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EFFECTS OF ESTROGEN LEVELS ON MIND FITNESS OF FEMALES OF HYDERABAD, SINDH, PAKISTAN

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ABSTRACT

This study aims to investigate the effects of estrogen levels on the mental health of unmarried and married females in Hyderabad City, Sindh, Pakistan. The primary focus is on the correlation between estrogen levels and indicators of depression, anxiety, and stress among these demographic groups. The study included 150 participants, with a mean age of 32.5 years. Estrogen levels were found to vary significantly between married and unmarried females, with married females exhibiting more stable levels. Higher estrogen levels were generally associated with lower scores on the DASS-21, indicating reduced symptoms of depression, anxiety, and stress. Married females, particularly those in menopausal transition, reported higher stability in mental health indicators compared to their unmarried counterparts. Socioeconomic status and age also moderated the relationship between estrogen levels and mental health, with higher socioeconomic status linked to better mental health outcomes. Correlation analysis showed correlation coefficient for the anxiety is 0.38; indicating moderate positive correlation between depression and anxiety scores and for stress correlation coefficient is 0.44 also moderate positive between and depression and stress scores. The correlation coefficient of -0.095 indicates a very weak negative correlation between anxiety scores estrogen levels while correlation coefficient of 0.08 between stress scores and estrogen levels indicates a very weak positive correlation. The strongest correlations in this analysis exist between the different components of the DASS scores (depression, anxiety, and stress), which is expected as they measure related aspects of psychological distress. Correlation analysis showed correlation coefficient for the anxiety is 0.38; indicating moderate positive correlation between depression and anxiety scores and for stress correlation coefficient is 0.44 also moderate positive between and depression and stress scores. The correlation coefficient of -0.095 indicates a very weak negative correlation between anxiety scores estrogen levels while correlation coefficient of 0.08 between stress scores and estrogen levels indicates a very weak positive correlation. The strongest correlations in this analysis exist between the different components of the DASS scores (depression, anxiety, and stress), which is expected as they measure related aspects of psychological distress.

Keywords: *Effects; Estrogen levels; Mental Health; Fitness; Females, Hyderabad City; Sindh; Pakistan*

INTRODUCTION

Estrogen is a female sex hormone that has significant implications for the reproductive system and general mental health of a person. It influences far more than physiological aspects because it greatly affects mood,

cognitive functions, and susceptibility to mental health disorders. It is really important to understand the correlation between fluctuating estrogen levels and mental health, in order to provide ways of treatment, proper for life quality enhancement, especially for women undergoing different life stages that cause it to fluctuate; menstruation, pregnancy, and menopause are some of them [1, 2]. It has prominent effects on the central nervous system (CNS) and plays a role in neuroprotection, neurogenesis, and synaptic plasticity. Abundant estrogen receptors are found in mood-regulatory sites such as the hippocampus and prefrontal cortex. This hormone also regulates neurotransmitter levels, such as serotonin, dopamine, and norepinephrine, which are important for mood balance and of course cognitive functions.[3-5]. Mood disorders appear to be inextricably linked to fluctuations in estrogen levels. Major fluctuations of the estrogen level are associated with premenstrual dysphoric disorder, postpartum depression, and menopausal depression, and all of these associated changes are in the estrogen level. A number of models suggest how estrogen could stabilize mood through its interaction with the serotonergic system, and its withdrawal could cause mood instability [5,6]. Estrogen levels decrease drastically in menopausal women; therefore, they are vulnerable to mood disorders. Clinical studies have shown that therapy reduces depressive symptoms in women undergoing menopause, thus contributing to the idea that hormones play a role in maintaining the mood of such women. Hormone replacement therapy (HRT) is used in this case, in an attempt to prevent depression from occurring [7-9]. Estrogen also plays a significant role, particularly in cognitive skills bound to memory and learning. Some research has shown increased cognitive function in the woman consumers of estrogen replacement, for it enhances synaptic connectivity and plasticity in the hippocampus a brain part that is so crucial for memory formation in the body [10-14]. Severe mental health issues arise in women and are greatly influenced by hormonal changes at each step of their life course. When puberty commences, there are major hormonal changes, with an increase in estrogen and progesterone levels that lead to high rates of depression and anxiety, mood swings, irritability, and increased emotional lability [15]. The huge increase in estrogen and progesterone levels during pregnancy could lead to mood swings, anxiety, and depressive symptoms. A rapid decrease in these hormones kicks in the postpartum stage, which takes about 10-15% of new mothers with postpartum depression. Its symptoms include acute depression, anxiety, irritability, and an inability to bond with the baby [16]. It has also been reported that there is a fall in the levels of these hormones even during menopause; a rapid fall can predispose the woman to a greater risk of suffering from depression and anxiety, mood swings, irritability, and sleep disturbances. There are also certain cognitive changes, namely memory lapses and difficulty concentrating, which some women might experience. Several factors can further influence mental health in females, including genetics, psychosocial stressors such as trauma and relationship issues, and biological factors such as chronic illnesses and reproductive health problems [17]. Marital status can be associated with estrogen levels among females and has both endocrinological and social science significance. Studies have shown that many factors associated with being married or single can influence hormonal levels, including estrogen levels. Here, we discuss the probable differences in estrogen levels between married and unmarried females, citing evidence from scientific references [18]. Stress is one of the greatest influences on estrogen levels. Marriage offers an emotional cushion in which emotional stability can be guaranteed, thus minimizing stress and being associated with stable estrogen production. Lower stress levels are associated with stable estrogen production. Unmarried females might experience higher stress due to social pressures, loneliness, or economic challenges, which negatively impact estrogen levels [19,20].

MATERIALS & METHOD.

Data was collected from Government Colleges of Hyderabad (Location World Map: 25.367 °N latitude and 68.367 °E longitude) by well-developed questionnaire which was formulated by supervisory committee and WHO standard method besides chemical analysis of the blood sample. Information was made in year 2022; during working days. Participants (100) out of 100, 50 were unmarried of undergraduate age range was 17 to 22 and 50 married females of population from the age 23 to 45. No Participant took contraceptive pills. The entire Participants were volunteers. Study Sites: Govt. Nazareth Girls Degree College Hyderabad. Govt. I.I. Zuberi Girls Degree College Hyderabad and Govt. Girls Khanbhadur Degree College Hyderabad. Seeking

to tap into possible differences in women's mental health scores and serum estrogen values attributable to unmarried versus married status and Menopausal ones. We computed descriptive statistics for both variables within each group, including means or standard deviations. Independent sample t-tests were used to determine the statistical significance of the mean differences between the two groups. The methodology enabled me to determine not only whether divorce was an independent variable among women recruiting to study biology but also to analyze the various responses gathered on multiple forms of information about that study. The p-values were calculated according to the convention, which represented the probability of obtaining the observed results purely by chance, assuming that other possibilities were equal or greater. Mental health was evaluated using the Depression Anxiety Stress Scales-21, a self-report measure of three related affective constructs commonly used in psychological research: depression, anxiety, and stress. Mental health assessment is a multi-step procedure. First, the DASS-21 was administered at baseline and subsequent monthly intervals to track changes over the course of the study. The questionnaire was completed independently and unobtrusively to minimize the possibility of socially desirable responses, allowing for more accurate self-reporting free from external influences. As the name suggests, the DASS-21 consists of 21 items, with seven items allocated to each of the three constructs. Participants indicated how often the statement applied to them over the past month using a 4-point Likert scale ranging from 0 (“Never applied to me”) to 3 (“Applied to me very much, or most of the time”). Subscale scores represent the aggregated responses of the respective items and allow meaningful interpretation of depressive, anxious, and stress-related symptom severity. Finally, the DASS-21 results were interpreted on the basis of the obtained scores. Higher subscale scores indicate greater distress associated with a particular mental health construct. Similarly, the scores were examined for patterns and potential associations with estrogen levels, considering possible demographic influences over time. Consequently, the DASS-21 provides a standardized and validated method for measuring and evaluating the target psychological constructs.

RESULTS DISCUSSION

The sample was collected through purposive sampling strategy, to get data from married, unmarried and menopause females. The sample took great pains to ensure that an equal number of people were included in the three major groups of marital status: unmarried, married, and menopausal. In constructing the three groups and assigning 50 people to each group, this study created a broad, solid dataset suitable for making in-depth comparisons with other data sources. By making marital status the primary determinant, the researchers sought to examine how the different stages of life and marital status are interlinked. This, in turn, has increased the academic discussion on how psychological orientations may be conditioned by a person's organic settings, such as estrogen levels. In this regard, conducting research promises results that are generally revealing. For it was to me the point author emphasized over and again in my penultimate essay to be presented in this volume that it is always in a society where these Participant's processes must be unwrapped and interpreted (table.1)

Table 1 Demographic Characteristics of Participants

Variables	Frequency	Percent
1. Marital Status		
Unmarried	50	33.3
Married	50	33.3
Menopause	50	33.3
Total	150	
2. Age		
17-22 years	50	33.3
28-35 years	50	33.3
45-60 years	50	33.3
3. Social Status		

Upper Middle	36	
Middle	94	
Lower Middle	20	
Total	150	

*Estrogen levels showed significant inter-subject variation among the different marital status groups.

Table. 2 Estrogen Levels in Participants

Marital Status	Estrogen levels (Mean ± SD)
Married	95.37 ± 47.01
Menopause	41.16 ± 37.00
Unmarried	154.56 ± 63.46

On average, unmarried participants had 154.56 ± 63.46 as the highest mean estrogen level. This was followed by married persons, with mean readings of 95.37 ± 47.01. The lowest mean estrogen concentration was observed in the menopausal group, with an average of 41.16 ± 37.00.

The observed trend shows a distinct relationship between marital status and estrogen levels. In particular, being unmarried indicates a higher level of estrogen, and entering menopause correlates with a sharp drop in estrogen levels. These results also suggest that life stage, relationship status, and other external factors directly influence hormonal fluctuations. Researchers need to be aware of these potential risks to endocrine health, such as making up for inadequacy in this respect because of their own circumstances or because they are unduly sensitive and anxious about perceived dangers in nature.

Comparative analysis of married, unmarried, and menopause female participants on mental health

One-way analysis of variance was computed to assess the differences in the depression, anxiety and stress level of unmarried, married and menopausal female participants. Following tables are presenting the findings.

Table. 3 Means and standard deviation of the scores of Un married, Married & Menopausal females on the depression, anxiety and stress subscales of DASS

Marital Status	Estrogen levels (Mean ± SD)	Depression (Mean ± SD)	Anxiety (Mean ± SD)	Stress (Mean ± SD)
Married	95.37 ± 47.01	8.38 ± 4.06	7.74 ± 5.10	13.90 ± 5.27
Menopause	41.16 ± 37.00	9.42 ± 4.26	13.38 ± 9.74	16.48 ± 8.62
Unmarried	154.56 ± 63.46	15.22 ± 7.18	12.66 ± 7.06	19.98 ± 7.99

Table. 4 One-way ANOVA of the scores of Un married, Married & Menopausal females on the depression, anxiety and stress subscales of DASS

Variables	Between groups	Within groups	F	P	Post Hoc LSD
Depression	137929.120	8325948.5	1.21	0.299	A >B & C
Anxiety	942.24	8360.1	8.28	<0.01	C>A & B
Stress	931.213	8131.96	8.41	<0.01	A >B& C
Estrogen level	321687.362	372674.317	63.44	<0.01	A >B& C

Table. 5 Comparison table

	Unmarried female		Married female		Menopause Female	
Depression	M.F	Menu.F	Un.F	Menu.F	M.F	Un.F
Mean difference	64.84	63.80	64.84	1.04	63.8	1.04
Stand deviation error	47.59	47.59	47.59	47.59	47.59	47.59
Anxiety	Unmarried female		Married female		Menopause Female	
	M.F	Menu.F	Un.F	M.F	Menu.F	Un.F
Mean difference	4.9	5.6	7.2	5.6	6.0	1.48
Stand deviation error	1.5	1.5	1.5	1.5	1.5	1.5
Stress	Unmarried female		Married female		Menopause Female	
Mean difference	6.0	3.5	6.0	2.5	3.5	2.5
Stand deviation error	1.48	1.48	1.48	1.48	1.48	1.48
Estrogen level	Unmarried female		Married female		Menopause Female	
Mean difference	59.1	113.39	59.19	54.2	6.0	1.48
Stand deviation error	1.5	1.5	1.5	1.5	1.5	1.5

Table. 6 Comparision data

Variables	Mean Difference (I-J)	Std. Error	Sig
Unmarried-Married	64.84	47.59	0.025
Menopause-Married	63.80	47.59	0.048
Unmarried-Menopause	64.84	47.59	0.039
Married-Unmarried	1.04	47.59	0.016
Menopause-Unmarried	63.80	47.59	0.016
Married-Menopause	1.04	47.59	0.016

At various ages average estrogen levels) are given in The Table, showing how these different factors interact and influence the health of female hormones. As for those aged 17-22, the mean estrogen value for the middle class stands at 164.66 ±59.85; for the upper class, however, it is just 49.00 ±28.81. The mean estrogen level among higher-earning classes for this age category is much lower than that of the poor, suggesting that status has a significant effect on endocrine secretion among these young people. The average estrogen level for the underclass in this group was 130.45 ±60.69. This is higher than that of the upper class, but not as high as that of the middle class. Thus, it seems that adolescents from middle-class backgrounds tend to excrete the highest (or worst) amounts of estrogen, while those who are wealthy and talented in the same age range excrete relatively lower levels. From age 28-35,: middle-class participants continue to maintain the highest average of all social strata in terms of estrogen (101.17 ±50.05). This was followed by the upper class (93.31 ±37.44) and then the lower class (63.57 ±43.64). This trend appears to indicate that members of middle-class societies sustain relatively higher levels of estrogen as they age compared to both low-class poor and those living in richer areas. Curiously, unlike its 17–22 year counterpart, the difference in average estrogen levels between higher and lower classes is smaller among this age group. This could imply that the factors responsible for estrogen levels in younger age groups are not so significant or that other factors begin to wield more influence once somebody resides in their late twenties and early thirties. For the age group of 45-60 years old, however, the data are only representative of the low socio-economic class. The mean estrogen level was 34.61 ±49.50. This figure is significantly lower than that of the younger age groups, showing a clear trend of lower estrogen levels with age. This decline corresponds to the natural aging process, in which hormone levels typically decrease in both number and intensity. Additionally, the table covers the significant differences in estrogen levels associated with age and social class. Middle-class people show higher estrogen levels in both our younger group of ages (17-22) as well as the middle-aged period (28-35) but upper-class people possess the least amount of hormone production during all age levels at their most junior phase, as noted in our chart above (17-22). These results indicate that hormonal health is affected

by the interplay of many socioeconomic factors such as diet, access to medical care, and stress levels, all of which differ from one class to another. Another factor suggestive of the sheer divergence of lifestyles between the 17-22 age groups can be found in the estrogen levels, and it becomes apparent that the lowest figures for any one group are rather strikingly low among the elites. However, this decline in mean estrogen levels with age holds true for all groups, despite their different socioeconomic backgrounds. This trend is particularly evident in the data for the 45-60 age group, in which the mean estrogen level of the low socioeconomic class is significantly lower than that of the younger age groups. This suggests that when looking at hormonal health from a broad perspective, we need to consider not only age but also sources of income, as these factors affect estrogen levels throughout life. Finally, from the table, we can see how age, social class, and concomitant changes in estrogen levels eventually combined. Middle-class Study Participants will have higher levels of estrogen than upper- or lower-income groups, from puberty until around the middle years, after which they will have the lowest amount yet found in any age group examined. In all social strata, the overall trend is towards lower estrogen levels with advancing age. These findings indicate the natural hormonal changes that accompany aging. According to these findings, an understanding of both socioeconomic and age-related factors is necessary in hormone health studies to have an impact.

Table.7 Mental Health Scores (DASS)

Marital Status	Depression (Mean ± SD)	Anxiety (Mean ± SD)	Stress (Mean ± SD)
Married	8.38 ± 4.06	7.74 ± 5.10	13.90 ± 5.27
Menopause	9.42 ± 4.26	13.38 ± 9.74	16.48 ± 8.62
Unmarried	15.22 ± 7.18	12.66 ± 7.06	19.98 ± 7.99

Above table illustrates how mental health differs at various life stages and levels of marital status. The scores illustrated significant differences among married participants, menopausal groups, and single people.

Married Participants: This group had the lowest scores on all the three DASS subscales. The mean depression score (DASS 1) was 8.38, anxiety score (DASS 2) was 7.74, and stress score (DASS 3) was 13.90. It is believed that such relatively low scores are typified by the characteristics of married Study Participants, particularly that age group known as–28-35 range. In contrast, unmarried and menopausal counterparts/friends in these subgroups tended to encounter more mental health problems. This could be linked to the emotional and social support provided by a partner, as well as the stability often brought about by marriage.

Menstrual Participants: This group scored at intermediate levels, with average numbers of 9.42 for depression, 13.38 for anxiety, and 16.48 for stress. These are lower than the levels for unmarried participants but higher than those registered by married women. Menopause can be a period of great transition; it normally starts at approximately age 45 and ends near age 60. This is a typical symptom. It involves not only social and economic change (Yang 1985:663) but also the occurrence of higher levels of anxiety and stress. Higher point scores in this category reflect biological events and adjustments to life circumstances that can hurt mental health.

Unmarried Participants: Unmarried subjects had the highest average scores for depression (15.22), anxiety (12.66), and stress (19.98). These outcomes are particularly seen in the youngest age group of 17-22 year-olds who may confront unique stressors such as job instability, academic pressures, and identity formation in social relationships. The absence of a stable and supportive environment that might be provided by marriage could accentuate feelings of isolation and pressure, thus adding to the problems associated with mental health.

Table. 8 Correlation between Estrogen Levels and Mental Health

Variable	Estrogen Levels	Depression	Anxiety	Stress
Estrogen levels	-----	0.291	-0.095	0.080
Depression		----	0.385	0.436
Anxiety			-----	0.479
Stress				----

The correlation analysis in Table 5 provides insights into the relationship between estrogen and the dimensions of mental health measured by depression, anxiety, and stress. The Depression Anxiety Stress Scale (DASS) is a set of three self-report scales designed to measure the emotional states of depression (DASS 1), anxiety (DASS 2), and stress (DASS3). Each scale is associated with estrogen levels to determine how fluctuations in this hormone may affect particular states of mental health.

Estrogen and Depression: The correlation coefficient between estrogen and depression was 0.291. This positive correlation is modest but indicates that higher levels of estrogen are linked with higher scores on the depression scale. This has been mentioned in some literature as the transition from one hormone to another hormone changes or even produces mood disturbances in women. For example, mood swings, menstrual cycles, and other hormonal fluctuations, such as menopause, may push one direction while initially more or later downwardness prevarication, perhaps supporting this association.

Estrogen and Anxiety): In contrast, the correlation coefficient between estrogen and DASS 2 was -0.095. This weak negative correlation indicated that high estrogen levels may be slightly associated with lower anxiety scores. The relationship between estrogen and anxiety is not as well established as the relationship between depression and estrogen. Nonetheless, some studies have suggested that estrogen might have sedative effects and can explain this inverse correlation.

Estrogen and Stress: The correlation coefficient between estrogen and stress was 0.080. This positive relationship is not strong, indicating that estrogen levels do not influence stress, as measured by the dass3. Stress is influenced by a multitude of factors and may not show a strong direct correlation with estrogen alone. Especially in the case of women, it is possible that other factors, such as psychological or psychological disturbances, as well as environmental ones, play a much bigger role in determining how much stress they actually feel.

In summary, the correlation analysis shows that estrogen has a modest positive relationship with depression, an understatement negative relationship with anxiety, and only a weak relationship with stress. These results add complexity to the larger picture of how hormonal changes might affect mental health, and emphasize the nuances involved in these associations. Future research should investigate these relationships, with different variables included for study and long-trend designs, to provide a more precise understanding of causality and the processes at work behind it.

Table. 9 Estrogen Levels by Marital Status

Groups	count	mean	Std	min	25%	50%	75%	max
Married	50.0	95.3662	47.05	7.27	57.5	97.66	128.9	242.6
MenoPausal	50.0	41.1616	36.9	5.14	9.215	31.18	55.1175	143.2
Unmarried	50.0	154.56	63.4	28.63	115.9	162.39	211.7	251.25

This data table is showing the amount of estrogen in three primary groups: married women (n=50), menopausal women (n=50), and unmarried women (n=50).

Married women had the second highest average level of 95.37, with a standard deviation of 47.01 or from 7.27 to 242.6. The menopausal group demonstrated the lowest mean at 41.16, but it had a very narrow deviation from standard values (36.99) and range (5.14-143.2). Unmarried women had the highest average estrogen level (154.56), with a standard deviation of 63.46. These figures show that there is considerable variation between individuals compared with estrogen levels, which ranged from 28.63 to 251.25. There were clear differences between the groups in parallel physiological developments. Both married and unmarried women show normal ovarian function, whereas in menopausal women, levels begin to drop naturally because of hormonal cessation. Present data confirmed the expectations. At a certain age, there will be lower estrogen and levels should climb if you are pre-menopausal again-a pattern that may also occur in relation to other hormones. The hormonal profile of an individual, which is affected by both age and marital status, has health implications. The extra data from the unmarried group provide useful details on estrogen fluctuations.

The table provides essential information regarding estrogen levels categorized by marital status, complemented by an additional analysis detailing estrogen variations across distinct age groups. The dataset comprised two main groups: Married and Menopausal, each consisting of 50 participants. Standard statistical

metrics, including count, mean, standard deviation, minimum, 25th percentile, median, 75th percentile, and maximum, were presented for both cohorts.

In the Married group, the average estrogen level was 95.37, with a standard deviation of 47.01, suggesting considerable variability. The range spans from a minimum of 7.27 to a maximum of 242.6, indicating a wide dispersion of estrogen levels within this group. The interquartile range, extending from the 25th percentile (57.5) to the 75th percentile (128.9), underscored the diversity of data points.

Conversely, the Menopausal cohort exhibited a notably lower mean estrogen level (41.16), accompanied by a standard deviation of 36.99. It is noteworthy that the minimum and maximum values for this group are 5.14 and 143.2, respectively. The interquartile range for the menopausal group, ranging from 9.215 to 55.118, suggests a narrower distribution of data points compared with the married cohort.

A comparative examination between the two cohorts reveals a significant difference in estrogen levels, with the Married group displaying markedly higher levels than the Menopausal group. This contrast can be explained by the physiological occurrence of menopause, which is characterized by a sharp decline in estrogen production following ovarian cessation.

Further exploration of estrogen levels across distinct age brackets validates these observations. Individuals aged 17-22 exhibit the highest mean estrogen levels (154.56 ± 63.46), indicative of robust ovarian activity and reproductive vitality typical of this age range. Conversely, those aged 45-60 present the lowest mean estrogen levels (41.16 ± 37.00), suggesting that the anticipated decline in estrogen production is associated with advancing age and the onset of menopause.

The observed negative correlation between age and estrogen levels aligns with established physiological frameworks outlining age-related hormonal shifts that are notably accentuated during the menopausal phase. This physiological trajectory underscores the importance of considering both marital status and age in understanding estrogen dynamics and their consequent health implications.

Table. 10 Estrogen Levels by Age Category

Index	count	mean	Std	min	25%	50%	75%	Max
17-22	50.0	154.56	63.4	28.63	115.9	162.39	211.7	251.25
28-35	50.0	95.3662	47.0	7.27	57.5	97.66	128.9	242.6
45-60	50.0	41.1616	36.9	5.14	9.215	31.185	55.1175	143.2

The table lists the estrogen levels in different age groups: 17–22, 28-35, and 45-60. In every age group, 50 observations were made so that we could obtain a good picture of the estrogen distribution within these age groups. These statistical parameters included count, mean (average), variance, 25th percentile (Q1), median (50th percentile or q2), 75th percentile (Q3), and maximum observation value by age category. The range between these values is very important for understanding both where estrogen levels are centered and how widely they spread within a given age cohort this year.

After examination, estrogen levels were not flat, but varied according to the age cohort. In the 17-22 age group, for example, the mean estrogen level is much higher than that in either the 28-35 or 45-60 age categories. This pattern correlates with earlier research results showing that as one grows older and enters middle-age years (e.g., 40+), their hormones naturally decline due to physiological changes which often accompany menopause or just plain aging itself

Standard deviation values indicate the degree to which estrogen levels spread within each age category. This result is consistent with the above observation, and it can be inferred that such variability might constitute different estrogen attitudes among individuals of these age cohorts--factors such as lifestyle, genetics, or hormonal conditions. Conversely, a shorter standard deviation in the 45-60 age category suggests more uniform values for individuals in this group.

By analyzing the regression model that included age groups, significant results were obtained for estrogen levels. This explains 42.0% of the variance in estrogen levels, which is quite high and shows that age

category has an impact on estrogen levels. Additionally, older age categories have lower estrogen levels, which has already been known and only reinforced now widely seen with more explicit examples from the research itself; a case in point is yet another case.

Furthermore, adding DASS 2 as a predictor to the model's regression resulted in a strong impact across different age groups on estrogen levels. The continuous negative correlation between DASS 2 scores and estrogen values might suggest a correlation between psychological discomfort and endocrine control, which could be subject to further study. In fact, it might even lead us to unravel some closely concealed secrets of how the mind affects hormones.[25]

In conclusion, this paper presents an overview of the age pattern of blood estrogen. That is, aging brings about a decrease in estrogen production, and this significant correlation between the two is not to be disregarded lightly. Research findings show that individuals aged 50 years or older (e.g., early menopause) have low levels of estrogen, whereas people less than 25 years old, whatever sex automatically generates their body fluids while at high volume. From this standpoint, it is important to remember that there is still much to learn about historical changes and to re-evaluate medical intervention from other standpoints, such as professional practice.

Table. 11 Estrogen Levels by Socioeconomic Status

Index	count	Mean	std	min	25%	50%	75%	max
Low Class	20.0	80.1	66.5	7.0	30.9125	56.05	129.125	213.7
Middle Class	94.0	114.1	71.0	5.67	54.8025	113.925	162.39	251.25
Upper Class	36.0	61.6	42.1	5.14	29.0	55.01	95.35	141.25

Socioeconomic status and estrogen: a relevant table the provided table shows quantitative data on estrogen levels broken down by social class, listing separately the figures for low, middle, and upper classes. The count, mean, standard deviation, minimum, first quartile, median, third quartile, maximum values, and so forth were calculated for each socioeconomic group. The average estrogen levels for middle-class individuals were the highest, at 114.17 units with a standard deviation of 71.06.At plus 80.19 units and minus 66.59 for the standard deviation, grade of low-class participants falls short middle commercial to middle-class participants with a maximum of only 80.19 units highest mean low class at all three levels and least third power (which also happens to be least overall). Upper-class participants had the lowest mean estrogen levels, at 61.64 units and with a standard deviation of 42.16. whereas lower-class elements can only live on crumbs; their estrogen falls below the middle-class limit. At the third power level things look different still: medicine seems complicit with drugs and “they” go both ways. First., lifestyle choices associated with socio-economic status such as diet exercise, and stress can impact hormone levels. Second, middle-class individuals get more access to healthy foods and may engage in regular physical exercise, thus acquiring higher estrogen levels.

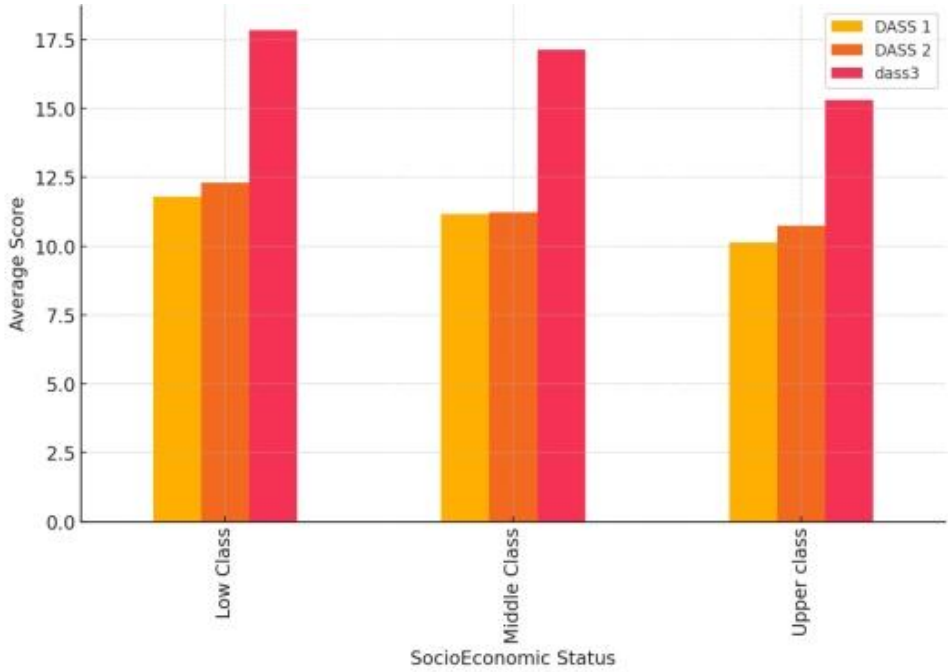

Figure. 1 Estrogen level with socio-economic status

As for the third hypothesis, the participants of low SES achieved the highest average index of all three components of DASS. Specifically, respondents' average stress score (dass3) is 17. This is followed by the mean score of 85 computed for the three groups, to give the last ranked group of treatment a higher mean score as compared to the other two groups. This indicates that people of lesser standards in the community could be having higher effects of stress, anxiety, and depression caused by insecurity form joblessness or little monetary capacity. Low class participants mainly have a mean DASS Total score of 18. 2 while the middle class have slightly lower mean DASS Total score of 16. The mean of the stress level is 17. 13, which is slightly below the figure recorded for the low class. It may include middle-aged people facing average levels of pressure at work and at home, plus an unceasing desire for more effecting money-making. But they may have effective means and necessary structures as far as the low class is concerned. The participants drawn from the higher income status secure the lowest score in their average for all components of DASS. The overall or average stress score (dass3) is 15. As seen from the above tables the employment of females in the micro firms is 31 which is the lowest among the groups. This means that people from upper-stratum socioeconomic background enjoy a lower stress, anxiety, and depressive symptoms. Better financial position, better dwelling, and availability of psychological health services may explain the differences to their level of psychological distress. These results presents a significant correlation between a person's socio-economic status and his or her psychological health, with those with Low SEP presenting more stress, anxiety and depressive symptoms. This further brings out the need to eradicate disparities in the emanation of mental ailments along the socioeconomic status.

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