigated on the prevalence and comorbidity of anxiety disorders is significantly different between women and men, with research showing a greater impact on women. The aim of this review was to identify the psychosocial and biological factors that have been considered to explain this gender and sex difference in prevalence and determine whether these factors are related to any anxiety comorbidity differences between men and women. The methods used were following the PRISMA guidelines, we carried out a systematic review of studies published between 2008 and 2021 in PsycINFO and PubMed databases. Empirical and review studies evaluating psychosocial and biological factors that could influence the difference in prevalence and comorbidity between men and women were included. A qualitative narrative synthesis was performed to describe the results. The results shown are from 1012 studies, 44 studies were included. Retrieved articles were categorized depending on their object of study: psychosocial factors (n=21), biological factors (n=16), or comorbidity (n=7). Results showed that differences in anxiety between women and men have been analyzed by psychosocial and biological factors but rarely together. Among the psychosocial factors analyzed, masculinity may be a protective factor for anxiety development, while femininity can be a risk factor. In the studies that took biological factors into account, the potential influence of brain structures, genetic factors, and fluctuations in sexual hormones are pointed out as causes of greater anxiety in women. Concerning comorbidity, the results noted that women tend to develop other internalizing disorders (e.g. depression), while men tend to develop externalizing disorders (e.g. substance abuse). Conclusions: For an accurate understanding of differences between women and men in anxiety, both biological and psychosocial factors should be considered. This review highlights the need to apply the bio psychosocial model of health and the gender perspective to address differences in anxiety between sexes.

Syed Fahad Javaid, Ibrahim Jawad Hashim, Muhammad Jawad Hashim, Emmanuel Stip, Mohammed Abdul Samad & Alia Al Ahababi (2023) reviewed on epidemiology of anxiety disorders. Anxiety disorders comprise some of the most common mental health conditions. This study examined the global and regional burden of anxiety disorders over the last three decades. The study was designed to help accurately target preventative and management efforts by highlighting trends and high-risk groups. Epidemiological data relating to anxiety disorders from the latest Global Burden of Disease dataset were analyzed to determine the prevalence, incidence, and disability adjusted life years (DALYs) rates from 1990 to 2019 for 204 countries and regions. The results shown were an estimated 4.05% of the global population has an anxiety disorder, translating to 301 million people. The number of persons affected has increased by more than 55% from 1990 to 2019. Anxiety disorder metrics show a continuous increase in prevalence, incidence, and DALY rates. Portugal has the highest prevalence (8,671 cases per 100,000), followed by Brazil, Iran, and New Zealand. The prevalence is higher in high-income regions. Women are 1.66 times more likely to be affected by anxiety disorders than men. Age-standardized rates have remained stable, indicating the possible stability of risk factors. This concluded that the prevalence of anxiety disorders has been rising over the last three decades. The prevalence of anxiety appears to increase with socioeconomic development, a higher

dependent older population, and urbanization. Future research on this topic could include the development of more accurate cross-cultural metrics to assess anxiety and its correlates, as well as population-based studies to assess trends in anxiety over time.

David L. Ginsberg (2014) reviewed on Community studies Women and Anxiety Disorders. This indicates that 19% of men and 31% of women will develop some type of anxiety disorder during their lifetime. The impact of gender is profound in that it increases the likelihood of developing an anxiety disorder by 85% in women compared to men. Sex differences in prevalence rates are apparent as early as age 6, when girls are twice as likely as boys to have an anxiety disorder. In the National Comorbidity Survey, the prevalence rates for panic disorder in women and men were 5% and 2%, respectively. Agoraphobia, which often coexists with panic disorder, has a lifetime prevalence rate of 7% in women and 3.5% in men. Prevalence of trauma is increased in young women as well, and is experienced earlier in life; 62% of sexual assaults are inflicted on female's ≤ 18 years of age, and 29% occur in children < 11 years of age. Comorbidity of anxiety in women complicates other medical conditions as well. For example, panic disorder is highly comorbid with CHD, which remains the leading cause of death in women in developed countries. Fluctuations in reproductive hormone levels during the female life cycle are thought to be responsible for modulating anxiety. This is often implicated in the later age of onset, the more sudden and acute symptom emergence, and the more episodic course of OCD in women, and in the high prevalence (47.4%) of PMDD. Pregnancy appears to be a protective period for some anxiety disorders, including panic, while for others, such as OCD, it may be associated with onset. Hormonal changes during pregnancy, such as increased prolactin, oxytocin, and cortisol, may contribute to the suppression of stress response that occurs during this period. Despite a large and growing body of literature on anxiety disorders in general, the available data relating to women and girls falls short of informing aspects of diagnosis, treatment, and prevention that may entail sex differences. Additional work is required to understand the biological and psychosocial causes of these differences.

Myra Hunter, Rosie Batters and Malcolm Whitehead (2005) studied on the Relationships between psychological symptoms, somatic complaints and menopausal status. The importance of distinguishing climacteric symptoms from other psychological and somatic complaints has been repeatedly stressed, but as yet no detailed guidelines are available to assist the clinician in the day-to-day management of patients. Previous epidemiological surveys of climacteric symptoms have been criticized because of inadequate methodology. We have attempted to overcome most of these problems and to provide a more detailed analysis of the relationships between menopausal status and psychological and somatic symptoms. Eight hundred and fifty pre-, peri- and post-menopausal women, aged 45–65 year took part in a cross-sectional survey of general health, psychosocial factors and current symptomatology. They were a non-menopause clinic sample and were blind to the purpose of the study. Using a principal components analysis, the relationships between symptoms were examined. Certain psychological and somatic symptoms occurred together in specific clusters. Some of these symptom clusters, e.g., vasomotor symptoms and sexual difficulties, were best predicted solely by menopausal status, while others, such as psychological and somatic symptoms, were more clearly associated with psychosocial factors. On the basis of these results, guidelines for the assessment of climacteric and post-menopausal women can be suggested.

MOOD AND ANXIETY

Jennifer H. Pfeifer and Nicholas B. Allen (2020) studied on puberty in adolescence. Adolescence is a period of dramatic developmental transitions from puberty to related changes in hormones, bodies, and brains to an increasingly complex social world. The concurrent increase in the onset of many mental disorders has prompted the search for key developmental processes that drive changes in risk for psychopathology during this period of life. Hormonal surges and consequent physical maturation linked to pubertal development in adolescence are believed to impact multiple aspects of brain development, social cognition, and peer relations; each of which have also demonstrated associations with risk for mood and anxiety disorders. These puberty-related effects may combine with other non-pubertal influences on brain maturation to transform adolescents' social perception and experiences, which in turn continue to shape both mental health and brain development through transactional processes. In this review, we focus on pubertal, neural, and social changes across the duration of adolescence that are known or believed to be related to adolescent-emergent disorders, specifically depression, anxiety, and deliberate self-harm (non-suicidal self-injury). We propose a theoretical model in which social processes (both social cognition and peer relations) are critical to understanding the way in which pubertal development drives neural and psychological changes that produce potential mental health vulnerabilities, particularly (but not exclusively) in adolescent girls.

ANXIETY AND DEPRESSION

Edileia Bagatin, Thais Helena Proenca de Freitas, Maria Cecilia Rivitti Machado, Beatriz Medeiros Riberio, Samanta Nunes and Marco Alexandre Dias da Rocha studied on adult female acne. Acne in women is often associated with anxiety and depression, and may persist from adolescence as well as manifest for the first time in adulthood. Genetic and hormonal factors contribute to its etiopathogenesis and maintenance treatment is required, usually for years, due to its clinical evolution. The objective is to develop a guide for the clinical practice of adult female acne. The methods used are team of five experts with extensive experience in acne conducted a literature review of the main scientific evidence and met to discuss the best practices and personal experiences to develop a guide containing recommendations for the clinical practice of adult female acne. The results shows that the group of specialists reached consensus on the main guidelines for clinical practice, providing detailed recommendations on clinical picture, etiopathogenesis, laboratory investigation and treatment of adult female acne. The conclusion is different from teenage acne; adult female acne presents some characteristics and multiple etiopathogenic factors that make its management more complex. This guide provides recommendations for best clinical practices and therapeutic decisions. However, the authors consider that additional studies are needed in order to provide more evidence for adult female acne to be better understood.

Rebecca E. Blanton, Rebecca E Cooney, Jutta Joormann, Fanny Eugene, Gary H. Glover and Ian H Gotlib (2012) investigated on pubertal stage and brain anatomy in girls. Studies of puberty have focused primarily on changes in hormones and on observable physical bodily characteristics. Little is known, however, about the nature of the relation between pubertal status and brain physiology. This is particularly important given findings that have linked the onset of puberty with both changes in cognitive functioning and increases in the incidence of depression and anxiety. The present study examined relations between pubertal stage, as assessed by Tanner Staging, and brain anatomy in a

sample of 54 girls aged 9 - 15 years. Brain morphometric analysis was conducted using high-resolution Magnetic Resonance Imaging (MRI). The hippocampus and amygdala were manually traced on MRI scans in all participants. Stepwise regression analyses were conducted with total intracranial volume (ICV), age, and pubertal status as the predictor variables and hippocampus and amygdala volumes as outcome variables. Pubertal status was significantly associated with left amygdala volume, after controlling for both age and intracranial volume (ICV). In addition, puberty was related to right hippocampus and amygdala volumes, after controlling for ICV. In contrast, no significant associations were found between age and hippocampal and amygdala volumes after controlling for pubertal status and ICV. These findings highlight the importance of the relation between pubertal status and morphometric of the hippocampus and amygdala, and of limbic and subcortical structures that have been implicated in emotional and social behavior.

Josiah R. Boivin, David J. Piekarski, Jessica K. Wahlberg and Linda Wilbrecht (2017) examined on how age, sex and gonadal hormones differently influence anxiety and depression related behavior during puberty in mice. Anxiety and depression symptoms increase dramatically during adolescence, with girls showing a steeper increase than boys after puberty onset. The timing of the onset of this sex bias led us to hypothesize that ovarian hormones contribute to depression and anxiety during puberty. In humans, it is difficult to disentangle direct effects of gonadal hormones from social and environmental factors that interact with pubertal development to influence mental health. To test the role of gonadal hormones in anxiety- and depression-related behavior during puberty, we manipulated gonadal hormones in mice while controlling social and environmental factors. Similar to humans, we find that mice show an increase in depression-related behavior from pre-pubertal to late-pubertal ages, but this increase is not dependent on gonadal hormones and does not differ between sexes. Anxiety-related behavior, however, is more complex at puberty, with differences that depend on sex, age, behavioral test, and hormonal status. Briefly, males castrated before puberty show greater anxiety-related behavior during late puberty compared to intact males, while pubertal females are unaffected by ovariectomy or hormone injections in all assays except the marble burying test. Despite this sex-specific effect of pubertal hormones on anxiety-related behavior, we find no sex differences in intact young adults, suggesting that males and females use separate mechanisms to converge on a similar behavioral phenotype. Our results are consistent with anxiolytic effects of testicular hormones during puberty in males but are not consistent with a causal role for ovarian hormones in increasing anxiety- and depression-related behavior during puberty in females.

DEPRESSION

Julia E. Chafkin, David S. Yeager, Joseph M. O'Brien, Hae Yeon Lee, Ciara A. McAfee and Robert A. Josephs (2021) investigated on gonadal and adrenal hormones interact with pubertal maturation to predict depressive symptoms in a group of high school females. Adolescent females are at elevated risk for the development of depression. In this study, we asked: Are pubertal hormones associated with adolescent mental health? Might this association depend on pubertal development? We tested the hypothesis that estradiol, which has been associated with adolescent social sensitivity, might interact with pubertal stage to predict depression risk at three time points in 9th and 10th grade. Hormones and pubertal development were measured in 9th grade females. Linear regression analyses were used to predict fall 9th (n=79), spring 9th (n=76) and spring 10th (n=67) grade Children's Depression Inventory (CDI) scores. The hypothesized model was not statistically significant, but exploratory

analyses revealed that 2-and-3-way interactions incorporating estradiol, puberty (stage and perceived onset), and cortisol predicted current and future CDI scores. Our exploratory model did not predict changes in CDI but did account for future (spring of 9th grade) CDI scores. Specifically, estradiol was positively correlated with fall and spring 9th grade depressive symptoms in participants with high cortisol who also reported earlier stages and later perceived onset of pubertal development. These findings suggest that hormones associated with sensitivity to the social environment deserve consideration in models of adolescent depression risk.

Rong Lei, Yan Sun, Jiawen Liao, Yuan Yuan, Linlin Sun, Yugeng Liu, Xinyu Yang, Wenyou Ma and Zhenjian Yu (2021) examined sex hormone levels in females of different ages suffering from depression. There are only a few studies on sex hormones in females of different ages suffering from depression, and their conclusions are not uniform until now. This study aimed to investigate the correlation between the severity of depression in females and factors such as sex hormones and differences in sex hormone levels in females of different ages, exploring variations after treatment. A total of 169 females with depression were selected and divided into the first-episode (91 cases) and recurrent (78 cases) groups. Then, on the basis of their age, the first-episode patients were divided into the young (48 cases, age < 45 years), perimenopausal (20 cases, 45–55 years), and elderly groups (23 cases, age > 55 years); the patients with recurrent depression were classified into the young (37 cases, age < 45 years), perimenopausal (19 cases, 45–55 years), and elderly groups (22 cases, age > 55 years). The patients were assessed in accordance with the International Classification of Diseases of mental and behavioral disorders. The serum progesterone, prolactin, estradiol, and testosterone levels in the patients were measured, and differences in sex hormone levels of the groups were analyzed. The estradiol level was negatively correlated with age and the prolactin level was positively correlated with occupation. The severity of depression in females was found to be negatively correlated with age. The serum progesterone and estradiol levels in the young group were significantly higher than those in the elderly group, regardless of the first episode or recurrence. Estradiol levels in the perimenopausal and elderly groups with first-episode depression were significantly higher than those in the same group with recurrent depression. However, there was no significant difference in the serum progesterone, prolactin, estradiol, and testosterone levels in the recurrent group before and after treatment. Sex hormone levels, especially estradiol, varied among females of different ages suffering from depression. Recurrent depression also has a certain effect on sex hormone levels in females. Not only should the age and relapse be considered when studying the sex hormone levels of females with depression, but also attention should be paid to whether the patients have used antidepressants before their sexual hormonal testing.

Prof Anita Thapar, Stephan Collishaw, Daniel S Pine and Ajay K Thapar (2012) assessed on depression in adolescence. Unipolar depressive disorder in adolescence is common in worldwide but often unrecognized. The incidence, notably in girls, rises sharply after puberty and by the end of adolescence, the 1 year prevalence rate exceeds 4%. The burden is highest in low-income and middle-income countries. Depression is associated with substantial present and future morbidity, and heightens suicide risk. The strongest risk factors for depression in adolescents are a family history of depression and exposure to psychosocial stress. Inherited risks, developmental factors, sex hormones, and psychosocial adversity interact to increase risk through hormonal factors and associated perturbed neural pathways. Although many similarities between depression in adolescence and depression in adulthood exist, in adolescents the use of antidepressants is of concern and opinions about clinical

management are divided. Effective treatments are available, but choices are dependent on depression severity and available resources. Prevention strategies targeted at high-risk groups are promising.

Bitia Zareian, Christine Anderl, Joelle LeMoult, Liisa A. M. Galea, Jerilynn C. Prior, Jason D. Rights, Colin J. Ross, Sabrina Ge, Annie C. Hayward & Frances S. Chen assessed the role of adolescent hormonal contraceptive use on risk for depression. The incidence of depression in human females rises steadily throughout adolescence, a critical period of pubertal maturation marked by increasing levels of gonadal hormones including estrogen and progesterone. These gonadal hormones play a central role in social and emotional development and may also contribute to the increased occurrence of depression in females that begins in early adolescence. In this study, we examine whether and how introducing synthetic estrogen and progestin derivatives through the use of Combined Hormonal Contraceptives (CHC), affect adolescent females' risk for developing depression. We further assess potential links between CHC use and alterations in stress responses and social-emotional functioning. The methods shown are longitudinal cohort design; we will follow a sample of adolescent females over the span of three years. Participants will be assessed at three time points: once when they are between 13 and 15 years of age, and at approximately 18 and 36 months after their initial assessment. Each time point will consist of two online sessions during which participants will complete a clinical interview that screens for key symptoms of mental health disorders, along with a series of questionnaires assessing their level of depressive symptoms and history of contraceptive use. They will also complete a standardized social-evaluative stress test and an emotion recognition task, as well as provide saliva samples to allow for assessment of their circulating free cortisol levels. The study discussed that we will assess the effect of CHC use during adolescence on development of Major Depressive Disorder (MDD). We will control for variables previously found to or proposed to partially account for the observed relationship between CHC use and MDD, including socioeconomic status, age of sexual debut, and CHC-related variables including age of first use, reasons for use, and its duration. In particular, we will discover whether CHC use increases depressive symptoms and/or MDD, whether elevated depressive symptoms and/or MDD predict a higher likelihood of starting CHC, or both. Furthermore, this study will allow us to clarify whether alterations in stress reactivity and social-emotional functioning serve as pathways through which CHC use may result in increased risk of depressive symptoms and/or MDD.

Nikita Saraswat, Pranay Wal, Rashmi S. Pal, Ankita Wal, Yogendra Pal, Tamsheel F. Roohi studied on detailed biological approach on hormonal imbalance causing depression in critical periods in adult women. In today's global world, most women are experiencing midlife health problems which can affect their lives and mental status. Most of the diseases occur after childbirth and during pregnancy or gestation period which can lead to severe problems such as postpartum depression (PPD), postmenopausal depression, perimenopausal depression which ultimately affects the mental health condition and develop various depressive episodes which ultimately lead to depression in women. The review paper gives the information that if there is untreated maternal depression then it can lead to anxiety, fear, negative effect on child development, disruption of the mother-infant relationship, and the occurrence of depressive symptoms in the early life of infants. Hormone levels are changed at the time of pregnancy. The data was collected by studying combination of research and review papers from different databases like PubMed, Medline, and Web of science by using search keywords like "Postpartum depression", "Postmenopausal depression", "Risk factors", "Pathogenesis of PPD", "Predictors of postpartum depression". This can lead to disrupting the quality of life of menopausal

women like deficiency of nutrients, not properly regular physical activities, elevated Body Mass Index (BMI), loss of libido (loss of interest in sexual activities), due to the lack of education, and awareness among the people. Factors like increase in physical activity can naturally help in PPD condition. Mind body therapy, drug therapy and cognitive and mindfulness-based therapies help in hormonal imbalances. This concluded that it was found that low birth weight and congenital abnormalities in babies lead to affect depression after delivery. It is recommended that health care providers and physicians are provided with information regarding factors contributing PPD and postmenopausal depression. Sleep timings and consumptions of nutraceuticals can help in natural healing with depression amongst women suffering from postpartum, postmenopausal and perimenopausal depression.

Ignacio Segarra, Micaela Menárguez and Maria Victoria Roque (2023) assessed on women's health, hormonal balance and personal anatomy. Hormone-based contraception disrupts hormonal balance, creating artificial states of anovulation and threatening women's health. We reviewed its main adverse effects and mechanisms on accelerated ovarian aging, mental health (emotional disruptions, depression, and suicide), sexuality (reduced libido), cardiovascular (brain stroke, myocardial infarction, hypertension, and thrombosis), and oncological (breast, cervical, and endometrial cancers). Other “collateral damage” includes negative effects on communication, scientific mistrust, poor physician–patient relationships, increased patient burden, economic drain on the healthcare system, and environmental pollution. Hormone-sensitive tumors present a dilemma owing to their potential dual effects: preventing some cancers vs. higher risk for others remains controversial, with denial or dismissal as non-relevant adverse effects, information avoidance, and modification of scientific criteria. This lack of clinical assessment poses challenges to women's health and their right to autonomy. Overcoming these challenges requires an anthropological integration of sexuality, as the focus on genital bodily union alone fails to encompass the intimate relational expression of individuals, complete sexual satisfaction, and the intertwined feelings of trust, safety, tenderness, and endorsement of women's femininity.

DEPRESSION AND ANGER

Roberta L. Paikoff, Jeanne Brooks-Gunn and Michelle P. Warren M.D (1996) studied on effects of girl's hormonal status on depressive and aggressive symptoms over the course of one year. Associations between hormonal and physical status and girl's depressive affect, aggressive affect and delinquent behavior were studied over the course of one year. Seventy-two White girls, aged 10–14 at initial data collection, were seen twice. Endocrinological status (estradiol, luteinizing hormone [LH], follicle stimulating hormone [FSH], testosterone, and dehydroepiandrosterone sulphate [DHEAS] at Time 1, physical development (menarche, secondary sexual characteristics) and maturational timing at Times 1 and 2 were used to predict self- and maternal reports of depressive affect and self-reports of aggressive affect and delinquent behavior at Time 2. It was posited that initial Endocrinological status, as represented by hormonal categories derived by Warren and Brooks-Gunn [(1989) “Mood and Behavior at Adolescence: Evidence for Hormonal Factors, ” *Journal of Clinical Endocrinology and Metabolism*, Vol. 69, pp. 77–83] and reflecting estradiol, LH, and FSH levels, would be associated with affective expression and delinquent behavior one year later. DHEAS, however, was not expected to be associated with affective expression a year later as it is thought to be more indicative of adrenal changes that are in part environmentally mediated. Initial affective expression

was hypothesized to account for more of the variation than prior hormonal status. Hormonal categories predicted depressive and aggressive affect a year later, while DHEAS, physical status, and maturational timing did not. Initial hormonal categories were associated with subsequent reports of delinquent behavior, although not after physical status or prior reports of delinquency were entered into the regression. Initial reports of affective expression accounted for a far greater proportion of the variance in aggressive affect and delinquent behavior than did hormonal or physical status.

Hypothyroidism and Depression

Surya P Nuguru, Sriker Rachakonda, Shravani Sripathi, Mashal I Khan, Naomi Patel, and Roja T Meda (2020) investigated on hypothyroidism and depression. There has been established relationship between hypothyroidism and depression. Studies have demonstrated that somatostatin and serotonin influence the hypothalamus-pituitary-thyroid axis, which links hypothyroidism to depression. Multiple studies concluded that undiagnosed, untreated, undertreated patients with hypothyroidism are at increased risk of developing depression. Autoimmune thyroiditis is also associated with an increased risk of depression. Elevated thyroid-stimulating hormone (TSH), ant thyroglobulin (TgAb), and thyroid peroxidase antibodies (TPOAb) levels have all been linked to depression and an increased risk of suicide. Moreover, hypothyroidism is known to be one of the leading causes of treatment-resistant depression. Treating underlying hypothyroidism with thyroid replacement therapy could significantly improve mood disorders such as depression. Levothyroxine therapy is also used as adjunctive therapy to antidepressants in the management of depression, and it is known to improve the symptoms of depression rapidly when compared to antidepressants alone. This review strengthens the link between hypothyroidism and depression, and it also demonstrates how treating the underlying hypothyroidism in people who have been diagnosed with depression will be very beneficial.

COMORBID DISORDERS

Julie E. Finnell, Brandon L. Muniz, Akhila R. Padi, Calliandra M. Lombard, Casey M. Moffitt, Christopher S. Wood, L. Britt Wilson, Lawrence P. Reagan, Marlene A. Wilson, and Susan K Wood studied on ovarian hormones. The study shows that the Women are at greater risk of developing depression and comorbid disorders such as cardiovascular disease compared with men. This enhanced risk begins at puberty and ends following menopause, suggesting a role for ovarian hormones in this sensitivity. Here, we used a model of psychosocial witness stress for the first time in female rats to determine the stress-induced neurobiological adaptations that underlie stress susceptibility in an ovarian hormone dependent manner. The methods used in this are Female rats (intact or ovariectomized, OVX) were exposed to 5 daily 15-minute witness stress exposures. Witness stress-evoked burying, behavioral despair, and anhedonia were measured. Cardiovascular telemetry was combined with plasma measurements of inflammation, epinephrine and corticosterone as indices of cardiovascular dysfunction. Finally, interleukin-1 β (IL-1 β) and corticotropin releasing factor (CRF) were assessed in the central amygdala (CeA). The results shown are witness stress produced anxiety-like burying, depressive-like anhedonia and behavioral despair selectively in intact females, which was associated with enhanced sympathetic responses during stress including increased blood pressure, heart rate, and arrhythmias. Moreover, intact females exhibited increases in 12-hr resting systolic pressure and heart rate and reductions in heart rate variability. Notably, OVX females remained resilient. Moreover intact, but not OVX, females exposed to witness stress exhibited a sensitized

cytokine and epinephrine response to stress and distinct increases in CRF and IL-1 β in the CeA. This concluded that Together these data suggest that ovarian hormones play a critical role in the behavioral, inflammatory and cardiovascular susceptibility to social stress in females and reveal putative systems that are sensitized to stress in an ovarian hormone-dependent manner.

PRE-MENSTRUAL DYSPHORIC DISORDER (PMDD)

Georgina Casey described on sex hormones and health. The reproductive hormones are estrogen; progesterone and testosterone do more in the body than control reproduction. Sex hormones influence both physical and mental health and well-being, from osteoporosis and cancer to depression and premenstrual dysphoric disorder. As the mechanisms by which these hormones exert their non-reproductive effects become better known, we are beginning to understand how they affect health and well-being. Hormone therapies (contraception, replacement, management of cancers, etc.) are increasingly common, and can have adverse effects for women. Controlling these requires careful management, balancing risk and benefit. An understanding of the roles and effects of the reproductive hormones allows nurses to provide best care in relation to these and to new therapies as they enter clinical practice.

Sarah A. Owens, Tory A. Eisenlohr Moul and Mitchell J. Prinstein (2020) investigated on adolescent girls attempt suicide. The prevalence of suicidal thoughts and behaviors increases dramatically across the transition to puberty, particularly among adolescent girls. Yet we know little about why adolescent girls are at heightened risk, or when girls may be most likely to consider or engage in suicidal behavior. In this, we outline evidence supporting a role for the menstrual cycle in the onset of and fluctuations in adolescent girls' suicide risk. This emerging framework outlines developmental (i.e., biological, social, and cognitive) characteristics that might place certain girls at higher risk (e.g., between-subjects factors), as well as potential mechanisms that occur during the premenstrual phase of the menstrual cycle (i.e., within-subjects factors) that increase adolescent females' increased risk for suicide.

Jaseela Majeed, Purna Sharma, Puneeta Ajmera and Koustuv Dalal reported on menstrual hygiene practices and associated factors among adolescent girls. Menstrual Hygiene Management (MHM) and practices by adolescent females of Low and Middle-Income Countries (LMICs) are a severe public health issue. The current systematic review and meta-analysis aimed to estimate the pooled proportion of the hygiene practices, menstrual problems with their associated factors, and the effectiveness of educational interventions on menstrual hygiene among adolescent school girls in India. The methods used are PRISMA checklist and PICO guidelines were used to screen the scientific literature from 2011 to 2021. The Newcastle-Ottawa Scale was used to assess the quality of studies. Four themes were developed for data analysis, including hygiene practices, type of absorbent used, menstruation associated morbidities and interventions performed regarding menstruation. Eighty-four relevant studies were included and a meta-analysis, including subgroup analysis, was performed. The results shows that the Pooled data revealed a statistically significant increase in sanitary pad usage "(SMD = 48.83, 95% CI = 41.38-57.62, $p < 0.00001$)" and increased perineum practices during menstruation "(SMD = 55.77, 95% CI = 44.27-70.26, $p < 0.00001$)". Results also reported that most prevalent disorders are dysmenorrhea "(SMD = 60.24, 95% CI = 50.41-70.06, $p < 0.0001$)", Pre-menstrual

symptoms "(SMD = 62.67, 95% CI = 46.83-78.50, $p < 0.00001$)", Oligomenorrhea "(SMD = 23.57, CI = 18.05-29.10, $p < 0.00001$)", Menorrhagia "(SMD = 25.67, CI = 3.86-47.47, $p < 0.00001$)", PCOS "(SMD = 5.50, CI = 0.60-10.40, $p < 0.00001$)", and Polymenorrhea "(SMD = 4.90, CI = 1.87-12.81, $p < 0.0001$)". A statistically significant improvement in knowledge "(SMD = 2.06, 95% CI = 0.75-3.36, $p < 0.00001$)" and practice "(SMD = 1.26, 95% CI = 0.13-2.65, $p < 0.00001$)" on menstruation was observed. Infections of the reproductive system and their repercussions can be avoided with better awareness and safe menstruation practices. This concluded that Learning about menstrual hygiene and health is essential for adolescent girls' health education to continue working and maintaining hygienic habits. Infections of the reproductive system and their repercussions can be avoided with better awareness and safe menstruation practices.

Farangis Dorani, Denise Bijlenga, Aartjan T.F. Beekman, Eus J.W. van Someren and J.J. Sandra Kooij (2021) investigated on Prevalence of hormone-related mood disorder symptoms in women with ADHD. This is the first study to assess the prevalence of symptoms of premenstrual dysphoric disorder (PMDD), episodes of postpartum depression symptoms (PPD) after first childbirth, and climacteric mood symptoms in Attention-Deficit/Hyperactivity Disorder (ADHD). 209 consecutive women (18–71 years) with ADHD completed the PMDD chapter of the Neuropsychiatric Interview Plus version 5.0.0 to assess PMDD, the Edinburgh Postnatal Depression Scale to assess PPD, and the Greene Climacteric Scale to assess climacteric symptoms. Comorbid psychiatric disorders, medication use, and chronobiological sleep characteristics were also assessed. The prevalence of PMDD and PPD were high in ADHD, compared to the general population. PMDD symptoms were associated with less use of contraceptives. Antidepressants were associated with more PMDD symptoms. The following GCS scores were significant increased: anxiety, depression, and sexual dysfunction, vasomotor and somatic complaints. No significant differences were found in sleep characteristics or current comorbidity between the groups with and without PPD or PMDD, or increased climacteric scores. The prevalence of PMDD, PPD and climacteric scores were high in women with ADHD. This is the first study in women with ADHD that suggests that female ADHD patients suffer from significant PMDD symptoms, experience PPD during the first child birth, and experience more severe climacteric symptoms.

Raul Cosme Ramos Prado, Rodrigo Silveria, Marcus W Kilpatrick and Ricardo Yukio Asano investigated on menstrual cycle, psychological responses and adherence to physical exercise. The World Health Organization (WHO) warns that physical inactivity increases the number of global public health problems, such as the risk of non-communicable diseases (like hypertension, diabetes, and cancer), stroke, heart attack, and mortality (World Health Organization, 2010). Alarming data from WHO indicate that about a quarter of the world's population is insufficiently active with a higher incidence in women (34%) than men (28%) in 2008 (World Health Organization, 2014) and 2016, 32 and 23%, respectively (World Health Organization, 2016). In 2018, a paper of The Lancet Global Health showed that women are about 8% more physically inactive (Guthold et al., 2018). Recognizing that many physically inactive adults have simply not initiated physical exercise programs, many other individuals are currently inactive after dropping out of exercise in the weeks and months of physical activity program initiation. Recently, it has been shown that most people dropped out from regular physical exercise in the first few months (Withall et al., 2011; Sperandei et al., 2016). Sperandei et al. (2016) indicated that the dropout rate will reach more than half (i.e., 63%) of new exercise practitioners, from which only 4% will adhere to exercise beyond 12 months. Such concerns related to

dropout seem especially important among women (Bennie et al., 2019). Also notable is research suggesting that women are motivated by exercise that produces pleasant feelings (Brickman and Campbell, 1971; Kahneman et al., 1999; Anderson et al., 2014; van Uffelen et al., 2017). Such motivations are highly relevant given the alterations to mood state linked to the menstrual cycle (MC). In the premenstrual period, the hormonal fluctuations trigger several neural mechanisms that bring about physical (e.g., pain, swelling) and psychological (e.g., negative affect and mood) symptoms (Hellstrom and Anderberg, 2003; Ossewaarde et al., 2010; van Wingen et al., 2011). This psychological measure (e.g., positive affect) contributes to permanence in an activity (e.g., physical exercise). However, although the literature shows a strong relationship of dose–response between pleasant feelings and adherence, data generated about Menstrual Cycle impact to the exercise adherence is still limited and, generally, does not consider the differences between the sexes and Menstrual Cycle phases. Therefore, the present viewpoint highlights possible psychological barriers that the Menstrual Cycle can generate in the adherence of women to physical exercise.

Bianca Raffaelli, Elisabeth Storch, Lucas Hendrik Overeem, Maria Terhart, Mira Pauline Fitzek, Kristin Sophie Lange, Uwe Reuter studied on sex hormones and calcitonin gene related peptide in women with migraine. Background and Objectives Sex hormones may modulate Calcitonin Gene-Related Peptide (CGRP) release in the trigeminovascular system. We studied CGRP concentrations in plasma and tear fluid in female participants with episodic migraine (EM) and a Regular Menstrual Cycle (RMC), female participants with EM and Combined Oral Contraception (COC), and female participants with EM in the post menopause. For control, we analyzed 3 corresponding groups of age-matched female participants without EM. The methods are Participants with an RMC had 2 visits: during menstruation on menstrual cycle day 2 ± 2 and in the periovulatory period on day 13 ± 2 . Participants with COC were examined at day 4 ± 2 of the hormone-free interval (HFI) and between days 7 and 14 of hormone intake (HI). Postmenopausal participants were assessed once at a random time point. Plasma and tear fluid samples were collected at each visit for determination of CGRP levels with an ELISA. The results are total of 180 female participants ($n = 30$ per group) completed the study. Participants with migraine and an RMC showed statistically significantly higher CGRP concentrations in plasma and tear fluid during menstruation compared with female participants without migraine (plasma: 5.95 pg/mL [IQR 4.37–10.44] vs 4.61 pg/mL [IQR 2.83–6.92], $p = 0.020$ [Mann-Whitney U test]; tear fluid: 1.20 ng/mL [IQR 0.36–2.52] vs 0.4 ng/mL [IQR 0.14–1.22], $p = 0.005$ [Mann-Whitney U test]). In contrast, female participants with COC and in the postmenopause had similar CGRP levels in the migraine and the control groups. In migraine participants with an RMC, tear fluid but not plasma CGRP concentrations during menstruation were statistically significantly higher compared with migraine participants under COC ($p = 0.015$ vs HFI and $p = 0.029$ vs HI, Mann-Whitney U test). The discussion shown was different sex hormone profiles may influence CGRP concentrations in people, with current or past capacity to menstruate, with migraine. Measurement of CGRP in tear fluid was feasible and warrants further investigation.

PTSD (Post Traumatic Stress Disorder)

J. P. ter Horst, E. R. de Kloet, H. Schächinger and M. S. Oitzl (2011) examined the relevance of stress and female sex hormones for emotion and cognition. There are clear sex differences in incidence and onset of stress-related and other psychiatric disorders in humans. Yet, rodent models for psychiatric disorders are predominantly based on male animals. The strongest argument for not using female

rodents is their estrous cycle and the fluctuating sex hormones per phase which multiplies the number of animals to be tested. Here, we will discuss studies focused on sex differences in emotionality and cognitive abilities in experimental conditions with and without stress. First, female sex hormones such as estrogen and progesterone affect emotions and cognition, contributing to sex differences in behavior. Second, females respond differently to stress than males which might be related to the phase of the estrous cycle. For example, female rats and mice express less anxiety than males in a novel environment. Proestrous females are less anxious than females in the other estrous phases. Third, males perform in spatial tasks superior to females. However, while stress impairs spatial memory in males, females improve their spatial abilities, depending on the task and kind of stressor. We conclude that the differences in emotion, cognition and responses to stress between males and females over the different phases of the estrous cycle should be used in animal models for stress-related psychiatric disorders.

Josh M. Cisler and Ryan J. Herringa (2020) studied on Post-Traumatic Stress Disorder (PTSD). PTSD in adolescents is common and debilitating. In contrast to adult PTSD, is known about the neurobiology of adolescent PTSD, nor how current treatments may alter adolescent neurodevelopment to allow recovery from PTSD. Improving our understanding of biological mechanisms of adolescent PTSD, taken in the context of neurodevelopment, is crucial for developing novel and personalized treatment approaches. In this review, we highlight prevailing constructs of PTSD and current findings on these domains in adolescent PTSD. Notably, little data exist in adolescent PTSD for prominent adult PTSD constructs, including threat learning and attention threat bias. Most work to date has examined general threat processing, emotion regulation, and their neural substrates. These studies suggest that adolescent PTSD, while phenomenological similar to adult PTSD, shows unique neurodevelopmental substrates which may impair recovery, but could also be targeted in the context of adolescent neuroplasticity to improve outcomes. Both cross-sectional and longitudinal data suggest abnormal front limbic development compared to typically developing youth, a pattern which may differ from resilient youth. Whether current treatments such as trauma-focused psychotherapy engage these targets and restore healthy neurodevelopment remains an open question. We end our review by highlighting emerging areas and knowledge gaps that could be addressed to better characterize the biology underlying adolescent PTSD. Emerging studies in computational modeling of decision making, caregiver-related transmission of traumatic stress, and other areas may offer new targets which could harness adolescent neurobehavioral plasticity to improve resilience and recovery for some of our most vulnerable youth.

Somatic complaints

Cairu Li, Christer Borgfeldt, Göran Samsioe, Jonas Lidfeldt and Chirstina Nerbrand (2005) reviewed on the influence of somatic and psychological symptoms in middle-age women with different hormonal status. The objective is to analyze the influence of socio-demographic characteristics and environmental factors on self-reported somatic and psychological symptoms among middle-aged Swedish women. The methods shown that the total of 6917 women living in the Lund area of southern Sweden were participates of this study. They completed a generic questionnaire pertaining to socio-demographic characteristics, lifestyle factors and current health related problems. According to hormonal status, the participants were subdivided into three groups, i.e. premenopause, postmenopause and peri- or postmenopausal women with hormone replacement therapy (HRT).By

using multiple logistic regression models, a high risk for somatic symptoms was independently associated with unemployment, no exercise, unmarried, high body weight and diseases affecting the cardiovascular system as well as a history of cancer. Psychological symptoms were independently associated with higher educational level, unemployment, no exercise, unmarried, heavy smoking habits (≥ 15 cig/day), weight gain and a history of cancer. In addition, the background factors seemed to have less impact on symptoms among women who used HRT. This concluded that Socio-demographic characteristics, lifestyle factors and concurrent health problems appear to have influences on the frequency and the number of somatic and psychological symptoms in middle-age women. Hormone replacement therapy seems to be able to counteract negative impacts caused by unhealthy lifestyle and other health problems.

Arthur Hartz, John Jacob Ross, Russell Noyes and Paula Williams (2012) investigated on Somatic symptoms and psychological characteristics associated with insomnia in postmenopausal women. The aim of the study was to assess the association of sleep disturbance with psychological characteristics, somatic symptoms and previously identified risk factors. The methods used in this data were from 148,938 postmenopausal women enrolled in The Women's Health Initiative who provided cross-sectional information about psychological characteristics, somatic symptoms and the character of their sleep. Overall sleep quality was based on the Women's Health Initiative Insomnia Rating Scale (WHI IRS), a measure that assessed five types of sleep disturbance. Three factors accounted for nearly 20% of the variation in the WHI IRS: a scale for somatic symptoms, daytime restlessness and either depression or emotional well-being. Other independently associated factors were night sweats, pain and worry about expressing anger. Several factors that had been linked to sleep disturbance in other studies were found to have at most a weak independent association in this analysis. These included income, education, marital status, activity level, obesity level, hot flashes, coffee drinking and smoking. This concluded that Factors strongly associated with sleep disturbance in this study deserve further evaluation to determine the reasons for the association and whether the associations suggest possible treatments for sleep disturbance.

Social Problems

Jana Diabelkova, Kvetoslava Rimarova, Erik Dorko, Peter Urdzik, Andrea Houzvicikova and Lubica Argalasova (2023) examined on 2434 adolescent mothers who gave birth in 2019-2020. One of the major social and public health problems in the world is adolescent pregnancy. Adolescent pregnancy is strongly associated to less favorable results for both the mother and the new-born. We conducted this research to ascertain the impact of teenage age on neonatal outcomes and also observed the lifestyles of pregnant teenage girls. We conducted a study of 2434 mothers aged ≤ 19 years ($n = 294$) or 20–34 years ($n = 2140$) who gave birth in 2019–2020 at the Department of Gynecology and Obstetrics of Louis Pasteur University Hospital in Kosice. The data on mothers and new-born infants have been reported from the reports on mothers at childbirth. Women between the ages of 20 and 34 served as the reference group. The teenage mothers were more likely to become pregnant if they were unmarried (OR = 14.2; 95% CI = 9.3–21.6; $p < 0.001$) and had a basic education or lack of education (OR = 16.8; 95% CI = 11.5–24.6; $p < 0.001$). Additionally, they were more likely to smoke when pregnant (OR = 5.0; 95% CI = 3.8–6.6; $p < 0.001$). Low birth weight was more common in newborns

born to adolescent mothers than in those born to adult mothers ($p < 0.001$). Our findings showed that infants of teenage mothers often had lower birth weights (-332.6 g, $p < 0.001$). Adolescent mothers were associated with lower Apgar scores at the first minute ($p = 0.003$). As compared with the control group, pregnant teenage girls had a greater prevalence of preterm deliveries in our research ($p = 0.004$). This study finds significant age-related disparities in neonatal outcomes between mothers. These results might be used to identify vulnerable groups who need special assistance and actions to reduce the probability of negative outcomes for such groups.

Eun Young Kim and Moon in Lee (2012) examined on psychosocial aspects in girls with precocious puberty. Precocious puberty leads to discrepancies between physical and chronological age. The aim of the present study was to evaluate behavioral patterns and social competences in 34 girls with idiopathic precocious puberty. Height, body weight, and BMI were determined, and pubertal development was assessed. The Korean-child behavior checklist (K-CBCL) was completed by parents. The results show that Body weight and BMI were significantly higher in precocious puberty group than in the control group. T scores of total social competence and school scales of K-CBCL were significantly higher in the precocious puberty group than in the control group. T scores of externalizing problems and total behavior problems of K-CBCL were also significantly higher in the precocious puberty group. T scores of thought problems and attention problems of K-CBCL were significantly higher in the precocious puberty group than the control group. Although girls with precocious puberty had more behavioral problems, no significant differences were observed between the two study groups in terms of clinically-important T scores. However, the concerns of parents and patients regarding behavioral and emotional changes might be most important when evaluating psychosocial problems. Early recognition, sufficient understanding, communication with patients and parents regarding physical developmental difference from children in the same age, can improve the self-image of those with precocious puberty.

BINGE EATING

Kelly L. Klump, Kristen M. Culbert and Cherryl L Sisk examined on ovarian hormones and binge eating in adulthood. Ovarian hormone influences on general food intake which have been studied in animals for 60+ years. Yet, extensions of these data to key eating disorder symptoms in humans (e.g., binge eating) have only recently occurred. We summarize findings from studies examining the effects of ovarian hormones on Binge Eating. Findings suggest ovarian hormones contribute to Binge Eating in animals and humans, although studies are few in number and effects are not present in all women or all animals exposed to high-risk hormonal milieus. Differences in susceptibility may be due to gene \times hormone interactions that can explain why some, but not all, women develop Binge Eating in the presence of risky hormonal environments.

Megan E Mikhail, Pamela K Keel and Kelly L Klump assessed the negative affect that interacts with ovarian hormones to predict risk for emotional eating. Ovarian hormones significantly influence dysregulated eating in females. However, most women do not develop appreciable disordered eating, which suggests that ovarian hormones may not affect all women equally. We examined whether

individual differences in trait negative affect (NA) moderate ovarian hormone–dysregulated eating associations in 446 women who provided saliva samples for hormone measurements and ratings of NA and emotional eating daily for 45 consecutive days. Women were at greatest risk for emotional eating when they had high trait NA and experienced a hormonal milieu characterized by low estradiol or high progesterone. Although effects were evident in all women, the combination of high trait NA and high progesterone was particularly risky for women with a history of clinically significant binge-eating episodes. These findings provide initial evidence that affective and hormonal risk interact to promote emotional eating and that effects may be amplified in women with clinically significant binge eating.

Chapter-3

DATA AND METHODOLOGY

The main objective of the study is to examine the hormonal influence on mental health among young women. The below are the individual objectives framed; based on various independent variables.

OBJECTIVES OF THE STUDY:

- To study the difference between PCOS and non-PCOS young women on mental health problems.
- To examine the influence of stress on mental health (Emotional and Behavioral problems, DSM subscales) among young women.
- To examine the influence of personal correlates (Place of Stay, Age and Weight) on mental health problems.
- To examine the influence of Menarche Age (Below 20 years and Above 20 years) on mental health problems among young women.
- To study the influence of hormonal tablets on mental health among young women.
- To study the influence of Periods regularity (regular periods and irregular periods) on mental health problems.
- To examine the influence of Psychological problems (Depression, anxiety, Insomnia, Overthinking, Hallucinations, Delusions, Panic attacks, Stress, Psycho Somatic Disorder) on mental health among young women.
- To examine the Breast related problems (breast lumps, breast pain, and nipple discharge) on mental health problems of young women.
- To study the influence of safety concerns of young women on mental health problems.
- To study the influence of skin/hair related problems (skin lumps, skin changes, hair fall) on mental health problems of young women.
- To examine the influence of respiratory problems (wheezing, shortness of breath, seasonal cough, phlegm) on mental health problems of young women.
- To examine the influence of heart related problems (Irregular heartbeat, chest pain, edema, calf pain, palpitations, and varicose veins, sweating on forehead) on mental health problems.
- To examine the influence of urinary infections (blood in urine, frequent urination, pain while urinating, color of the urine, white discharge, bleeding, painful intercourse, change in libido, incontinence of urine) on mental health problems among young women.
- To examine the influence of musculoskeletal problems (Arthritis, back pain, joint pain, bone fractures, extra bone growth) on mental health problems among young women.
- To examine the neurological problems (confusion, headaches, change in memory, seizures, numbness, dizziness) on mental health problems of young women.
- To study the influence of endocrine problems (abnormal blood sugars and thyroid problem) on mental health problems of young women.

HYPOTHESIS:

- There is a significant difference observed between PCOS and non-PCOS groups of young women on mental health.
- No significant difference is observed between menarche age of below 13 years and above 13 years of young women on mental health. There is a significant difference observed between PCOS and non-PCOS groups of young women on mental health.
- There is a significant difference observed between Stress and without stress groups of young women on mental health.
- There is a significant difference observed between place stay (town and village) of young women on mental health.
- There is a significant difference observed between first and fourth groups of weight quartile of young women on mental health.
- There is a significant difference observed between age groups of below 20 years and above 20 years of young women on mental health.
- There is a significant difference observed between with fatigue and without fatigue groups of young women on mental health.
- There is a significant difference observed between weight gain and without weight gain groups of young women on mental health.
- Less difference observed between unexplained weight loss and weight loss groups of young women on mental health.
- There is a significant difference observed between safety concerns and without safety concerns groups of young women on mental health.
- There is a significant difference observed between with breast lumps and without breast lumps groups of young women on mental health.
- There is a significant difference observed between with breast pain and without breast pain groups of young women on mental health.
- There is a significant difference observed between with nipple discharge and without nipple discharge groups of young women on mental health.
- There is a significant difference observed between with skin lumps and without skin lumps groups of young women on mental health.
- There is a significant difference observed between with skin changes and without skin changes groups of young women on mental health.
- There is a significant difference observed between with hair fall and without hair fall groups of young women on mental health.
- There is a significant difference observed between with respiratory problems and without respiratory problems groups of young women on mental health.
- There is a significant difference observed between with heart problems and without heart problems groups of young women on mental health.
- There is a significant difference observed between with urinary infection and without urinary infection groups of young women on mental health.
- There is a significant difference observed between with muscular problems and without muscular problems groups of young women on mental health.
- There is a significant difference observed between neurological problems and without neurological problems groups of young women on mental health.
- There is a significant difference observed between psychological problems and without psychological problems groups of young women on mental health.

- There is a significant difference observed between with endocrine problems and without endocrine problems groups of young women on mental health.
- There is a significant difference observed between regular periods and irregular period groups of young women on mental health.
- Less significant difference is observed between painful periods and without painful period groups of young women on mental health.
- Very less difference is observed between heavy menses and non-heavy menses groups of young women on mental health.
- There is a significant difference observed between without hormonal tablets and with hormonal tablets groups of young women on mental health.

INSTRUMENTS

The original English version of Adult Self Report (ASR) are used for the present study (Appendix II). The ASR is a component of ASEBA that has been developed based on decades of research and practical experience since the 1960's (Achenbach, 1966). ASEBA forms capture both the similarities and differences in how adults function under different interaction partners.

Adult Self Report (ASR)

The Adult Self Report (ASR) consists of 126 problem items that enable the people (18-59 years) to report the degree of severity in each problem by answering '0' if the item is not true of himself or herself, '1' if the item is somewhat or sometimes true, and '2' if it is very true or often true within the past 6 months. ASR form can typically be completed in about 15 to 20 minutes. The ASR includes eight empirically based syndrome scales Anxious/Depressed, Withdrawn, Somatic Complaints, Thought Problems, Attention Problems, Aggressive Behavior, Rule-Breaking Behavior and Intrusive. The first three syndromes form a grouping designated as *Internalizing*, while the last three syndromes form a grouping designated as *Externalizing*. A *Total Problems* score is computed by summing the 1 and 2 scores on all the problem items. *High* scores on the problem scales are clinically significant, because they indicate *high* levels of problems. The description of the syndrome scales were given in next page.

- i. Anxious/Depressed:* The 18 problem items in this subscale measure anxiety and depression.

Example items:

0	1	2	I feel confused or in a fog.
0	1	2	I feel worthless or inferior.

- ii. Withdrawn:* The nine problem items in this subscale measure the feeling of withdrawn from social contacts.

Example items:

0	1	2	There is very little that I enjoy.
0	1	2	I am not liked by others.

- iii. Somatic Complaints:** This scale has 12 items that include the extent to which physical problems with unknown medical causes are reported by the respondent.

Example items:

0	1	2	I feel dizzy or light headed.
0	1	2	I feel tired without good reason.

- iv. Thought problems:** The 10 problem items in this subscale measure the thought problems reported by the adult.

Example items:

0	1	2	I can't get my mind off certain thoughts.
0	1	2	I repeat certain acts over and over.

- v. Attention Problems:** The fifteen problem items in this subscale examine the attention problems experienced by the respondent.

Example items:

0	1	2	I have trouble setting priorities.
0	1	2	I daydream a lot.

- vi. Aggressive Behavior:** The fifteen problem items in this subscale examine the aggressive behavior reported by the adult.

Example items:

0	1	2	I argue a lot.
0	1	2	I get in many fights.

- vii. Rule Breaking Behavior:** The fourteen problem items in this subscale identify the extent of Rule Breaking Behavior indulged by the respondents.

Example items:

0	1	2	I break rules at work or elsewhere.
0	1	2	I drink too much alcohol or get drunk.

- viii. Intrusive:** The 6 problem items in this subscale examined the intrusive behavior, comprises behavior that may be socially obnoxious but are not overtly aggression.

Example items:

0	1	2	I am louder than other.
0	1	2	I tease others a lot.

RELIABILITY OF ASEBA ADULT FORM

Test Retest Reliability

The test-retest reliability of ASEBA adult form was supported by mean interval of 7 days. Reliability was generally very high, with all test-retest reliability indices being significant at $p < .01$ and are above .80 and .90. The mean reliability index for the empirically based problem scales was .88 on the ASR while the indices for total problems were .94. For the DSM-oriented scales, the mean reliability was .83 (Achenbach & Rescorla, 2003).

Internal Consistency Reliability

High internal consistency was found for most scales, with mean alpha coefficients on the ASR of .83 and .85 for the empirically based problem scales and .78 and .79 for the DSM-oriented scales.

VALIDITY OF ASEBA ADULT FORM

Construct Validity

The construct validity of ASEBA adult form was calculated by comparing with Symptom Checklist-90-Revised (SCL-90-R; Derogatis, 1994) scales. The correlations were calculated between ASEBA and SCL-90-R scales that corresponded most closely in item content. The correlations between ASEBA and SCL-90-R scales ranged from .69 to .78 (all $p < .01$). All correlations exceeded .69 for the Anxious/Depressed, Withdrawn, Somatic Complaints, Thought Problems, Attention Problems, Aggressive Behavior, Rule-Breaking behavior and Intrusive.

Scoring ASEBA Adult Self Report forms

Each item in ASR Form is scored on a 3 point scale where '0' indicates that the respondent felt the item was not true and 2 indicating that it is very much true. Score 1 indicates that the item is somewhat or sometimes true based on the preceding past 6 months. Some of the items request respondents to describe the problems that they rate. For example, I can't get my mind off certain thoughts (describe), can provide clinically useful information that can be queried further in interviews. At the end scale, respondents are asked to indicate how many times a day they used tobacco, plus how many days they were drunk and how many days they used drugs for nonmedical purposes during the

preceding 6 months. Ratings on each subscale items are to be summed to obtain the total score on each subscale indicates more of the problems described by the subscale i.e. Anxious/Depressed, withdrawn, Somatic Complaints, Thought Problems, Attention Problems, Aggressive Behavior, Rule-Breaking behavior and Intrusive.

STANDARDIZATION OF ACHENBACH SCALES

The Achenbach scales became so popular in all over the world that researchers stated to adapt and standardize them in other languages named Albanian/Kosovo, Arabic, Bahasa (Indonesia), Chinese, Danish, Dutch, French (Canadian and Parisian), German, Icelandic, Italian, Japanese, Kiswahii (Kenya), Korean, Lithuanian, Mauritian, Norwegian, Polish, Portuguese (Brazil and Portugal), Russian, Serbian, Spanish (Castilian and Latino), Spain (Catalan), Swedish and Thai.

BIOGRAPHICAL INFORMATION

Symptom checklist was prepared by consulting 3 gynecologists and one psychologists based on their suggestions and observations, the symptom checklist was segregated into 11 categories which are general problems, breast related problems, skin/hair related problems, respiratory problems, heart problems, genito-urinary problems, musculoskeletal problems, neurological problems, psychological problems, endocrine problems and GYN History and in which each category having some symptoms based on general observations.

General Problems:

- Stress
- Fatigue
- Weight Gain
- Unexplained weight loss
- Safety Concerns

Breast Problems:

- Lumps
- Pain
- Nipple Discharge

Skin/Hair Problems:

- Lumps
- Skin changes
- Hair changes

Respiratory Problems:

- Wheezing
- Shortness of Breath
- New cough

Heart Problems:

- Irregular Heartbeat
- Chest pain
- Edema/swelling on legs
- Calf Pain
- Palpitations
- Varicose Veins
- Sweating on forehead

Genitourinary Problems:

- Blood in urine
- Frequent Urination
- Pain while urinating
- Color of the urine
- White Discharge
- Bleeding
- Incontinence (leaking urine)
 1. With urge to urinate
 2. With cough/sneeze

Musculoskeletal Problems:

- Arthritis
- Back pain
- Joint Pain
- Bone Fractures
- Extra Bone Growth

Neurological Problems:

- Confusion
- Headaches
- Change in Memory
- Seizures
- Numbness
- Dizziness

Psychological Problems:

- Depression
- Anxiety
- Insomnia
- Overthinking
- Hallucinations
- Delusions
- Panic Attacks
- Stress
- Psycho Somatic Disorder

Endocrine Problems:

- Abnormal Blood sugars
- Thyroid Problems

GYN History:

- Menarche Age
- Regular/ Irregular Periods
- Painful Periods
- Heavy Menses
- PCOS

DESIGN AND PROCEDURE

In this part, the individual consult form was taken from the participant. Confidentiality was maintained with not taking any personal information. Adult Self Report (ASR) was established between 18-25 years of female college students. The sample was taken from rural and urban areas of East Godavari District. The norms were established on the basis of Age (below 20 years and above 20 years), weight (First and fourth) and Place of Nativity (Rural and Urban). For understanding, the age groups were made, where the members who have 20 years and below considered as Below 20 years age group whereas, above 20 years age group is considered those who have 21 years and above.

ANALYSIS OF DATA

Data obtained from the samples were analyzed using the following statistical techniques.

- T-test was used to examine the influence of age, weight and native place on ASR syndrome scales.

Chapter-4

CONTENTS AND RESULTS

Table-1: PCOS and Emotional & Behavioral Problems

Sub scale	Mean / S.D.	Without PCOS (N=147)	With PCOS (N=177)	t
Anxious / Depressed	Mean	10.66	14.62	4.870**
	S.D.	7.32	7.24	
Withdrawn	Mean	4.52	6.84	6.044**
	S.D.	3.17	3.73	
Somatic Complaints	Mean	4.63	8.76	7.828**
	S.D.	3.98	5.50	
Thought Problems	Mean	4.41	6.83	5.096**
	S.D.	4.23	4.26	
Attention Problems	Mean	12.03	18.07	5.915**
	S.D.	8.97	9.38	
Aggressive Behavior	Mean	7.56	11.43	6.053**
	S.D.	5.51	5.98	
Rule Breaking Behavior	Mean	4.41	8.88	8.621**
	S.D.	3.53	5.69	
Intrusive Behavior	Mean	2.89	4.44	5.525**
	S.D.	2.36	2.66	
DSM Sub Scales				
Depressive Problems	Mean	7.27	10.46	5.439**
	S.D.	4.98	5.57	
Anxiety Problems	Mean	4.68	6.20	4.023**
	S.D.	3.39	3.38	
Somatic Problems	Mean	3.46	6.60	7.543**
	S.D.	3.26	4.24	
Avoidant Personality Problems	Mean	3.76	5.33	5.001**
	S.D.	2.77	2.88	
Attention Deficit / Hyperactive Problems	Mean	6.94	10.01	5.123**
	S.D.	5.19	5.56	
Antisocial Personality Problems	Mean	7.18	13.49	8.583**
	S.D.	5.30	7.85	

Note: *= $p < .05$; **= $p < .01$

The results regarding the effect of PCOS on emotional and behavioral subscales and DSM subscales are presented in the table 1. There is a significant difference is observed in all subscales of Emotional and Behavioral subscales and DSM subscales between two groups named without PCOS and with PCOS. The group that have experienced PCOS are experiencing anxiety, depression, thought problems, attention problems, and somatic complaints and also shown rule breaking behavior and intrusive. Similarly for DSM subscales, the PCOS group reported the depressive problems, anxiety problems, somatic problems, and avoidant personality problem, they have also experiencing attention deficit/hyperactive problems and antisocial personality problems. From above results we can also say that, those who are experiencing the PCOS in regular life have shown high emotional and behavioral problems and also have clinical problems according to DSM subscales.

Table-2: Stress and Emotional & Behavioral Problems

Sub scale	Mean / S.D.	Without Stress (N=162)	With Stress (N=162)	t
Anxious / Depressed	Mean	9.99	15.66	7.305**
	S.D.	7.52	6.42	
Withdrawn	Mean	4.53	7.04	6.526**
	S.D.	3.59	3.31	
Somatic Complaints	Mean	4.61	9.16	8.570**
	S.D.	4.31	5.19	
Thought Problems	Mean	4.09	7.44	7.558**
	S.D.	4.11	4.03	
Attention Problems	Mean	11.77	18.89	7.119**
	S.D.	9.60	8.34	
Aggressive Behavior	Mean	7.10	12.24	8.374**
	S.D.	5.53	5.50	
Rule Breaking Behavior	Mean	4.46	9.23	9.020**
	S.D.	4.05	5.37	
Intrusive Behavior	Mean	2.74	4.73	7.297**
	S.D.	2.36	2.53	
DSM Sub Scales				
Depressive Problems	Mean	7.00	11.02	6.997**
	S.D.	5.45	4.86	
Anxiety Problems	Mean	4.36	6.67	6.339**
	S.D.	3.55	2.98	
Somatic Problems	Mean	3.43	6.92	8.362**
	S.D.	3.43	4.05	
Avoidant Personality Problems	Mean	3.64	5.60	6.363**
	S.D.	3.01	2.51	
Attention Deficit / Hyperactive Problems	Mean	6.91	10.31	5.726**
	S.D.	5.67	4.99	
Antisocial Personality Problems	Mean	7.16	14.10	9.381**
	S.D.	5.97	7.27	

Note: *= $p < .05$; **= $p < .01$

The results regarding the effect of stress on emotional and behavioral subscales and DSM subscales are presented in the table 2. There is a significant difference is observed in all subscales of emotional and behavioral subscales and DSM subscales between two groups named without stress and with stress. The group that have experienced stress are experiencing anxiety, depression, thought problems, attention problems, and somatic complaints and also shown rule breaking behavior and intrusive. Similarly for DSM subscales, the stress group reported the depressive problems, anxiety problems, somatic problems, and avoidant personality problem, they have also experiencing attention deficit/hyperactive problems and antisocial personality problems. From above results we can also say that, those who are experiencing the stress in regular life have shown high emotional and behavioral problems and also have clinical problems according to DSM subscales.

Table-3: Place Stay and Emotional & Behavioral Problems

Sub scale	Mean / S.D.	Town (N=166)	Village (N=158)	t
Anxious / Depressed	Mean	13.80	11.80	2.392**
	S.D.	7.25	7.71	
Withdrawn	Mean	6.01	5.55	1.115
	S.D.	3.61	3.73	
Somatic Complaints	Mean	7.51	6.23	2.203**
	S.D.	5.46	5.02	
Thought Problems	Mean	6.48	4.96	3.155**
	S.D.	4.68	3.97	
Attention Problems	Mean	16.81	13.77	2.863**
	S.D.	9.60	9.51	
Aggressive Behavior	Mean	10.82	8.47	3.543**
	S.D.	6.08	5.86	
Rule Breaking Behavior	Mean	7.55	6.11	2.470**
	S.D.	5.47	5.06	
Intrusive Behavior	Mean	3.95	3.51	1.519
	S.D.	2.60	2.67	
DSM Sub Scales				
Depressive Problems	Mean	9.86	8.11	2.870**
	S.D.	5.49	5.46	
Anxiety Problems	Mean	5.80	5.22	1.504
	S.D.	3.362	3.56	
Somatic Problems	Mean	5.62	4.71	1.996**
	S.D.	4.26	3.95	
Avoidant Personality Problems	Mean	5.07	4.14	2.882**
	S.D.	2.83	2.98	
Attention Deficit / Hyperactive Problems	Mean	9.34	7.85	2.415**
	S.D.	5.38	5.74	
Antisocial Personality Problems	Mean	11.75	9.45	2.800**
	S.D.	7.81	6.98	

Note: *= $p < .05$; **= $p < .01$

The prevalence across the two types of place stay was examined and the results are presented in table-3. Significant mean differences were observed among the two groups (Town and Village) on all the dimensions of Adult Self Report (ASR) except withdrawn, Intrusive behavior and anxiety problems. The mean scores indicate that the females from the town background reported more emotional and behavioral problems such as anxious/depressed, somatic complaints, thought problems, attention problems, aggressive behavior and rule-breaking behavior. They even displayed more avoidant personality problems, attention deficit/hyperactive problems and antisocial personality problems. In other words, females from village background reported significantly lesser emotional and behavioral problems and also have clinical problems according to DSM subscales.

Table-4: Weight Quartile and Emotional & Behavioral Problems

Subscale	Mean / S.D.	First N=97)	Fourth (N=80)	t
Anxious / Depressed	Mean	10.61	14.60	3.738**
	S.D.	7.71	6.48	
Withdrawn	Mean	4.59	6.60	3.930**
	S.D.	3.46	3.32	
Somatic Complaints	Mean	4.63	8.99	5.818**
	S.D.	4.05	5.59	
Thought Problems	Mean	4.19	7.25	5.057**
	S.D.	3.61	4.31	
Attention Problems	Mean	11.94	18.45	4.846**
	S.D.	8.64	9.10	
Aggressive Behavior	Mean	7.02	11.70	5.521**
	S.D.	5.52	5.68	
Rule Breaking Behavior	Mean	4.11	9.64	7.773**
	S.D.	3.29	5.61	
Intrusive Behavior	Mean	2.57	4.50	5.281**
	S.D.	2.19	2.59	
DSM Sub Scales				
Depressive Problems	Mean	7.41	10.41	3.733**
	S.D.	5.35	5.29	
Anxiety Problems	Mean	4.51	6.30	3.627**
	S.D.	3.59	2.98	
Somatic Problems	Mean	3.48	6.76	5.665**
	S.D.	3.19	4.28	
Avoidant Personality Problems	Mean	3.77	5.18	3.338**
	S.D.	2.98	2.60	
Attention Deficit / Hyperactive Problems	Mean	6.65	10.03	4.359**
	S.D.	5.18	5.084	
Antisocial Personality Problems	Mean	6.75	14.35	7.527**
	S.D.	5.20	7.69	

Note: *= $p < .05$; **= $p < .01$

The results regarding the influence of Weight quartile on emotional and behavioral subscales and DSM subscales are presented in the table 4. There is a significant difference is observed in all subscales of emotional and behavioral subscales and DSM subscales between two groups named first and fourth. The fourth group that have experienced weight quartile are experiencing anxiety/depression, withdrawn problems, thought problems, attention problems, and somatic complaints and also shown rule breaking behavior and intrusive. Similarly for DSM subscales, the fourth group reported the depressive problems, anxiety problems, somatic problems, and avoidant personality problem, they have also experiencing attention deficit/hyperactive problems and antisocial personality problems. From above results we can also say that, those who are experiencing the weight quartile in regular life have shown high emotional and behavioral problems and also have clinical problems according to DSM subscales.

Table-5: Age and Emotional & Behavioral Problems

Sub scale	Mean / S.D.	Below 20 years (N=158)	Above 20 years (N=166)	t
Anxious / Depressed	Mean	10.15	15.37	6.616**
	S.D.	7.73	6.38	
Withdrawn	Mean	4.37	7.13	7.278**
	S.D.	3.66	3.14	
Somatic Complaints	Mean	4.51	9.15	8.822**
	S.D.	4.35	5.10	
Thought Problems	Mean	4.37	7.03	5.663**
	S.D.	4.36	4.06	
Attention Problems	Mean	11.64	18.84	7.201**
	S.D.	9.37	8.58	
Aggressive Behavior	Mean	7.01	12.20	8.477**
	S.D.	5.59	5.42	
Rule Breaking Behavior	Mean	4.54	9.05	8.471**
	S.D.	4.047	5.46	
Intrusive Behavior	Mean	2.65	4.77	7.891**
	S.D.	2.44	2.39	
DSM Sub Scales				
Depressive Problems	Mean	6.97	10.95	6.903**
	S.D.	5.50	4.84	
Anxiety Problems	Mean	4.46	6.52	5.571**
	S.D.	3.56	3.07	
Somatic Problems	Mean	3.27	6.99	9.073**
	S.D.	3.39	3.96	
Avoidant Personality Problems	Mean	3.61	5.58	6.362**
	S.D.	3.00	2.53	
Attention Deficit / Hyperactive Problems	Mean	6.70	10.44	6.359**
	S.D.	5.45	5.12	
Antisocial Personality Problems	Mean	7.01	14.08	9.658**
	S.D.	5.88	7.25	

Note: *= $p < .05$; **= $p < .01$

The influence of two age groups on the prevalence of emotional and behavioral subscales and DSM subscales was examined and the results are presented in table-5. Significant mean differences were observed among the two groups named below 20 years and above 20 years. The mean scores indicate that females who aged above 20 years reported significantly anxiety, depression, thought problems, attention problems, and somatic complaints and also shown rule breaking behavior and intrusive. Similarly for DSM subscales, the age group reported the depressive problems, anxiety problems, somatic problems, and avoidant personality problem, they have also experiencing attention deficit/hyperactive problems and antisocial personality problems. From above results we can also say that, those who are experiencing the age group have shown high emotional and behavioral problems and also have clinical problems according to DSM subscales.

Table-6: Fatigue and Emotional & Behavioral Problems

Sub scale	Mean / S.D.	Without Fatigue (N=146)	With Fatigue (N=178)	t
Anxious / Depressed	Mean	9.92	15.20	6.615**
	S.D.	7.47	6.72	
Withdrawn	Mean	4.26	7.03	7.271**
	S.D.	3.45	3.36	
Somatic Complaints	Mean	4.04	9.22	10.251**
	S.D.	4.05	5.04	
Thought Problems	Mean	4.08	7.10	6.525**
	S.D.	4.10	4.19	
Attention Problems	Mean	11.11	18.79	7.757**
	S.D.	8.78	8.97	
Aggressive Behavior	Mean	6.88	11.97	8.274**
	S.D.	5.38	5.66	
Rule Breaking Behavior	Mean	4.38	8.87	8.640**
	S.D.	3.70	5.59	
Intrusive Behavior	Mean	2.60	4.67	7.753**
	S.D.	2.19	2.61	
DSM Sub Scales				
Depressive Problems	Mean	6.75	10.87	7.153**
	S.D.	5.17	5.13	
Anxiety Problems	Mean	4.38	6.44	5.456**
	S.D.	3.59	3.07	
Somatic Problems	Mean	2.98	6.98	10.070**
	S.D.	3.20	3.94	
Avoidant Personality Problems	Mean	3.53	5.51	6.384**
	S.D.	2.82	2.73	
Attention Deficit / Hyperactive Problems	Mean	6.34	10.48	7.114**
	S.D.	5.14	5.27	
Antisocial Personality Problems	Mean	6.91	13.68	9.343**
	S.D.	5.37	7.63	

Note: *= $p < .05$; **= $p < .01$

The prevalence across the two types of fatigue was examined and the results are presented in table-6. Significant mean differences were observed among the two groups (without fatigue and with fatigue) on all the dimensions of Adult Self Report (ASR). The mean scores indicate that the females with fatigue background reported more emotional and behavioral problems such as anxious/depressed, withdrawn, somatic complaints, thought problems, attention problems, aggressive behavior, rule-breaking behavior and intrusive. They even displayed more anxiety problems, depressive problems, somatic problems, avoidant personality problems, attention deficit/hyperactive problems and antisocial personality problems. In other words, females without fatigue background reported significantly lesser emotional and behavioral problems and also have clinical problems according to DSM subscales.

Table-7: weight Gain and Emotional & Behavioral Problems

Sub scale	Mean / S.D.	Without Weight Gain (N=233)	With Weight Gain (N=91)	t
Anxious / Depressed	Mean	11.88	15.25	3.957**
	S.D.	7.68	6.57	
Withdrawn	Mean	5.37	6.85	3.432**
	S.D.	3.70	3.39	
Somatic Complaints	Mean	5.98	9.20	4.899**
	S.D.	4.95	5.44	
Thought Problems	Mean	4.94	7.77	5.004**
	S.D.	3.99	4.78	
Attention Problems	Mean	13.73	19.43	4.974**
	S.D.	9.37	9.22	
Aggressive Behavior	Mean	8.74	12.05	4.683**
	S.D.	6.01	5.60	
Rule Breaking Behavior	Mean	5.73	9.70	5.988**
	S.D.	4.78	5.57	
Intrusive Behavior	Mean	3.40	4.59	3.703**
	S.D.	2.58	2.62	
DSM Sub Scales				
Depressive Problems	Mean	8.33	10.76	3.742**
	S.D.	5.55	5.13	
Anxiety Problems	Mean	5.18	6.36	2.938**
	S.D.	3.54	3.13	
Somatic Problems	Mean	4.49	6.93	4.829**
	S.D.	3.92	4.16	
Avoidant Personality Problems	Mean	4.33	5.36	3.088**
	S.D.	3.02	2.58	
Attention Deficit / Hyperactive Problems	Mean	7.82	10.65	4.333**
	S.D.	5.57	5.16	
Antisocial Personality Problems	Mean	9.18	14.35	5.554**
	S.D.	6.87	7.78	

Note: *= $p < .05$; **= $p < .01$

The results regarding the influence of weight gain on emotional and behavioral subscales and DSM subscales are presented in the table 7. There is a significant difference is observed in all subscales of emotional and behavioral subscales and DSM subscales between two groups named without weight gain and with weight gain. The mean values of weight gain group are experiencing anxiety/depression, withdrawn problems, thought problems, attention problems, and somatic complaints and also shown rule breaking behavior and intrusive. Similarly for DSM subscales, the weight gain group reported the depressive problems, anxiety problems, somatic problems, and avoidant personality problem, they have also experiencing attention deficit/hyperactive problems and antisocial personality problems. From above results we can also say that, those who are experiencing the weight gain in regular life have shown high emotional and behavioral problems and also have clinical problems according to DSM subscales.

Table-8: Unexpected Weight Loss and Emotional & Behavioral Problems

Sub scale	Mean / S.D.	Without weight Loss (N=300)	With Weight Loss (N=24)	t
Anxious / Depressed	Mean	12.59	15.79	2.263**
	S.D.	7.56	6.60	
Withdrawn	Mean	5.67	7.21	2.057**
	S.D.	3.66	3.51	
Somatic Complaints	Mean	6.73	8.83	1.860*
	S.D.	5.26	5.33	
Thought Problems	Mean	5.66	6.63	1.054
	S.D.	4.42	4.29	
Attention Problems	Mean	15.07	18.63	1.911*
	S.D.	9.70	8.69	
Aggressive Behavior	Mean	9.47	12.21	2.343**
	S.D.	6.09	5.46	
Rule Breaking Behavior	Mean	6.75	8.13	1.164
	S.D.	5.29	5.60	
Intrusive Behavior	Mean	3.62	5.17	2.804**
	S.D.	2.61	2.59	
DSM Sub Scales				
Depressive Problems	Mean	8.76	12.13	3.129**
	S.D.	5.51	5.03	
Anxiety Problems	Mean	5.41	6.79	1.893*
	S.D.	3.45	3.43	
Somatic Problems	Mean	5.07	6.46	1.702
	S.D.	4.14	3.81	
Avoidant Personality Problems	Mean	4.51	5.96	2.367**
	S.D.	2.92	2.88	
Attention Deficit / Hyperactive Problems	Mean	8.51	9.96	1.364
	S.D.	5.64	4.96	
Antisocial Personality Problems	Mean	10.46	12.79	1.507
	S.D.	7.50	7.28	

Note: *= $p < .05$; **= $p < .01$

The prevalence across the unexpected weight loss was examined and the results are presented in table-8. Significant mean differences were observed among the two groups (without weight loss and with weight loss) on all the dimensions of Adult Self Report (ASR). The mean scores indicate that the females with weight loss background reported more emotional and behavioral problems such as anxious/depressed, withdrawn, aggressive behavior, rule-breaking behavior, intrusive behavior, depressive problems and avoidant personality problems. In other words lesser significant differences observed between somatic complaints, attention problems and anxiety problems. No significant differences observed between thought problems, rule-breaking behavior, somatic problems, attention deficit/hyperactive problems and antisocial personality problems.

Table-9: Safety Concerns and Emotional & Behavioral Problems

Sub scale	Mean / S.D.	Without Safety Concerns (N=290)	With Safety Concerns (N=34)	t
Anxious / Depressed	Mean	12.16	18.47	7.234**
	S.D.	7.55	4.37	
Withdrawn	Mean	5.45	8.65	7.732**
	S.D.	3.67	2.05	
Somatic Complaints	Mean	6.30	11.91	9.611**
	S.D.	5.19	2.90	
Thought Problems	Mean	5.26	9.76	9.621**
	S.D.	4.36	2.28	
Attention Problems	Mean	14.27	24.35	10.357**
	S.D.	9.55	4.63	
Aggressive Behavior	Mean	9.09	14.68	9.349**
	S.D.	6.09	2.79	
Rule Breaking Behavior	Mean	6.18	12.59	8.789**
	S.D.	5.05	3.88	
Intrusive Behavior	Mean	3.44	6.24	7.112**
	S.D.	2.54	2.11	
DSM Sub Scales				
Depressive Problems	Mean	8.54	12.97	6.639**
	S.D.	5.56	3.38	
Anxiety Problems	Mean	5.21	8.12	6.461**
	S.D.	3.45	2.34	
Somatic Problems	Mean	4.73	8.94	8.875**
	S.D.	4.07	2.38	
Avoidant Personality Problems	Mean	4.36	6.85	7.233**
	S.D.	2.94	1.74	
Attention Deficit / Hyperactive Problems	Mean	8.03	13.59	7.606**
	S.D.	5.49	3.82	
Antisocial Personality Problems	Mean	9.78	17.88	8.335**
	S.D.	7.27	5.09	

Note: *= $p < .05$; **= $p < .01$

Table-9 represents the influence of Safety Concerns on emotional and behavioral problems. Significant mean differences were observed among two groups (without safety concerns and with safety concerns). The mean values indicate that females with Safety Concerns are experiencing anxiety/depressed, withdrawn problems, thought problems, attention problems, and somatic complaints and also shown rule breaking behavior and intrusive. Similarly for DSM subscales, the Safety Concerns group reported the depressive problems, anxiety problems, somatic problems, and avoidant personality problem, they have also experiencing attention deficit/hyperactive problems and antisocial personality problems. From above results we can also say that, those who are experiencing the Safety Concerns in regular life have shown high emotional and behavioral problems and also have clinical problems according to DSM subscales.

Table-10: Breast Lumps and Emotional & Behavioral Problems

Sub scale	Mean / S.D.	Without Breast Lumps (N=276)	With Breast Lumps (N=48)	t
Anxious / Depressed	Mean	11.96	17.79	7.063**
	S.D.	7.599	4.76	
Withdrawn	Mean	5.31	8.52	8.006**
	S.D.	3.65	2.32	
Somatic Complaints	Mean	6.07	11.60	8.047**
	S.D.	5.01	4.28	
Thought Problems	Mean	5.11	9.33	7.728**
	S.D.	4.27	3.34	
Attention Problems	Mean	13.91	23.48	8.699**
	S.D.	9.42	6.52	
Aggressive Behavior	Mean	8.89	14.19	7.769**
	S.D.	6.04	3.99	
Rule Breaking Behavior	Mean	6.01	11.67	8.012**
	S.D.	5.01	4.42	
Intrusive Behavior	Mean	3.43	5.50	5.471**
	S.D.	2.56	2.39	
DSM Sub Scales				
Depressive Problems	Mean	8.35	12.81	6.557**
	S.D.	5.49	4.12	
Anxiety Problems	Mean	5.16	7.56	5.790**
	S.D.	3.49	2.48	
Somatic Problems	Mean	4.53	8.88	8.271**
	S.D.	3.93	3.24	
Avoidant Personality Problems	Mean	4.32	6.35	6.251**
	S.D.	2.98	1.88	
Attention Deficit / Hyperactive Problems	Mean	7.84	13.04	7.638**
	S.D.	5.47	4.12	
Antisocial Personality Problems	Mean	9.53	16.94	7.254**
	S.D.	7.13	6.41	

Note: *= $p < .05$; **= $p < .01$

The results regarding the effect of breast lumps on emotional and behavioral subscales and DSM subscales are presented in the table 10. There is a significant difference is observed in all subscales of emotional and behavioral subscales and DSM subscales between two groups named without breast lumps and with breast lumps. The mean values of breast lumps are experiencing anxiety/depression, withdrawn problems, thought problems, attention problems, and somatic complaints and also shown rule breaking behavior and intrusive. Similarly for DSM subscales, the breast lumps group reported the depressive problems, anxiety problems, somatic problems, and avoidant personality problem, they have also experiencing attention deficit/hyperactive problems and antisocial personality problems. From above results we can also say that, those who are experiencing the breast lumps in regular life have shown high emotional and behavioral problems and also have clinical problems according to DSM subscales.

Table-11: Breast Pain and Emotional & Behavioral Problems

Sub scale	Mean / S.D.	Without Breast Pain (N=227)	With Breast Pain (N=97)	t
Anxious / Depressed	Mean	10.87	17.40	9.017**
	S.D.	7.55	5.15	
Withdrawn	Mean	4.94	7.76	7.630**
	S.D.	3.70	2.72	
Somatic Complaints	Mean	5.38	10.40	8.881**
	S.D.	4.84	4.57	
Thought Problems	Mean	4.63	8.31	8.087**
	S.D.	4.31	3.47	
Attention Problems	Mean	12.45	22.06	10.095**
	S.D.	9.14	7.22	
Aggressive Behavior	Mean	8.04	13.48	8.959**
	S.D.	5.92	4.55	
Rule Breaking Behavior	Mean	5.12	10.90	9.644**
	S.D.	4.37	5.16	
Intrusive Behavior	Mean	3.09	5.24	7.182**
	S.D.	2.45	2.46	
DSM Sub Scales				
Depressive Problems	Mean	7.49	12.57	9.044**
	S.D.	5.31	4.30	
Anxiety Problems	Mean	4.81	7.14	6.465**
	S.D.	3.53	2.69	
Somatic Problems	Mean	3.98	7.98	9.055**
	S.D.	3.76	3.59	
Avoidant Personality Problems	Mean	3.89	6.33	8.257**
	S.D.	2.91	2.20	
Attention Deficit / Hyperactive Problems	Mean	7.06	12.25	8.964**
	S.D.	5.30	4.52	
Antisocial Personality Problems	Mean	8.31	16.05	9.134**
	S.D.	6.33	7.24	

Note: *= $p < .05$; **= $p < .01$

The influence of two age groups on the prevalence of emotional and behavioral subscales and DSM subscales was examined and the results are presented in table-11. Significant mean differences were observed among the two groups named without breast pain and with breast pain. The mean scores indicate that females with breast pain reported significantly anxiety/depressed, withdrawn, somatic complaints, thought problems, attention problems, aggressive behavior and also shown rule breaking behavior and intrusive. Similarly for DSM subscales, the age group reported the depressive problems, anxiety problems, somatic problems, and avoidant personality problem, they have also experiencing attention deficit/hyperactive problems and antisocial personality problems. In other words, females without breast pain have lesser emotional and behavioral problems. From the above results we can also say that, those who are experiencing the age group have shown high emotional and behavioral problems and also have clinical problems according to DSM subscales.

Table-12: Nipple Discharge and Emotional & Behavioral Problems

Sub scale	Mean / S.D.	Without Nipple Discharge (N=290)	With Nipple Discharge (N=34)	t
Anxious / Depressed	Mean	12.07	19.24	8.366**
	S.D.	7.48	4.28	
Withdrawn	Mean	5.46	8.53	7.591**
	S.D.	3.69	1.98	
Somatic Complaints	Mean	6.29	12.00	8.643**
	S.D.	5.14	3.42	
Thought Problems	Mean	5.22	10.09	8.999**
	S.D.	4.28	2.78	
Attention Problems	Mean	14.17	25.26	10.360**
	S.D.	9.39	5.35	
Aggressive Behavior	Mean	9.09	14.65	8.257**
	S.D.	6.06	3.32	
Rule Breaking Behavior	Mean	6.25	11.97	6.684**
	S.D.	5.06	4.68	
Intrusive Behavior	Mean	3.54	5.41	4.544**
	S.D.	2.62	2.23	
DSM Sub Scales				
Depressive Problems	Mean	8.47	13.62	6.537**
	S.D.	5.43	4.20	
Anxiety Problems	Mean	5.20	8.21	6.832**
	S.D.	3.45	2.28	
Somatic Problems	Mean	4.69	9.32	9.152**
	S.D.	4.0	2.61	
Avoidant Personality Problems	Mean	4.38	6.68	7.293**
	S.D.	2.97	1.53	
Attention Deficit / Hyperactive Problems	Mean	8.03	13.59	7.245**
	S.D.	5.47	4.06	
Antisocial Personality Problems	Mean	9.76	18.06	7.568**
	S.D.	7.18	5.90	

Note: *= $p < .05$; **= $p < .01$

The results regarding the effect of nipple discharge on emotional and behavioral subscales and DSM subscales are presented in the table 12. There is a significant difference is observed in all subscales of emotional and behavioral subscales and DSM subscales between two groups named without nipple discharge and with nipple discharge. The group that have experienced nipple discharge are experiencing anxiety, depression, thought problems, attention problems, and somatic complaints and also shown rule breaking behavior and intrusive. Similarly for DSM subscales, the nipple discharge group reported the depressive problems, anxiety problems, somatic problems, and avoidant personality problem, they have also experiencing attention deficit/hyperactive problems and antisocial personality problems. From above results we can also say that, those who are experiencing the nipple discharge in regular life have shown high emotional and behavioral problems and also have clinical problems according to DSM subscales.

Table-13: Skin Lumps and Emotional & Behavioral Problems

Sub scale	Mean / S.D.	Without Skin Lumps (N=285)	With Skin Lumps (N=39)	t
Anxious / Depressed	Mean	12.26	16.95	6.020**
	S.D.	7.73	3.93	
Withdrawn	Mean	5.41	8.51	7.969**
	S.D.	3.69	2.01	
Somatic Complaints	Mean	6.26	11.49	7.275**
	S.D.	5.12	4.07	
Thought Problems	Mean	5.27	9.10	7.761**
	S.D.	4.41	2.61	
Attention Problems	Mean	14.35	22.49	7.721**
	S.D.	9.70	5.51	
Aggressive Behavior	Mean	9.08	14.03	6.849**
	S.D.	6.08	3.91	
Rule Breaking Behavior	Mean	6.16	11.85	7.463**
	S.D.	5.07	4.36	
Intrusive Behavior	Mean	3.51	5.38	4.582**
	S.D.	2.60	2.36	
DSM Sub Scales				
Depressive Problems	Mean	8.60	12.00	5.075**
	S.D.	5.63	3.62	
Anxiety Problems	Mean	5.28	7.23	4.594**
	S.D.	3.53	2.31	
Somatic Problems	Mean	4.70	8.67	7.146**
	S.D.	4.029	3.13	
Avoidant Personality Problems	Mean	4.40	6.18	5.358**
	S.D.	3.00	1.74	
Attention Deficit / Hyperactive Problems	Mean	8.15	11.97	5.498**
	S.D.	5.65	3.80	
Antisocial Personality Problems	Mean	9.65	17.79	7.479**
	S.D.	7.12	6.27	

Note: *= $p < .05$; **= $p < .01$

Table-13 represents the effect of skin lumps on emotional and behavioral subscales and DSM subscales. Significant mean differences are observed between two groups (without skin lumps and with skin lumps). The group with skin lumps has more emotional and behavioral problems with anxiety/depressed, withdrawn, somatic complaints, thought problems, attention problems, aggressive behavior, rule-breaking behavior and intrusive. Similarly for the DSM subscales, they reported depressive problems, anxiety problems, somatic problems, and avoidant personality problem, they have also experiencing attention deficit/hyperactive problems and antisocial personality problems. In other words, those without skin lumps reported lesser emotional and behavior problems and also have clinical problems according to DSM subscales.

Table-14: Skin Changes and Emotional & Behavioral Problems

Sub scale	Mean / S.D.	Without Skin Changes (N=180)	With Skin Changes (N=144)	t
Anxious / Depressed	Mean	9.59	16.86	10.259**
	S.D.	7.65	5.04	
Withdrawn	Mean	4.12	7.87	10.823**
	S.D.	3.41	2.81	
Somatic Complaints	Mean	4.49	9.88	10.440**
	S.D.	4.38	4.78	
Thought Problems	Mean	3.99	7.92	8.837**
	S.D.	3.90	4.03	
Attention Problems	Mean	11.14	20.56	10.271**
	S.D.	9.44	7.04	
Aggressive Behavior	Mean	6.82	13.24	11.360**
	S.D.	5.63	4.54	
Rule Breaking Behavior	Mean	4.29	10.04	11.142**
	S.D.	3.97	5.066	
Intrusive Behavior	Mean	2.71	5.02	8.734**
	S.D.	2.42	2.32	
DSM Sub Scales				
Depressive Problems	Mean	6.61	12.01	10.197**
	S.D.	5.30	4.22	
Anxiety Problems	Mean	4.23	7.11	8.432**
	S.D.	3.58	2.54	
Somatic Problems	Mean	3.44	7.35	9.521**
	S.D.	3.58	3.73	
Avoidant Personality Problems	Mean	3.27	6.31	11.160**
	S.D.	2.86	2.03	
Attention Deficit / Hyperactive Problems	Mean	6.33	11.47	9.528**
	S.D.	5.64	4.03	
Antisocial Personality Problems	Mean	7.20	14.92	10.505**
	S.D.	5.95	7.02	

Note: *= $p < .05$; **= $p < .01$

The influence of two age groups on the prevalence of emotional and behavioral subscales and DSM subscales was examined and the results are presented in table-14. Significant mean differences were observed among the two groups named without skin changes and with skin changes. The mean scores indicate that females with skin changes reported significantly anxiety/depressed, withdrawn, somatic complaints, thought problems, attention problems, aggressive behavior and also shown rule breaking behavior and intrusive. Similarly for DSM subscales, the age group reported the depressive problems, anxiety problems, somatic problems, and avoidant personality problem, they have also experiencing attention deficit/hyperactive problems and antisocial personality problems. In other words, females without skin changes have lesser emotional and behavioral problems. From the above results we can also say that, those who are experiencing the skin changes have shown high emotional and behavioral problems and also have clinical problems according to DSM subscales.

Table-15: Hair Fall and Emotional & Behavioral Problems

Sub scale	Mean / S.D.	Without Hair Fall (N=78)	With Hair Fall (N=246)	t
Anxious / Depressed	Mean	9.12	14.00	4.698**
	S.D.	8.32	6.87	
Withdrawn	Mean	4.35	6.24	3.645**
	S.D.	4.17	3.38	
Somatic Complaints	Mean	5.01	7.48	3.677**
	S.D.	5.15	5.19	
Thought Problems	Mean	3.91	6.31	4.502**
	S.D.	4.01	4.38	
Attention Problems	Mean	10.69	16.80	4.852**
	S.D.	9.85	9.14	
Aggressive Behavior	Mean	5.96	10.85	6.566**
	S.D.	5.73	5.71	
Rule Breaking Behavior	Mean	4.38	7.63	5.302**
	S.D.	4.49	5.33	
Intrusive Behavior	Mean	2.58	4.10	4.273**
	S.D.	2.82	2.47	
DSM Sub Scales				
Depressive Problems	Mean	6.56	9.78	4.329**
	S.D.	5.88	5.20	
Anxiety Problems	Mean	3.78	6.06	5.000**
	S.D.	3.58	3.25	
Somatic Problems	Mean	3.68	5.65	3.836**
	S.D.	3.90	4.10	
Avoidant Personality Problems	Mean	3.18	5.07	4.717**
	S.D.	3.20	2.70	
Attention Deficit / Hyperactive Problems	Mean	6.27	9.36	4.164**
	S.D.	5.82	5.33	
Antisocial Personality Problems	Mean	6.45	11.96	6.408**
	S.D.	6.35	7.35	

Note: *= $p < .05$; **= $p < .01$

The results regarding the effect of hair fall on emotional and behavioral subscales and DSM subscales are presented in the table 15. There is a significant difference is observed in all subscales of emotional and behavioral subscales and DSM subscales between two groups named without hair fall and with hair fall. The group that have experienced hair fall are experiencing anxiety, depression, thought problems, attention problems, and somatic complaints and also shown rule breaking behavior and intrusive. Similarly for DSM subscales, the hair fall group reported the depressive problems, anxiety problems, somatic problems, and avoidant personality problem, they have also experiencing attention deficit/hyperactive problems and antisocial personality problems. From above results we can also say that, those who are experiencing the hair fall in regular life have shown high emotional and behavioral problems and also have clinical problems according to DSM subscales.

Table-16: Respiratory Problems and Emotional & Behavioral Problems

Sub scale	Mean / S.D.	Without Respiratory Problems (N=168)	With Respiratory Problems (N=156)	t
Anxious / Depressed	Mean	10.47	15.36	6.185**
	S.D.	7.50	6.72	
Withdrawn	Mean	4.30	7.38	8.299**
	S.D.	3.21	3.46	
Somatic Complaints	Mean	4.50	9.46	9.468**
	S.D.	4.25	5.09	
Thought Problems	Mean	3.82	7.80	8.997**
	S.D.	3.33	4.50	
Attention Problems	Mean	11.44	19.52	8.248**
	S.D.	8.57	9.02	
Aggressive Behavior	Mean	7.35	12.18	7.765**
	S.D.	5.45	5.73	
Rule Breaking Behavior	Mean	4.42	9.47	9.552**
	S.D.	3.71	5.55	
Intrusive Behavior	Mean	2.96	4.57	5.727**
	S.D.	2.36	2.68	
DSM Sub Scales				
Depressive Problems	Mean	7.14	11.03	6.738**
	S.D.	5.24	5.14	
Anxiety Problems	Mean	4.57	6.53	5.300**
	S.D.	3.57	3.05	
Somatic Problems	Mean	3.33	7.16	9.320**
	S.D.	3.36	3.97	
Avoidant Personality Problems	Mean	3.74	5.56	5.827**
	S.D.	2.84	2.76	
Attention Deficit / Hyperactive Problems	Mean	6.82	10.54	6.345**
	S.D.	5.47	5.08	
Antisocial Personality Problems	Mean	7.27	14.24	9.297**
	S.D.	5.29	7.84	

Note: *= $p < .05$; **= $p < .01$

The results regarding the effect of respiratory problems on emotional and behavioral subscales and DSM subscales are presented in the table 16. There is a significant difference is observed in all subscales of emotional and behavioral subscales and DSM subscales between two groups named without respiratory problems and with respiratory problems. The group that have experienced respiratory problems are experiencing anxiety, depression, thought problems, attention problems, and somatic complaints and also shown rule breaking behavior and intrusive. Similarly for DSM subscales, the respiratory problems group reported the depressive problems, anxiety problems, somatic problems, and avoidant personality problem, they have also experiencing attention deficit/hyperactive problems and antisocial personality problems. From above results we can also say that, those who are experiencing the respiratory problems in regular life have shown high emotional and behavioral problems and also have clinical problems according to DSM subscales.

Table-17: Heart Problems and Emotional & Behavioral Problems

Sub scale	Mean / S.D.	Without Heart Problems (N=180)	With Heart Problems (N=144)	t
Anxious / Depressed	Mean	9.45	17.04	10.708**
	S.D.	7.23	5.52	
Withdrawn	Mean	4.12	7.87	10.708**
	S.D.	3.29	2.99	
Somatic Complaints	Mean	4.07	10.41	13.198**
	S.D.	4.03	4.49	
Thought Problems	Mean	3.56	8.45	11.725**
	S.D.	3.50	3.90	
Attention Problems	Mean	10.33	21.58	12.989**
	S.D.	8.41	7.17	
Aggressive Behavior	Mean	6.76	13.31	11.574**
	S.D.	5.44	4.73	
Rule Braking Behavior	Mean	3.99	10.42	13.016**
	S.D.	3.58	4.97	
Intrusive Behavior	Mean	2.58	5.17	9.900**
	S.D.	2.18	2.45	
DSM Sub Scales				
Depressive Problems	Mean	6.40	12.27	11.246**
	S.D.	4.88	4.49	
Anxiety Problems	Mean	4.12	7.25	9.186**
	S.D.	3.34	2.78	
Somatic Problems	Mean	3.04	7.84	12.591**
	S.D.	3.28	3.50	
Avoidant Personality Problems	Mean	3.32	6.24	10.432**
	S.D.	2.80	2.22	
Attention Deficit / Hyperactive Problems	Mean	6.01	11.87	11.102**
	S.D.	5.07	4.41	
Antisocial Personality Problems	Mean	6.81	15.40	12.126**
	S.D.	5.45	6.96	

Note: *= $p < .05$; **= $p < .01$

The influence of two age groups on the prevalence of emotional and behavioral subscales and DSM subscales was examined and the results are presented in table-17. Significant mean differences were observed among the two groups named without heart problems and with heart problems. The mean scores indicate that females with heart problems reported significantly anxiety/depressed, withdrawn, somatic complaints, thought problems, attention problems, aggressive behavior and also shown rule breaking behavior and intrusive. Similarly for DSM subscales, the age group reported the depressive problems, anxiety problems, somatic problems, and avoidant personality problem, they have also experiencing attention deficit/hyperactive problems and antisocial personality problems. In other words, females without heart problems have lesser emotional and behavioral problems. From the above results we can also say that, those who are experiencing the heart problems shown high emotional and behavioral problems and also have clinical problems according to DSM subscales.

Table-18: Urine Infection and Emotional & Behavioral Problems

Sub scale	Mean / S.D.	Without Urine Infection (N=150)	With Urine Infection (N=174)	t
Anxious / Depressed	Mean	8.73	16.35	10.433**
	S.D.	6.79	6.26	
Withdrawn	Mean	4.17	7.18	8.032**
	S.D.	3.42	3.29	
Somatic Complaints	Mean	4.27	9.14	9.418**
	S.D.	4.19	5.09	
Thought Problems	Mean	3.25	7.87	11.008**
	S.D.	3.77	3.76	
Attention Problems	Mean	9.43	20.42	12.397**
	S.D.	7.90	8.02	
Aggressive Behavior	Mean	6.02	12.82	12.077**
	S.D.	5.06	5.03	
Rule Breaking Behavior	Mean	3.47	9.76	13.572**
	S.D.	3.09	5.12	
Intrusive Behavior	Mean	2.37	4.91	10.049**
	S.D.	1.97	2.58	
DSM Sub Scales				
Depressive Problems	Mean	6.09	11.52	10.104**
	S.D.	4.73	4.92	
Anxiety Problems	Mean	4.00	6.82	7.870**
	S.D.	3.41	2.96	
Somatic Problems	Mean	3.23	6.85	8.827**
	S.D.	3.36	4.00	
Avoidant Personality Problems	Mean	3.17	5.87	9.177**
	S.D.	2.78	2.46	
Attention Deficit / Hyperactive Problems	Mean	5.34	11.44	11.678**
	S.D.	4.52	4.86	
Antisocial Personality Problems	Mean	6.01	14.61	12.916**
	S.D.	4.65	7.21	

Note: *= $p < .05$; **= $p < .01$

Table-18 represents the effect of urine infection on emotional and behavioral subscales and DSM subscales. Significant mean differences are observed between two groups (without urine infection and with urine infection). The group with urine infection has more emotional and behavioral problems with anxiety/depressed, withdrawn, somatic complaints, thought problems, attention problems, aggressive behavior, rule-breaking behavior and intrusive. Similarly for the DSM subscales, they reported depressive problems, anxiety problems, somatic problems, and avoidant personality problem, they have also experiencing attention deficit/hyperactive problems and antisocial personality problems. From above results we can also say that, those who are experiencing the urine infection in regular life have shown high emotional and behavioral problems and also have clinical problems according to DSM subscales. In other words, those without urine infection reported lesser emotional and behavior problems and also have clinical problems according to DSM subscales.

Table-19: Muscular Problems and Emotional & Behavioral Problems

Sub scale	Mean / S.D.	Without Muscular Problems (N=113)	With Muscular Problems (N=211)	t
Anxious / Depressed	Mean	9.77	14.46	5.310**
	S.D.	7.98	6.75	
Withdrawn	Mean	4.22	6.62	5.856**
	S.D.	3.54	3.46	
Somatic Complaints	Mean	4.60	8.11	6.203**
	S.D.	4.64	5.21	
Thought Problems	Mean	4.37	6.46	4.058**
	S.D.	4.55	4.16	
Attention Problems	Mean	11.51	17.37	5.304**
	S.D.	9.71	9.01	
Aggressive Behavior	Mean	7.10	11.05	5.897**
	S.D.	5.71	5.83	
Rule Breaking Behavior	Mean	4.76	7.97	5.840**
	S.D.	4.20	5.52	
Intrusive Behavior	Mean	2.78	4.25	5.078**
	S.D.	2.39	2.63	
DSM Sub Scales				
Depressive Problems	Mean	6.77	10.21	5.536**
	S.D.	5.36	5.26	
Anxiety Problems	Mean	4.27	6.18	4.705**
	S.D.	3.64	3.18	
Somatic Problems	Mean	3.35	6.16	6.379**
	S.D.	3.61	4.06	
Avoidant Personality Problems	Mean	3.48	5.23	5.085**
	S.D.	3.09	2.67	
Attention Deficit / Hyperactive Problems	Mean	6.32	9.84	5.639**
	S.D.	5.37	5.34	
Antisocial Personality Problems	Mean	7.68	12.21	5.779**
	S.D.	6.13	7.69	

Note: *= $p < .05$; **= $p < .01$

The results regarding the effect of muscular problems on emotional and behavioral subscales and DSM subscales are presented in the table 19. There is a significant difference is observed in all subscales of emotional and behavioral subscales and DSM subscales between two groups named without muscular problems and with muscular problems. The group that have experienced muscular problems are experiencing anxiety/ depressed, thought problems, attention problems, and somatic complaints and also shown rule breaking behavior and intrusive. Similarly for DSM subscales, the muscular problems group reported the depressive problems, anxiety problems, somatic problems, and avoidant personality problem, they have also experiencing attention deficit/hyperactive problems and antisocial personality problems. From above results we can also say that, those who are experiencing the muscular problems in regular life have shown high emotional and behavioral problems and also have clinical problems according to DSM subscales.

Table-20: Neurological Problems and Emotional & Behavioral Problems

Sub scale	Mean / S.D.	Without Neurological Problems (N=146)	With Neurological Problems (N=178)	t
Anxious / Depressed	Mean	9.32	6.94	8.320**
	S.D.	15.70	6.75	
Withdrawn	Mean	4.14	7.13	7.958**
	S.D.	3.34	3.37	
Somatic Complaints	Mean	4.30	9.01	9.104**
	S.D.	4.04	5.24	
Thought Problems	Mean	3.78	7.34	7.865**
	S.D.	4.06	4.03	
Attention Problems	Mean	10.37	19.40	9.523**
	S.D.	8.13	8.90	
Aggressive Behavior	Mean	6.82	12.01	8.452**
	S.D.	5.43	5.57	
Rule Breaking Behavior	Mean	4.16	9.06	9.562**
	S.D.	3.85	5.35	
Intrusive Behavior	Mean	2.62	4.65	7.659**
	S.D.	2.06	2.71	
DSM Sub Scales				
Depressive Problems	Mean	6.41	11.14	8.503**
	S.D.	4.79	5.19	
Anxiety Problems	Mean	4.21	6.58	6.492**
	S.D.	3.34	3.20	
Somatic Problems	Mean	3.23	6.77	8.644**
	S.D.	3.26	4.09	
Avoidant Personality Problems	Mean	3.34	5.66	7.641**
	S.D.	2.77	2.65	
Attention Deficit / Hyperactive Problems	Mean	5.77	10.94	9.419**
	S.D.	4.59	5.28	
Antisocial Personality Problems	Mean	7.05	13.56	8.868**
	S.D.	5.56	7.62	

Note: *= $p < .05$; **= $p < .01$

The results regarding the effect of neurological problems on emotional and behavioral subscales and DSM subscales are presented in the table-20. There is a significant difference is observed in all subscales of emotional and behavioral subscales and DSM subscales between two groups named without neurological problems and with neurological problems. The group that have experienced neurological problems are experiencing anxiety/ depressed, thought problems, attention problems, and somatic complaints and also shown rule breaking behavior and intrusive. Similarly for DSM subscales, the neurological problems group reported the depressive problems, anxiety problems, somatic problems, and avoidant personality problem, they have also experiencing attention deficit/hyperactive problems and antisocial personality problems. From above results we can also say that, those who are experiencing the neurological problems in regular life have shown high emotional and behavioral problems and also have clinical problems according to DSM subscales.

Table-21: Psychological Problems and Emotional & Behavioral Problems

Sub scale	Mean / S.D.	Without Psychological Problems (N=133)	With Psychological Problems (N=191)	t
Anxious / Depressed	Mean	8.86	15.59	8.810**
	S.D.	6.73	6.80	
Withdrawn	Mean	4.04	7.00	7.889**
	S.D.	3.20	3.48	
Somatic Complaints	Mean	4.51	8.54	7.531**
	S.D.	4.31	5.27	
Thought Problems	Mean	3.79	7.09	7.106**
	S.D.	4.12	4.10	
Attention Problems	Mean	10.28	18.85	8.878**
	S.D.	8.16	9.06	
Aggressive Behavior	Mean	6.38	11.96	9.238**
	S.D.	5.14	5.62	
Rule Breaking Behavior	Mean	3.88	8.92	10.297**
	S.D.	3.29	5.48	
Intrusive Behavior	Mean	2.65	4.55	7.380**
	S.D.	2.20	2.32	
DSM Sub Scales				
Depressive Problems	Mean	6.21	10.96	8.465**
	S.D.	4.82	5.17	
Anxiety Problems	Mean	3.89	6.64	7.595**
	S.D.	3.19	3.20	
Somatic Problems	Mean	3.37	6.43	7.247**
	S.D.	3.48	4.09	
Avoidant Personality Problems	Mean	3.27	5.55	7.463**
	S.D.	2.68	2.74	
Attention Deficit / Hyperactive Problems	Mean	5.60	10.71	9.329**
	S.D.	4.45	5.36	
Antisocial Personality Problems	Mean	6.60	13.43	9.726**
	S.D.	4.91	7.71	

Note: *= $p < .05$; **= $p < .01$

Table-21 represents the effect of psychological problems on emotional and behavioral subscales and DSM subscales. Significant mean differences are observed between two groups (without psychological problems and with psychological problems). The group with psychological problems has more emotional and behavioral problems with anxiety/depressed, withdrawn, somatic complaints, thought problems, attention problems, aggressive behavior, rule-breaking behavior and intrusive. Similarly for the DSM subscales, they reported depressive problems, anxiety problems, somatic problems, and avoidant personality problem, they have also experiencing attention deficit/hyperactive problems and antisocial personality problems. From above results we can also say that, those who are experiencing the psychological problems in regular life have shown high emotional and behavioral problems and also have clinical problems according to DSM subscales.

Table-22: Endocrine Problems and Emotional & Behavioral Problems

Sub scale	Mean / S.D.	Without Endocrine Problems (N=275)	With Endocrine Problems (N=49)	t
Anxious / Depressed	Mean	11.93	17.86	7.138**
	S.D.	7.58	4.85	
Withdrawn	Mean	5.22	8.96	8.915**
	S.D.	3.55	2.52	
Somatic Complaints	Mean	6.02	11.73	7.763**
	S.D.	4.90	4.71	
Thought Problems	Mean	4.99	9.94	9.798**
	S.D.	4.19	3.06	
Attention Problems	Mean	13.81	23.84	9.402**
	S.D.	9.37	6.32	
Aggressive Behavior	Mean	8.78	14.67	8.174**
	S.D.	5.91	4.38	
Rule Breaking Behavior	Mean	5.88	12.31	9.064**
	S.D.	4.84	4.52	
Intrusive Behavior	Mean	3.40	5.61	6.317**
	S.D.	2.57	2.19	
DSM Sub Scales				
Depressive Problems	Mean	8.29	13.06	7.601**
	S.D.	5.50	3.73	
Anxiety Problems	Mean	5.15	7.55	5.359**
	S.D.	3.46	2.77	
Somatic Problems	Mean	4.51	8.94	7.608**
	S.D.	3.83	3.74	
Avoidant Personality Problems	Mean	4.25	6.67	8.104**
	S.D.	2.96	1.67	
Attention Deficit / Hyperactive Problems	Mean	7.95	12.35	6.464**
	S.D.	5.57	4.14	
Antisocial Personality Problems	Mean	9.22	18.55	8.976**
	S.D.	6.72	6.70	

Note: *= $p < .05$; **= $p < .01$

The results regarding the effect of endocrine problems on emotional and behavioral subscales and DSM subscales are presented in the table 22. There is a significant difference is observed in all subscales of emotional and behavioral subscales and DSM subscales between two groups named without endocrine problems and with endocrine problems. The group that have experienced endocrine problems are experiencing anxiety/ depression, thought problems, attention problems, and somatic complaints and also shown rule breaking behavior and intrusive. Similarly for DSM subscales, the endocrine problems group reported the depressive problems, anxiety problems, somatic problems, and avoidant personality problem, they have also experiencing attention deficit/hyperactive problems and antisocial personality problems. From above results we can also say that, those who are experiencing the endocrine problems in regular life have shown high emotional and behavioral problems and also have clinical problems according to DSM subscales.

Table-23: Menarche Age and Emotional & Behavioral Problems

Sub scale	Mean / S.D.	Below 13 (N=149)	Above 13 (N=175)	t
Anxious / Depressed	Mean	13.15	12.55	0.714
	S.D.	7.47	7.59	
Withdrawn	Mean	5.86	5.72	0.338
	S.D.	3.76	3.60	
Somatic Complaints	Mean	6.91	6.87	0.063
	S.D.	5.45	5.15	
Thought Problems	Mean	6.07	5.45	1.260
	S.D.	4.81	4.03	
Attention Problems	Mean	15.63	15.07	0.515
	S.D.	9.74	9.61	
Aggressive Behavior	Mean	9.73	9.62	0.160
	S.D.	6.10	6.08	
Rule Breaking Behavior	Mean	6.80	6.89	0.155
	S.D.	5.50	5.17	
Intrusive Behavior	Mean	3.72	3.75	0.103
	S.D.	2.69	2.60	
DSM Sub Scales				
Depressive Problems	Mean	9.21	8.83	0.613
	S.D.	5.68	5.42	
Anxiety Problems	Mean	5.64	5.40	0.627
	S.D.	3.60	3.35	
Somatic Problems	Mean	5.19	5.16	0.075
	S.D.	4.26	4.03	
Avoidant Personality Problems	Mean	4.60	4.63	0.112
	S.D.	3.03	2.86	
Attention Deficit / Hyperactive Problems	Mean	8.46	8.74	0.450
	S.D.	5.36	5.81	
Antisocial Personality Problems	Mean	10.60	10.65	0.056
	S.D.	7.71	7.33	

Note: *= $p < .05$; **= $p < .01$

Table-23 represents the effect of menarche age on emotional and behavioral subscales and DSM subscales. No significant mean differences are observed between two groups named below 13 and above 13. The group that have experienced menarche age are experiencing anxiety/ depression, thought problems, attention problems, and somatic complaints and also shown rule breaking behavior and intrusive. Similarly for DSM subscales, the endocrine problems group reported the depressive problems, anxiety problems, somatic problems, and avoidant personality problem, they have also experiencing attention deficit/hyperactive problems and antisocial personality problems. From above results we can also say that, those who are experiencing the endocrine problems in regular life have shown high emotional and behavioral problems and also have clinical problems according to DSM subscales.

Table-24: Periods Regularity and Emotional & Behavioral Problems

Sub scale	Mean / S.D.	Regular (N=136)	Irregular (N=188)	t
Anxious / Depressed	Mean	10.99	14.15	3.791**
	S.D.	7.43	7.34	
Withdrawn	Mean	4.60	6.64	5.280**
	S.D.	3.11	3.81	
Somatic Complaints	Mean	4.61	8.53	7.448**
	S.D.	3.95	5.52	
Thought Problems	Mean	4.51	6.62	4.344**
	S.D.	4.31	4.28	
Attention Problems	Mean	12.40	17.45	4.835**
	S.D.	9.11	9.51	
Aggressive Behavior	Mean	7.76	11.06	5.067**
	S.D.	5.57	6.07	
Rule Braking Behavior	Mean	4.50	8.55	7.801**
	S.D.	3.61	5.70	
Intrusive Behavior	Mean	3.04	4.24	4.251**
	S.D.	2.33	2.74	
DSM Sub Scales				
Depressive Problems	Mean	7.54	10.07	4.211**
	S.D.	5.22	5.53	
Anxiety Problems	Mean	4.86	5.98	2.899**
	S.D.	3.47	3.40	
Somatic Problems	Mean	3.43	6.44	7.227**
	S.D.	3.26	4.24	
Avoidant Personality Problems	Mean	3.89	5.14	3.895**
	S.D.	2.80	2.93	
Attention Deficit / Hyperactive Problems	Mean	7.09	9.72	4.318**
	S.D.	5.28	5.58	
Antisocial Personality Problems	Mean	7.35	13.01	7.647**
	S.D.	5.41	7.90	

Note: *= $p < .05$; **= $p < .01$

The influence of two age groups on the prevalence of emotional and behavioral subscales and DSM subscales was examined and the results are presented in table-24. Significant mean differences were observed among the two groups named regular periods and irregular periods. The mean scores indicate that females with irregular periods reported significantly anxiety/depressed, withdrawn, somatic complaints, thought problems, attention problems, aggressive behavior and also shown rule breaking behavior and intrusive. Similarly for DSM subscales, the age group reported the depressive problems, anxiety problems, somatic problems, and avoidant personality problem, they have also experiencing attention deficit/hyperactive problems and antisocial personality problems. In other words, females with regular periods have lesser emotional and behavioral problems. From the above results we can also say that, those who are experiencing irregular periods shown high emotional and behavioral problems and also have clinical problems according to DSM subscales.

Table-25: Painful Periods and Emotional & Behavioral Problems

Sub scale	Mean / S.D.	Without Painful Periods (N=102)	With Painful Periods (N=222)	t
Anxious / Depressed	Mean	11.11	13.61	2.663**
	S.D.	8.19	7.09	
Withdrawn	Mean	5.07	6.11	2.258**
	S.D.	4.04	3.44	
Somatic Complaints	Mean	5.69	7.44	2.693**
	S.D.	5.60	5.05	
Thought Problems	Mean	5.34	5.91	1.007
	S.D.	5.00	4.10	
Attention Problems	Mean	13.45	16.19	2.272**
	S.D.	10.49	9.15	
Aggressive Behavior	Mean	8.24	10.33	2.827**
	S.D.	6.36	5.84	
Rule Breaking Behavior	Mean	6.07	7.21	1.798
	S.D.	5.28	5.31	
Intrusive Behavior	Mean	3.17	4.00	2.689**
	S.D.	2.54	2.65	
DSM Sub Scales				
Depressive Problems	Mean	8.00	9.47	2.138**
	S.D.	5.96	5.28	
Anxiety Problems	Mean	4.89	5.80	2.069**
	S.D.	3.82	3.26	
Somatic Problems	Mean	4.13	5.66	3.069**
	S.D.	4.24	4.00	
Avoidant Personality Problems	Mean	3.90	4.95	2.914**
	S.D.	3.06	2.82	
Attention Deficit / Hyperactive Problems	Mean	7.12	9.30	3.256**
	S.D.	5.68	5.44	
Antisocial Personality Problems	Mean	9.48	11.16	1.833*
	S.D.	7.80	7.31	

Note: *= $p < .05$; **= $p < .01$

The prevalence across the two types of painful periods was examined and the results are presented in table-25. Significant mean differences were observed among the two groups (without painful periods and with painful periods) on all the dimensions of Adult Self Report (ASR) except thought problems and rule-breaking behavior. The mean scores indicate that the females with painful periods reported more emotional and behavioral problems such as anxious/depressed, withdrawn, somatic complaints, attention problems, aggressive behavior and intrusive. They even displayed more DSM subscales such as depressive problems, anxiety problems, somatic problems, avoidant personality problems, attention deficit/hyperactive problems and antisocial personality problems. In other words, females without painful periods reported significantly lesser emotional and behavioral problems and also have clinical problems according to DSM subscales.

Table-26: Heavy Menses and Emotional and Behavioral Problems

Sub scale	Mean / S.D.	Without Heavy Menses(N=225)	With Heavy Menses(N=99)	t
Anxious / Depressed	Mean	12.38	13.83	1.620
	S.D.	7.60	7.30	
Withdrawn	Mean	5.49	6.45	2.166**
	S.D.	3.61	3.73	
Somatic Complaints	Mean	6.46	7.86	2.211**
	S.D.	5.25	5.25	
Thought Problems	Mean	5.59	6.06	0.910
	S.D.	4.51	4.17	
Attention Problems	Mean	14.81	16.52	1.467
	S.D.	9.65	9.64	
Aggressive Behavior	Mean	9.43	10.22	1.083
	S.D.	6.09	6.04	
Rule Breaking Behavior	Mean	6.55	7.54	1.455
	S.D.	5.04	5.87	
Intrusive Behavior	Mean	3.64	3.94	0.895
	S.D.	2.57	2.80	
DSM Sub Scales				
Depressive Problems	Mean	8.79	9.52	1.135
	S.D.	5.70	5.14	
Anxiety Problems	Mean	5.38	5.81	1.051
	S.D.	3.55	3.27	
Somatic Problems	Mean	4.80	6.02	2.480**
	S.D.	4.13	4.03	
Avoidant Personality Problems	Mean	4.45	5.00	1.581
	S.D.	2.97	2.85	
Attention Deficit / Hyperactive Problems	Mean	8.18	9.60	2.056**
	S.D.	5.47	5.79	
Antisocial Personality Problems	Mean	10.26	11.46	1.280
	S.D.	7.24	8.01	

Note: *=p<.05; **=p<.01

Table-26 represents the effect of heavy menses on emotional and behavioral subscales and DSM subscales. Less significant mean differences are observed between two groups named without heavy menses and with heavy menses. The group with heavy menses experienced withdrawn, somatic complaints and also has attention deficit/ hyperactive problems. From above results we can also say that, those who are experiencing heavy menses in regular life have shown high emotional and behavioral problems and also have clinical problems according to DSM subscales.

Table-27: Hormonal Tablets and Emotional and Behavioral Problems

Sub scale	Mean / S.D.	Without Hormonal Tablets (N=189)	With Hormonal Tablets (N=135)	t
Anxious / Depressed	Mean	12.09	13.96	2.337**
	S.D.	7.65	7.23	
Withdrawn	Mean	5.20	6.60	3.403**
	S.D.	3.51	3.73	
Somatic Complaints	Mean	5.79	8.42	4.426**
	S.D.	4.74	5.63	
Thought Problems	Mean	5.23	6.44	2.453**
	S.D.	4.43	4.30	
Attention Problems	Mean	13.85	17.41	3.321**
	S.D.	9.53	9.50	
Aggressive Behavior	Mean	8.68	11.06	3.513**
	S.D.	5.90	6.07	
Rule Breaking Behavior	Mean	5.66	8.52	4.785**
	S.D.	4.68	5.71	
Intrusive Behavior	Mean	3.41	4.19	2.655**
	S.D.	2.60	2.64	
DSM Sub Scales				
Depressive Problems	Mean	8.31	9.99	2.716**
	S.D.	5.43	5.56	
Anxiety Problems	Mean	5.12	6.06	2.428**
	S.D.	3.48	3.38	
Somatic Problems	Mean	4.34	6.35	4.335**
	S.D.	3.77	4.33	
Avoidant Personality Problems	Mean	4.23	5.16	2.821**
	S.D.	2.93	2.88	
Attention Deficit / Hyperactive Problems	Mean	7.90	9.61	2.730**
	S.D.	5.58	5.50	
Antisocial Personality Problems	Mean	8.94	13.00	4.837**
	S.D.	6.66	7.97	

Note: *= $p < .05$; **= $p < .01$

The results regarding the effect of hormonal tablets on emotional and behavioral subscales and DSM subscales are presented in the table-27. There is a significant difference is observed in all subscales of Emotional and Behavioral subscales and DSM subscales between two groups named without hormonal tablets and with hormonal tablets. The group that have experienced with hormonal tablets are experiencing anxiety, depression, thought problems, attention problems, and somatic complaints and also shown rule breaking behavior and intrusive. Similarly for DSM subscales, the hormonal tablets group reported the depressive problems, anxiety problems, somatic problems, and avoidant personality problems, they have also experiencing attention deficit/hyperactive problems and antisocial personality problems. From above results we can also say that, those who are experiencing the hormonal tablets have shown high emotional and behavioral problems and also have clinical problems according to DSM subscales.

Chapter-5
DISCUSSION

1. Summary of Key Findings

In this study, it was found out that different health-related issues had important effects on emotional and behavioral difficulties among girls. Individuals experiencing ailments such as PCOS, stress, safety issues and breast lumps among others reported significantly higher anxiety depression attention problems and somatic complaints were experienced by those facing concerns of most common conditions like cataract snoring gout constipation. Emotional distress also was present in all DSM subscales to some degree, with highest concerns surrounding avoidant personality and antisocial behaviors. Having irregular menstrual cycles and/or being on medical treatment also increased emotional difficulties, highlighting a dynamic interplay of somatic health with mental-health outcomes.

2. Discussion in Relation to the Existing Literature

These results are consistent with past work that suggests a reciprocal relationship between physical health conditions and mental health outcomes. For example, studies have revealed that the prevalence of anxiety and depression in women with PCOS is higher than among non-affected individuals (Bansal et al., 2020). Similarly, stress is one of the most well-known contributors to emotional disorders (Liu et al., 2018). These findings regarding breast-related body image are consistent with research that demonstrates psychological distress including anxiety and depression, for up to 51% of survivors in the case where a study alone found no difference (Schmidt et al., 2019). This not only reproduces past research but also indicates the legitimacy of our results and emphasizes why we should better understand physical health issues from a psychological perspective.

3. Implications

There are several implications of this study. On a clinical level, it implies that coordinated care delivery models are required so as to attend to both physical and mental health needs. These results indicate a need for healthcare providers to be more cognizant of the psychological burden that often accompanies chronic health conditions and may justify routine screening for behavioral and emotional issues among patient populations with such illnesses. In addition, interventions that would address stress management and emotional support may also be helpful. Public health campaigns should help in creating an environment of awareness where addressing mental illness is also considered from the conation point of view and not just treated as a separate issue independent of everything else.

4. Acknowledge Limitations

Despite the significant findings, this study has limitations. The cross-sectional design restricts the ability to infer causality between health conditions and emotional outcomes. Furthermore, the reliance on self-reported measures may introduce bias, as individuals might underreport or over report their emotional states. The sample may also lack diversity, which could limit the generalizability of the findings across different demographics and cultural contexts. Future studies should aim for larger, more diverse samples and longitudinal designs to better understand these relationships over time.

5. Suggest Future Research

For example, future studies should investigate the mechanisms that contribute to the associations between physical health conditions and different mental outcomes. A longitudinal perspective might reveal how emotional problems arise in response to physical health challenges over time. Qualitative studies could also help to illuminate individual experiences and adaptive responses among residents who are struggling with both sets of challenges. Future trials can also assess whether particular interventions—such as cognitive-behavioral therapy or mindfulness practices—are more helpful for improving emotional distress in women with chronic health conditions and how best to deploy such strategies.

Conclusion

In conclusion, this study illustrates the profound emotional suffering and concomitant behavioral changes from which women with multi-morbidity suffer. Understanding how these relationships contribute to patient implications can help us more effectively support individuals using integrated healthcare strategies and, in turn may drive a greater sense of overall well-being.

Chapter-6
CONCLUSIONS

Hormone imbalances in young women can significantly affect mental health. Key hormones such as estrogen, progesterone, and cortisol play vital roles in mood regulation and emotional stability. When these hormones are imbalanced, it can lead to mental health issues such as anxiety, depression, mood swings, irritability, and even cognitive impairments. This highlights the intricate connection between endocrine function and emotional well-being. Moreover, conditions like Polycystic Ovary Syndrome (PCOS) and thyroid dysfunction emerge as critical contributors to psychological distress.

Estrogen hormone, which influences serotonin production (a mood regulating neurotransmitter), can cause mood disorders when its levels fluctuate, such as during the menstrual cycle, pregnancy, or conditions like Polycystic Ovary Syndrome (PCOS). Progesterone often called the 'calming hormone, helps regulate anxiety; its low levels are associated with increased anxiety and irritability.

Chronic stress, which elevates cortisol, can also lead to mental fatigue and depressive symptoms. Additionally, hormonal disorders like thyroid dysfunction can exacerbate mental health issues, leading to the conditions such as fatigue, depression, or confusion.

In conclusion, the prevention of hormonal imbalances in young women is achievable through a combination of lifestyle changes, early intervention, and targeted healthcare strategies. The preventive measures include maintaining a balanced diet, regular exercise, stress management, and adequate sleep, which collectively support hormone regulation.

Regular medical check-ups and personalized healthcare approaches, such as hormonal assessments and individualized treatment plans, can help identify and address potential imbalances before they manifest into more severe health issues. By prioritizing awareness and education about hormonal health, young women can be empowered to make informed decisions, reducing the risk of hormone-related mental and physical health complications.

Suggestions for further research

The present study administered the ASEBA scale to examine the effect of hormone imbalances on mental health among young women. The research not only emphasizes the need for greater awareness and early detection of hormonal imbalances but also advocates for a multidisciplinary approach to treatment, integrating endocrinology and mental health care.

Future studies should focus on longitudinal analysis and personalized therapeutic strategies to further elucidate the mechanisms of hormone related mental challenges. These insights can inform better clinical practices and improve outcomes for young women affected by hormonal imbalances, contributing to enhanced overall well-being.

APPENDICES

APPENDIX I

Biographical Information

A RESEARCH ON HORMONE IMBALANCE IN YOUNG WOMEN

Patient Name:

Date:

Age:

Time:

Weight:

Contact number:

City/ village:

Have you had any of the following in the past?

General:

- Stress yes/no
- Fatigue (feeling tired or weak) yes/no
- Weight gain yes/no
- Unexplained weight loss yes/no
- Safety concerns yes/no

Breast:

- Lumps yes/no
- Pain yes/no
- Nipple discharge yes/no

Skin/ Hair:

- Lumps yes/no
- Skin changes-Pale/Oily/Dry
- Hair changes yes/no

Respiratory:

- Wheezing yes/no
- Shortness of breath yes/no
- Seasonal issues yes/no
- Phlegm yes/no

Heart/ circulation:

- o Irregular heartbeat yes/no
- o Chest pain yes/no
- o Edema/ swelling on legs yes/no
- o Calf pain yes/no
- o Palpitations yes/no
- o Varicose veins yes/no
- o Sweating on- forehead/body/under areas

Genitourinary:

- o Blood in urine yes/no
- o Frequent urination (Diabetes) yes/no
- o Pain while urinating yes/no
- o Color of the urine clear/yellow/darker yellow/orange
- o White discharge yes/no
- o Abnormal vaginal discharge or bleeding yes/no
- o Incontinence (leaking urine)
 - With urge to urinate
 - With cough, sneeze or laugh

Musculoskeletal problems:

- o Arthritis yes/no
- o Back pain yes/no
- o Joint pain or swelling (knee joints) yes/no
- o Bone fractures yes/no
- o Extra bone growth yes/no

Neurological problems:

- o Confusion yes/no
- o Headaches yes/no
- o Change in memory yes/no
- o Seizures yes/no

- Numbness or tingling in hands or feet yes/no
- Dizziness yes/no

Psychological problems:

- Depression yes/no
- Anxiety yes/no
- Insomnia yes/no
- Overthinking yes/no
- Hallucinations yes/no
- Delusions yes/no
- Panic attacks yes/no
- Stress yes/no
- Psycho somatic disorder yes/no

Endocrine:

- Abnormal blood sugars if yes, _____/no
- Thyroid problems -hyper/hypo

GYN history:

- Age at 1st period:
- Period comes regular/ irregular
- Painful periods? Yes/ no
- Heavy menses? Yes/ no
- Uterus cysts/uterus enlargement/PCOS? Yes/No
- Hormonal tablets/ PCOD? Yes/No

Surgeries: please list all the surgeries with the approximate year you had each one.

APPENDIX -II

Adult Self Report



Please print your answers.

ADULT SELF-REPORT FOR AGES 18-59

For office use only
ID#

YOUR FULL NAME First _____ Middle _____ Last _____			YOUR USUAL TYPE OF WORK, even if not working now. Please be specific—for example, auto mechanic; high school teacher; homemaker; laborer; lathe operator; shoe salesman; army sergeant; student (indicate what you are studying & what degree you expect). Your work _____ Spouse or partner's work _____
YOUR GENDER <input type="checkbox"/> Male <input type="checkbox"/> Female	YOUR AGE _____	ETHNIC GROUP OR RACE _____	
TODAY'S DATE Mo. _____ Date _____ Yr. _____		YOUR BIRTHDATE Mo. _____ Date _____ Yr. _____	
Please fill out this form to reflect your views, even if other people might not agree. You need not spend a lot of time on any item. Feel free to print additional comments. Be sure to answer all items.			PLEASE CHECK YOUR HIGHEST EDUCATION <input type="checkbox"/> 1. No high school diploma and no GED <input type="checkbox"/> 7. Some graduate school but no graduate degree <input type="checkbox"/> 2. General Equivalency Diploma (GED) <input type="checkbox"/> 3. High school graduate <input type="checkbox"/> 8. Master's Degree <input type="checkbox"/> 4. Some college but no college degree <input type="checkbox"/> 9. Doctoral or Law Degree <input type="checkbox"/> 5. Associate's Degree <input type="checkbox"/> Other education (specify): _____ <input type="checkbox"/> 6. Bachelor's or RN Degree

I. FRIENDS:

- A. About how many close friends do you have? (Do not include family members.)
 None 1 2 or 3 4 or more
- B. About how many times a month do you have contact with any of your close friends? (Include in-person contacts, phone, letters, e-mail.)
 Less than 1 1 or 2 3 or 4 5 or more
- C. How well do you get along with your close friends?
 Not as well as I'd like Average Above average Far above average
- D. About how many times a month do any friends or family visit you?
 Less than 1 1 or 2 3 or 4 5 or more

II. SPOUSE OR PARTNER:

- What is your marital status? Never been married Married but separated from spouse
 Married, living with spouse Divorced
 Widowed Other—please describe: _____

At any time in the past 6 months, did you live with your spouse or with a partner?

- No—please skip to page 2.
 Yes—Circle 0, 1, or 2 beside items A-H to describe your relationship during the past 6 months:

0 = Not True 1 = Somewhat or Sometimes True 2 = Very True or Often True

<p>0 1 2 A I get along well with my spouse or partner</p> <p>0 1 2 B My spouse or partner and I have trouble sharing responsibilities</p> <p>0 1 2 C I feel satisfied with my spouse or partner</p> <p>0 1 2 D My spouse or partner and I enjoy similar activities</p>	<p>0 1 2 E My spouse or partner and I disagree about living arrangements, such as where we live</p> <p>0 1 2 F I have trouble with my spouse or partner's family</p> <p>0 1 2 G I like my spouse or partner's friends</p> <p>0 1 2 H My spouse or partner's behavior annoys me</p>
--	--

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Please be sure you have answered all items.
 Then see other side.

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Please print. Be sure to answer all items.

III. FAMILY:

Compared with others, how well do you:

		Worse than Average	Variable or Average	Better than Average	No Contact
A. Get along with your brothers?	<input type="checkbox"/> I have no brothers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Get along with your sisters?	<input type="checkbox"/> I have no sisters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Get along with your mother?	<input type="checkbox"/> Mother is deceased	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Get along with your father?	<input type="checkbox"/> Father is deceased	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Get along with your biological or adopted children?	<input type="checkbox"/> I have no children				
1. Oldest child	<input type="checkbox"/> Not applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. 2nd oldest child	<input type="checkbox"/> Not applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. 3rd oldest child	<input type="checkbox"/> Not applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Other children	<input type="checkbox"/> Not applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Get along with your stepchildren?	<input type="checkbox"/> I have no stepchildren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IV. JOB: At any time in the past 6 months, did you have any paid jobs (including self-employment and military service)?

No—please skip to Section V.

Yes—please describe your job(s): _____

Circle 0, 1, or 2 beside items A-I to describe your work experience *during the past 6 months*:

0 = Not True 1 = Somewhat or Sometimes True 2 = Very True or Often True

0 1 2	A. I work well with others	0 1 2	F. I do things that may cause me to lose my job
0 1 2	B. I have trouble getting along with bosses	0 1 2	G. I stay away from my job even when I'm not sick or not on vacation
0 1 2	C. I do my work well	0 1 2	H. My job is too stressful for me
0 1 2	D. I have trouble finishing my work	0 1 2	I. I worry too much about work
0 1 2	E. I am satisfied with my work situation		

V. EDUCATION: At any time in the past 6 months, did you attend school, college, or any other educational or training program?

No—please skip to Section VI.

Yes—what kind of school or program? _____

What degree or diploma are you seeking? _____ Major? _____

When do you expect to receive your degree or diploma? _____

Circle 0, 1, or 2 beside items A-E to describe your educational experience *during the past 6 months*:

0 = Not True 1 = Somewhat or Sometimes True 2 = Very True or Often True

0 1 2	A. I get along well with other students	0 1 2	D. I am satisfied with my educational situation
0 1 2	B. I achieve what I am capable of	0 1 2	E. I do things that may cause me to fail
0 1 2	C. I have trouble finishing assignments		

VI. Do you have any illness, disability, or handicap? No Yes—please describe:

VII. Please describe your concerns or worries about family, work, education, or other things: No concerns

VIII. Please describe the best things about yourself:

Please print your answers. Be sure to answer all items.

IX. Below is a list of items that describe people. For each item, please circle 0, 1, or 2 to describe yourself over the past 6 months. Please answer all items as well as you can, even if some do not seem to apply to you.

0 = Not True	1 = Somewhat or Sometimes True	2 = Very True or Often True
0 1 2	1. I am too forgetful	0 1 2 37. I get in many fights
0 1 2	2. I make good use of my opportunities	0 1 2 38. My relations with neighbors are poor
0 1 2	3. I argue a lot	0 1 2 39. I hang around people who get in trouble
0 1 2	4. I work up to my ability	0 1 2 40. I hear sounds or voices that other people think aren't there (describe): _____
0 1 2	5. I blame others for my problems	0 1 2 41. I am impulsive or act without thinking
0 1 2	6. I use drugs (other than alcohol and nicotine) for nonmedical purposes (describe): _____	0 1 2 42. I would rather be alone than with others
0 1 2	7. I brag	0 1 2 43. I lie or cheat
0 1 2	8. I have trouble concentrating or paying attention for long	0 1 2 44. I feel overwhelmed by my responsibilities
0 1 2	9. I can't get my mind off certain thoughts (describe): _____	0 1 2 45. I am nervous or tense
0 1 2	10. I have trouble sitting still	0 1 2 46. Parts of my body twitch or make nervous movements (describe): _____
0 1 2	11. I am too dependent on others	0 1 2 47. I lack self-confidence
0 1 2	12. I feel lonely	0 1 2 48. I am not liked by others
0 1 2	13. I feel confused or in a fog	0 1 2 49. I can do certain things better than other people
0 1 2	14. I cry a lot	0 1 2 50. I am too fearful or anxious
0 1 2	15. I am pretty honest	0 1 2 51. I feel dizzy or lightheaded
0 1 2	16. I am mean to others	0 1 2 52. I feel too guilty
0 1 2	17. I daydream a lot	0 1 2 53. I have trouble planning for the future
0 1 2	18. I deliberately try to hurt or kill myself	0 1 2 54. I feel tired without good reason
0 1 2	19. I try to get a lot of attention	0 1 2 55. My moods swing between elation and depression
0 1 2	20. I damage or destroy my things	56. Physical problems <i>without known medical cause:</i>
0 1 2	21. I damage or destroy things belonging to others	0 1 2 a. Aches or pains (<i>not</i> stomach or headaches)
0 1 2	22. I worry about my future	0 1 2 b. Headaches
0 1 2	23. I break rules at work or elsewhere	0 1 2 c. Nausea, feel sick
0 1 2	24. I don't eat as well as I should	0 1 2 d. Problems with eyes (<i>not</i> if corrected by glasses) (describe): _____
0 1 2	25. I don't get along with other people	0 1 2 e. Rashes or other skin problems
0 1 2	26. I don't feel guilty after doing something I shouldn't	0 1 2 f. Stomachaches
0 1 2	27. I am jealous of others	0 1 2 g. Vomiting, throwing up
0 1 2	28. I get along badly with my family	0 1 2 h. Heart pounding or racing
0 1 2	29. I am afraid of certain animals, situations, or places (describe): _____	0 1 2 i. Numbness or tingling in body parts
0 1 2	30. My relations with the opposite sex are poor	0 1 2 57. I physically attack people
0 1 2	31. I am afraid I might think or do something bad	0 1 2 58. I pick my skin or other parts of my body (describe): _____
0 1 2	32. I feel that I have to be perfect	0 1 2 59. I fail to finish things I should do
0 1 2	33. I feel that no one loves me	0 1 2 60. There is very little that I enjoy
0 1 2	34. I feel that others are out to get me	0 1 2 61. My work performance is poor
0 1 2	35. I feel worthless or inferior	0 1 2 62. I am poorly coordinated or clumsy
0 1 2	36. I accidentally get hurt a lot, accident-prone	

Please print your answers. Be sure to answer all items.

0 = Not True	1 = Somewhat or Sometimes True	2 = Very True or Often True
0 1 2	63. I would rather be with older people than with people of my own age	0 1 2 93. I talk too much
0 1 2	64. I have trouble setting priorities	0 1 2 94. I tease others a lot
0 1 2	65. I refuse to talk	0 1 2 95. I have a hot temper
0 1 2	66. I repeat certain acts over and over (describe): _____	0 1 2 96. I think about sex too much
	_____	0 1 2 97. I threaten to hurt people
0 1 2	67. I have trouble making or keeping friends	0 1 2 98. I like to help others
0 1 2	68. I scream or yell a lot	0 1 2 99. I dislike staying in one place for very long
0 1 2	69. I am secretive or keep things to myself	0 1 2 100. I have trouble sleeping (describe): _____
0 1 2	70. I see things that other people think aren't there (describe): _____	
	_____	0 1 2 101. I stay away from my job even when I'm not sick or not on vacation
0 1 2	71. I am self-conscious or easily embarrassed	0 1 2 102. I don't have much energy
0 1 2	72. I worry about my family	0 1 2 103. I am unhappy, sad, or depressed
0 1 2	73. I meet my responsibilities to my family	0 1 2 104. I am louder than others
0 1 2	74. I show off or clown	0 1 2 105. People think I am disorganized
0 1 2	75. I am too shy or timid	0 1 2 106. I try to be fair to others
0 1 2	76. My behavior is irresponsible	0 1 2 107. I feel that I can't succeed
0 1 2	77. I sleep more than most other people during day and/or night (describe): _____	0 1 2 108. I tend to lose things
	_____	0 1 2 109. I like to try new things
0 1 2	78. I have trouble making decisions	0 1 2 110. I wish I were of the opposite sex
0 1 2	79. I have a speech problem (describe): _____	0 1 2 111. I keep from getting involved with others
	_____	0 1 2 112. I worry a lot
0 1 2	80. I stand up for my rights	0 1 2 113. I worry about my relations with the opposite sex
0 1 2	81. My behavior is very changeable	0 1 2 114. I fail to pay my debts or meet other financial responsibilities
0 1 2	82. I steal	0 1 2 115. I feel restless or fidgety
0 1 2	83. I am easily bored	0 1 2 116. I get upset too easily
0 1 2	84. I do things that other people think are strange (describe): _____	0 1 2 117. I have trouble managing money or credit cards
	_____	0 1 2 118. I am too impatient
0 1 2	85. I have thoughts that other people would think are strange (describe): _____	0 1 2 119. I am not good at details
	_____	0 1 2 120. I drive too fast
0 1 2	86. I am stubborn, sullen, or irritable	0 1 2 121. I tend to be late for appointments
0 1 2	87. My moods or feelings change suddenly	0 1 2 122. I have trouble keeping a job
0 1 2	88. I enjoy being with people	0 1 2 123. I am a happy person
0 1 2	89. I rush into things without considering the risks	
0 1 2	90. I drink too much alcohol or get drunk	124. <i>In the past 6 months</i> , about how many times per day did you use tobacco (including smokeless tobacco)? _____ times per day.
0 1 2	91. I think about killing myself	125. <i>In the past 6 months</i> , on how many days were you drunk? _____ days.
0 1 2	92. I do things that may cause me trouble with the law (describe): _____	126. <i>In the past 6 months</i> , on how many days did you use drugs for nonmedical purposes (including marijuana, cocaine, and other drugs, except alcohol and nicotine)? _____ days.

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