

## Call for Psychosocial Well-Being among Pregnant Women Associated With Medical Disorder in Beni-Suef Governorate

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### **Abstract:**

**Background:** Pregnancy has traditionally been considered a time of emotional well-being for women conferring protection against negative psychological symptoms. Although rigorous research demonstrated the potentially deleterious effects of pregnancy on affective states, we do not yet have a clear grasp on the medical disorder specific implications of these facts.

**Aim:** Assess the prevalence of medical disorders and the negative mood symptoms among pregnant women in Beni-Suef.

**Method:** An explorative design was selected for the current study. Interview questionnaire using the Depression Anxiety Stress Scale (DASS-21) with a convenience of 400 Beni-Suefian pregnant women with a primary diagnosis of medical disorder and undergoing either intervention or the usual care or follow-up, who were admitted to high-risk inpatient obstetric wards and/or attending to antenatal outpatient clinics for all governmental hospitals in Beni-Suef City.

**Results:** The mean age of participants was  $25 \pm 4.495$  years. There was a statistically significant relationship between the DASS-21 and gestational age, parity, history of abortion, history of birth defects, educational level, & occupational status of the women ( $p$ -value  $< 0.05$ ).

**Conclusion:** There is substantial evidence that medical disorders, age, education, occupation, shorter gestation, parity, and gravidity are risk factors for adverse psychological symptoms.

**Keywords:** Pregnancy, Medical Disorder, Negative Psychological Symptoms, Depression Anxiety Stress Scale (DASS-21).

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### I. Introduction

Some medical disorders commonly seen during pregnancy, such as anemia, diabetes, and thyroid dysfunction, may be associated with depressive symptoms during pregnancy.<sup>[1]</sup> The most common medical disorders seen during pregnancy are hypertensive disorder, diabetes mellitus, heart disease, and others that less common as renal, liver, hyperemesis gravidarum, anemia, and thyroid.

Firstly, Data from the Egyptian National Hypertension Project (NHP) showed that hypertension is common among Egyptians.<sup>[2]</sup> NHP survey of adults conducted in six Egyptian governorates and had been estimated the prevalence of hypertension as 26.3%.<sup>[3]</sup> Hypertension increased progressively in younger age groups among the past 20 years. Hypertension is prevalent worldwide and current evidence suggests further increases in the prevalence of hypertension among people. Hypertension contributes to increasing morbidity and mortality.<sup>[4]</sup> The exact etiology of hypertensive disorders during pregnancy remains anonymous. Hypertensive disorders not only endanger the health and well-being of the mother, but may also compromise placental functioning and, consequently, affect the fetal developmental milieu. It is, thus, highly plausible that they suffer the consequences for severe pre and postnatal complications in the offspring.<sup>[5,6]</sup> The adverse fetal, neonatal and maternal outcomes of Pregnancies associated with high blood pressure, including preterm birth, intrauterine growth retardation (IUGR), Perinatal death, acute hepatic or renal failure, antepartum and/or postpartum hemorrhage, as well as maternal death.<sup>[7]</sup>

The National High Blood Pressure Education Program, the working group on high blood pressure during pregnancy, categorized hypertensive disorders during pregnancy into 4 categories: chronic hypertension, gestational hypertension (chronic hypertension or transient hypertension of pregnancy which identified in the latter half of pregnancy), pre-eclampsia/eclampsia, and preeclampsia superimposed on chronic hypertension.<sup>[8]</sup> Globally, hypertensive pregnancy disorders complicate approximately 6% to 16% of all pregnancies, with pre-eclampsia accounting for 3% to 7%. Pre-eclampsia and eclampsia also drastically increase the risk of maternal morbidity. Overall, 10% to 15% of maternal deaths from pregnancy-related causes are associated with pre-eclampsia and eclampsia.<sup>[6]</sup> In a multicenter study, 30% of hypertensive disorders of pregnancy were related to chronic hypertension, whilst 70% of the cases were diagnosed as gestational hypertension/preeclampsia.<sup>[7]</sup> Preeclampsia is a severe form of these disorders which accounts for up to 4%. These disorders are characterized by

new-onset hypertension after 20<sup>th</sup> weeks of pregnancy, with proteinuria being an additional characteristic in preeclampsia.<sup>[5]</sup>

*Secondly*, diabetes is a major clinical & public health challenge, particularly in socially & economically deprived populations.<sup>[9,10]</sup> About 6.2% (17 million Americans) have non-insulin dependent diabetes (NIDD) (also known as type 2 diabetes mellitus or adult-onset),<sup>[11]</sup> with over \$100 billion in direct & indirect costs spent every year on medical care for patients with NIDD. African Americans & Hispanics experience a 50%-100% higher burden of morbidity and mortality related to NIDD than non-Hispanic White Americans.<sup>[10]</sup> Nationwide, African American & Hispanic adults with diabetes have worse blood pressure and glycemic control than other groups, and in that respect is growing evidence that there are racial & ethnic differences in diabetes processes of attention, even among fully insured patients.<sup>[12]</sup> It is anticipated that between 2000 & 2025, the size of the world's adult population will increase from less than 4 billion to 5.5 billion, primarily 60% increase in developing countries.<sup>[13]</sup> The number of adults with diabetes in the world is expected to increase from 150 million in 2000 to 300 million in 2025. In industrialized nations, the number of diabetic patients will increase by almost one-third between 2000 & 2025, whilst in developing countries that figure will more than double.<sup>[14]</sup> In 2025, more than 75% of the world's diabetic patients will be living in the developing countries.<sup>[15]</sup>

Gestational diabetes mellitus (GDM) is a growing health concern in many parts of the world; some surveys have shown that GDM occurs in 2.2% to 8.8% of pregnancies<sup>[16]</sup>, depending on the racial mix of the population studied and the criteria applied for diagnosis. Its incidence is parallelly increasing with the increase in non-insulin dependent diabetes.<sup>[17]</sup> Gestational diabetes prevalence in sub-Saharan Africa is variable with a range of 0.0% to 13.9% in some areas.<sup>[18]</sup> Women with gestational diabetes make up 61.0% of the total figure of women with diabetes mellitus in pregnancy.<sup>[19]</sup> Although any pregnant woman can develop gestational diabetes mellitus, predisposing factors are associated with this syndrome include the family history of diabetes mellitus in first-degree relatives, obesity, a history of previous delivery of a macrosomic baby and an unexplained stillbirth in an earlier pregnancy.<sup>[20, 21]</sup> In addition to the physical burden of diabetes, adults with the type 2 diabetes are twice as likely as adults in the general population to experience serious psychological symptoms, including mental health problems. Moreover, adults with both diabetes mellitus and severe psychological symptoms are more likely than those with only diabetes to report poor health, live in poverty, and lack access to health care.<sup>[22]</sup>

*Thirdly*, cardiovascular disease in pregnancy is becoming increasingly apparent, as women with congenital heart disease (CHD) have longer life expectancies than previously.<sup>[23]</sup> Cardiac diseases complicate from 1% to 4% of pregnancies (in women without preexisting cardiac abnormalities). In the recent years, scientific advances in medical care have advocated in survival rates up to 85% of patients with CHD. It is reckoned that there are between 16,000 & 20,000 people in the United Kingdom with congenital heart disease. This number is predicted to increase at a rate of about 2,000/year.<sup>[23]</sup> Recent studies have found 5%:7% case-fatality rate in women with pregnancy-associated acute myocardial infarction (AMI), which may reflect the improvements in diagnosis & therapy over the past decade.<sup>[24]</sup>

*Fourthly*, End-stage renal disease or renal failure is a cumulative, irreversible decline in quality in renal function in which the body's ability to maintain fluid & electrolyte balance fails resulting in uremia. The incidence of chronic renal failure is high all over the earth. Irrespective of age, sex, socioeconomic status and/or educational level, in the United States, it is calculated that the prevalence of chronic kidney disease has increased from 20 % to 30 % in recent years with a significantly associated burden of illness.<sup>[25]</sup>

*Fifthly*, Severe vomiting, to the point that affects the patient's nutritional status, also known as hyperemesis gravidarum, only occurs in 2% of all cases. The diagnosis is reached when the patient begins to lose weight, secondary to both dehydration and malnutrition. At this point, hospitalization may become necessary to rectify the ongoing metabolic abnormalities, including hypokalemia, Acid/base disturbances, and metabolic ketosis.<sup>[26]</sup>

*Lastly*, liver disease in pregnancy included liver disorders which present at the time of conception, those that occur coincidentally but not exclusively during pregnancy, and those that occur only in pregnancy. Hyperemesis falls into this latter category. Abnormal serum aminotransferase levels occur in approximately 50% of patients who develop clinically significant hyperemesis. Although this elevation is usually in the 100% to 300% range, larger elevations (ranging from 7-22 times the upper limits of normal) may also be seen.<sup>[26]</sup> The liver could be the target of diseases specific to the pregnancy, such as acute fatty liver and intrahepatic cholestasis of pregnancy, and there are no available means by which foretell with certainty how and when such illnesses may occur. In addition, when a new-onset liver disease (as in herpes simplex hepatitis) or a preexisting liver disease (as in autoimmune hepatitis) occurs during pregnancy, morbidity is more likely. Acute viral hepatitis is the most common cause of jaundice in pregnancy averaging 1/1000 to 2/1000.<sup>[27]</sup>

When we searched and take about Psychosocial well-being among pregnant women; we found that mood and anxiety disorders are common during their childbearing years. The gestational period is considered to be relatively high-risk times for women with pre-existing a number of mental health problems which arise

during or soon after pregnancy. These include depression, psychotic disorders, anxiety disorders, and schizophrenia.<sup>[1, 28]</sup> For more than a decade, psychology & related disciplines have been concerned about women having symptoms of anxiousness & depression during pregnancy & in the months following a birth.<sup>[29]</sup>

*Firstly*, Depression is the most common psychological disorder associated with pregnancy. Pregnant women may also suffer from anxiety disorders.<sup>[30]</sup> Between 14% to 23% of pregnant women will have depressive symptoms while pregnant.<sup>[31, 32]</sup> Antenatal depression, thus may have significant adverse effects that may extend beyond pregnancy and have more significant long-term effects on psychosocial functioning.<sup>[33, 34, 35]</sup> There is no question that severe clinical depressive symptoms are the genuine and serious disease. Yet, sadness is a normal and healthy reaction to many life situations, as are stress and anxiety.<sup>[28]</sup> *Secondly*, Studies indicate that 31% of women will develop some type of anxiety disorder during their lifetime.<sup>[36]</sup> Anxiety is a state of mind which develops depending on environmental stimulants that are perceived by the individuals as being dangerous or threatening and have unpleasing effects.<sup>[37]</sup> *Thirdly*, Evidence of high vulnerability to stress during pregnancy is more widely available, at least for certain subgroups of women. For instance, a recent survey of a diverse urban sample found that 78% experienced low & moderate antenatal psychosocial stress & 6% experienced high levels.<sup>[38]</sup>

## II. Significance of the study

Although it has been difficult to assess the effect of antenatal depressive symptoms on fetal development & neonatal well-being in humans, a number of studies have found an association between maternal depression and factors that predict a poor neonatal outcome, including preterm birth, LBW, smaller head circumference, and lower Apgar scores. Increased maternal serum cortisol & catecholamine levels, typically seen in patients with depression, may affect placental function by altering uterine blood flow and inducing uterine irritability.<sup>[1]</sup> In addition, a relevant recent study reported that women with both depression & anxiety disorders were at highest risk of low birth weight (LBW), as compared with those with only depressed or anxious symptoms or none.<sup>[39]</sup> Some studies indicated that the developing fetus may adversely be affected by maternal depression itself. Nonetheless, if important preconditions can be met, screening for pregnancy anxiety, depressive symptoms, & stress in pregnancy stands to provide potentially important clinical benefits for mothers and their children.<sup>[39]</sup>

Research on pregnancy focuses mostly on diagnosable psychological disorders, primarily anxiety, and depressive disorders and somewhat on posttraumatic stress disorder following adverse life events or childbirth experiences.<sup>[39, 40, 41]</sup> Meanwhile, a parallel literature has grown rapidly in another health field, especially behavioral medicine, health psychology, and social epidemiology, regarding stress in pregnancy and the implications for mothers, infants, and development over the life course.<sup>[29]</sup>

Most of the studies were done in Egypt for evaluating the prevalence of medical disorders as hypertension, diabetes mellitus, heart, renal, and liver diseases in pregnant women. Hence, little research has faced at the prevalence of antenatal depression, anxiety & stress among them. Combinations of all negative psychological symptoms (depression, anxiety & stress) also have received very little research attention. Surprisingly, little is known specific effects of medical disorders on emotional symptoms during pregnancy. Although maternal postpartum depression has received extensive attention, little research thus far has examined the utility and feasibility of screening for prenatal stress or pregnancy anxiety. In the present study, we examine baseline levels and correlates of pregnancy-related psychological distress among the inner-city Beni-Suefian women with medical disorders.

As nurses comprise the greatest group of wellness maintenance providers and are the ones responsible for the quality of care provided to the patients, their perspectives on the potency of their care are very important. It is proposed that the nurse-patient relationship is the most important & critical element within nursing's paradigm of patient care. Several written reports have endorsed the impact of nursing on health care outcomes and those reports suggest that positive patient outcomes depend to a greater extent on the skills of nurses than on the available technology. Many investigators, researchers and managers have attempted, therefore, to define nursing's impact on and contribution to care.<sup>[37]</sup> We direct attention specifically to recent research on pregnancy negative affective states (referring throughout to anxiety, stress, and depression), a newer concept that is amongst the most serious maternal risk factors for adverse maternal and child outcomes. By highlighting these developments, we desire to promote synthesis and novel focal points in research and to facilitate evidence-based practices in screening and clinical maternal protocols.

## III. Operational definitions

**Pregnancy-induced hypertension:** An increase of 30 mmHg in systolic blood pressure and 15 mmHg in diastolic one compared with baseline values.<sup>[42]</sup>

**Chronic hypertension:** The blood pressure of 140/90 mm Hg or higher that was present before pregnancy, before the 20<sup>th</sup> week of gestation, and/or persisting beyond the 42<sup>nd</sup> postpartum day.<sup>[24]</sup>

**Gestational hypertension:** Hypertension that; develops in the latter part of pregnancy, not associated with proteinuria and/or other features of preeclampsia, & resolves by 12<sup>th</sup> weeks postpartum. It is also well-known as pregnancy-induced hypertension.<sup>[24]</sup>

**Preeclampsia,** also known as toxemia: As gestational hypertension (the systolic blood pressure 140 mm Hg and/or diastolic blood pressure 90 mmHg on at least two occasions four hours apart after 20<sup>th</sup> weeks' gestation, but before the onset of labor, or postpartum systolic blood pressure 140 mmHg and/or diastolic one 90 mmHg on at least two occasions four hours apart) with proteinuria (24 hours urinary protein 300 mg, or spot urine protein to creatinine ratio 30 mg/mmol creatinine, or urine dipstick protein 2+) and edema.<sup>[42]</sup>

**Diabetes Mellitus:** is a metabolic disorder characterized by chronic hyperglycemia with disturbances of fat, protein, and carbohydrate metabolism resulting from insulin deficiency secretion, insulin action, or both. The effects of diabetes mellitus include dysfunction, long-term damage, and failure of various organs"<sup>[43]</sup>

**Gestational diabetes mellitus (GDM):** As defined by the World Health Organization (WHO) and the American Diabetes Association (ADA) is any degree of carbohydrate intolerance resulting in hyperglycemia of variable severity, with first recognition or onset during pregnancy.<sup>[17]</sup> It does not exclude the possibility that the glucose intolerance may antedate pregnancy, but has previously gone unrecognized. That definition applies regardless of whether the condition persists after pregnancy and/or whether or not insulin is used for treatment. Women who are, previously, known to have diabetes mellitus and who later become pregnant don't have gestational diabetes, but have diabetes mellitus & pregnancy, therefore, they should be treated accordingly before, during & after the pregnancy.<sup>[15]</sup>

**The Depression Anxiety Stress Scale (DASS)** was built-up with somatic items excluded to evaluate this problem specifically. It is, thus, likely to provide clinicians with an exact appraisal of their patient's symptoms of anxiety, depression, and stress.<sup>[44]</sup>

#### **IV. Aim of the Study**

This study was therefore carried out to assess the prevalence of medical disorders as hypertension, diabetes mellitus, heart, renal, and liver diseases among pregnant women in Beni Suef. Moreover, Assessing and identify the psychosocial health profile and the negative mood symptoms (stress, anxiety and depression) among pregnant women with a medical disorder for providing support services for those women.

#### **V. Research Questions**

- ❑ What is the prevalence of medical disorders (hypertension, diabetes mellitus, heart, and others) among pregnant women in Beni Suef governorate?
- ❑ Is medical disorder affecting negatively on psychological status among pregnant women in Beni-Suef governorate?
- ❑ Are sociodemographic, and obstetric characteristics significantly implicated in women's emotional status among pregnant women associated with medical disorders in Beni-Suef?

#### **VI. Subjects & Method**

The design followed for this study is explorative one to appraise the relationship between obstetric issues and psychological implication among pregnant women associated with medical disorders in Beni-Suef governorate.

##### **Research Setting:**

The current study was carried out in the high-risk obstetric departments, and the antenatal outpatient clinics for all governmental hospitals in Beni-Suef City. Namely, Beni-Suef University Hospital, Health insurance Hospital and Beni-Suef general Hospital, which affiliates to Ministry of Health (MOH), where pregnant women were admitted and/or follow up their pregnancy.

##### **Subjects:**

A sample of convenience 400 Beni-Suefian pregnant women with a primary diagnosis of medical disorder and undergoing either intervention or usual care or follow-up was selected to participate in the current study.

##### ✓ **Case inclusion criteria:**

- Pregnant women.

- All women diagnosed with the medical disorder (hypertension, diabetes mellitus, heart, renal, ..... etc) diseases Undergoing either intervention or usual care or follow-up.

##### ✓ **Case exclusion criteria:**

I. Women who have any previous psychological disease, psychiatric ailment or cognitively impaired.

II. Women were having any psychological treatment.

## VII. Tool of Data Collection

A structured interview questionnaire designed by the researcher to meet the aims of the study, based on the literature review and was written in a simple Arabic language to suit the women's level of understanding intellect. It encompassed three main sections as follows:

The 1<sup>st</sup> section included sociodemographic characteristics as age, occupation, education, and income adequacy.

The 2<sup>nd</sup> section included women's obstetrical history as gestational age, parity, and abortion.

The 3<sup>rd</sup> section included questionnaires about the negative emotional status sequel of the medical disorder associated with pregnancy.

Data were compiled by using the Depression Anxiety Stress Scale (DASS-21) which is a shorter, 21-item version of the (DASS-42) self-administered questionnaire designed to measure the magnitude (severity of the core symptoms) of three axes of negative emotional states: depression, anxiety, and stress.<sup>[44]</sup> In completing the DASS, the individual is required to mention the presence or absence of a symptom over the previous week. The DASS Depression focuses on reports of low mood, motivation, and self-esteem, DASS-anxiety on physiological arousal, perceived panic, and fear, and DASS-stress on tension and irritability. A respondent indicates on a 4-point scale the extent to which each of 21 statements applied over the past week. Each point is scored from 0 (did not apply at all) to 3 (applied very much or most of the time).

The rating scale is summarized as follows:

- "0" Did not apply at all "Never".
- "1" Applied to some of the time, or some degree "Sometimes".
- "2" Applied to a good part of time, or a considerable degree "Often".
- "3" Applied most of the time, or very much "Almost Always".

What each item belongs to the scale is indicated by the letters; "S" (Stress), "A" (Anxiety), and "D" (Depression). For each scale (S, A, & D) sum the scores of each point to obtain a total score. Higher scores on each subscale indicate greater levels of depression, anxiety, or stress. As Subscale scores from the shorter questionnaire (DASS-21), the final score of each item groups (S, A, & D) needs to convert to the DASS normative data by multiplying the total scores by two ( $\times 2$ ). Once multiplied by 2, each score can be transferred to the DASS sheet, enabling comparisons to be reached between the three scales and also indicating percentile rankings & severity levels. Therefore, the following cutoff scores have been developed for defining mild/moderate/severe/extremely severe scores for each DASS scale.

### Scoring system:

Negative mood symptoms can be evaluated according to the Table below. *In brief*, the symptomatic level of psychological distress are these ups and downs (absent, mild, & moderate symptoms) and it is corrected by education for women about adaptation and no need for intervention or a psychologist referral while, the comorbid level (severe & extremely severe) need for clinical follow-up and psychologist referral.

**Table 1.** Scoring system of psychological distress

| Negative mood symptoms | Level                   | Total Score |         |         |
|------------------------|-------------------------|-------------|---------|---------|
|                        |                         | Depression  | Anxiety | Stress  |
| Symptomatic level      | <b>Absent</b>           | 0 - 9       | 0 - 7   | 0 - 14  |
|                        | <b>Mild</b>             | 10 - 13     | 8 - 9   | 15 - 18 |
|                        | <b>Moderate</b>         | 14 - 20     | 10 - 14 | 19 - 25 |
| Comorbid level         | <b>Severe</b>           | 21 - 27     | 15 - 19 | 26 - 33 |
|                        | <b>Extremely Severe</b> | 28+         | 20+     | 34 +    |

### N.B.

- The Depression Anxiety Stress Scale (DASS) is a quantitative measure of psychological distress along the 3 axes of depression, anxiety (Symptoms of psychological arousal) & stress (The more subjective, and cognitive symptoms of anxiety). It is not a categorical measure of clinical diagnoses. It isn't meant to replace a comprehensive clinical interview.
- The severity labels are used to identify the broad range of scores in the population, so 'mild' for example, means that, however, the individual is above the population mean, he probably still way below the typical severity of someone seeking help (i.e. It does not signify a mild level of disorder).

## VIII. Methods of Data Collection

This study was covered in the following phases:-

### ▪ Validity of tool

Evidence has been found for constructing and convergent validity for the anxiety and depression subscales of both the long and short versions of the DASS.<sup>[45,46]</sup>

▪ **Reliability:**

Internal consistency for each of the subscales of the 42-item and the 21-item versions are typically high (eg Cronbach's  $\alpha$  of 0.96 to 0.97 for DASS Depression, 0.84 to 0.92 for DASS-Anxiety, and 0.90 to 0.95 for DASS-Stress.<sup>[45, 47, 48, 49, 50]</sup> There is good evidence that the scales are stable over time.<sup>[47]</sup>

▪ **Administrative & Ethical Considerations**

The researcher fulfilled the official steps required to get the approval for carrying out the study. Approval was taken from hospitals' directors before taking up the research. Before starting data collection; ethical issues (anonymity, confidentiality, & voluntary participation) were considered. The aims of the study were explained to each pregnant woman to be familiar with her participation. It was the participants' right to refuse participation.

▪ **Pilot Study**

The pilot study included about 10% of the study sample. The pilot settings, selected in this study were included in the original study subject, but the pilot sample was excluded from the main study in order to avoid contamination of the study sample. The pilot study evaluated the clarity of language, the applicability of items, and time consumed for filling in the tools' items.

▪ **Field Work**

The data were collected during the period from the 1<sup>st</sup> February to the end of July 2015 of the above-mentioned settings. Data were collected utilizing a face-to-face interviewed questionnaire: each woman took 20-30 minutes to finish the tool in the manner of privacy in the presence of the researcher.

▪ **Statistical Design**

Subsequently, the data were collected, they were organized, coded. Entered and the analysis was done using SPSS version 16. Continuous variables were reported using mean  $\pm$  SD for the normally distributed variables. Moreover, categorical variables were reported using numbers and percentages. Bar chart for the graphical display. Univariate analysis was done using Chi-square test ( $\chi^2$ ) to find the association between outcome (psychological distress) and the other study variables. At the 5% level, all analysis was considered statistically significant (p-value <0.05).

## **IX. Results**

The total number of 400 pregnant women associated with medical disorder presents in **Table (2)**; the mean age of participants was  $25 \pm 4.495$  years, 54.5 % were working, with the majority of them (84.2% & 86.5%) were technical education & not have enough family income, respectively. Obstetrical characteristics of the study sample are presented in **Table (3)**. About three quarters (73.5%) of the study subject were multigravida; 72.5% of them were in the 1<sup>st</sup> trimester. 47.5% were nulliparous. 21.0 % have experienced a history of miscarriage.

Hypertension was observed in the most frequent (49%) medical disorder associated with pregnancy followed by diabetes mellitus and heart disease (45% & 44.5%), while other diseases as renal and liver, ..... etc represented 40.0% (N.B. some of the participants had more than one disorder) as displayed in Figure 1.

Clarification the association between negative psychological symptoms & the sociodemographic figure of the participants is summarized in Table (4). The statistically relationship between the Depression Anxiety Stress Scale (DASS-21) and educational level & occupational status of the women was observed (p-value <0.05).

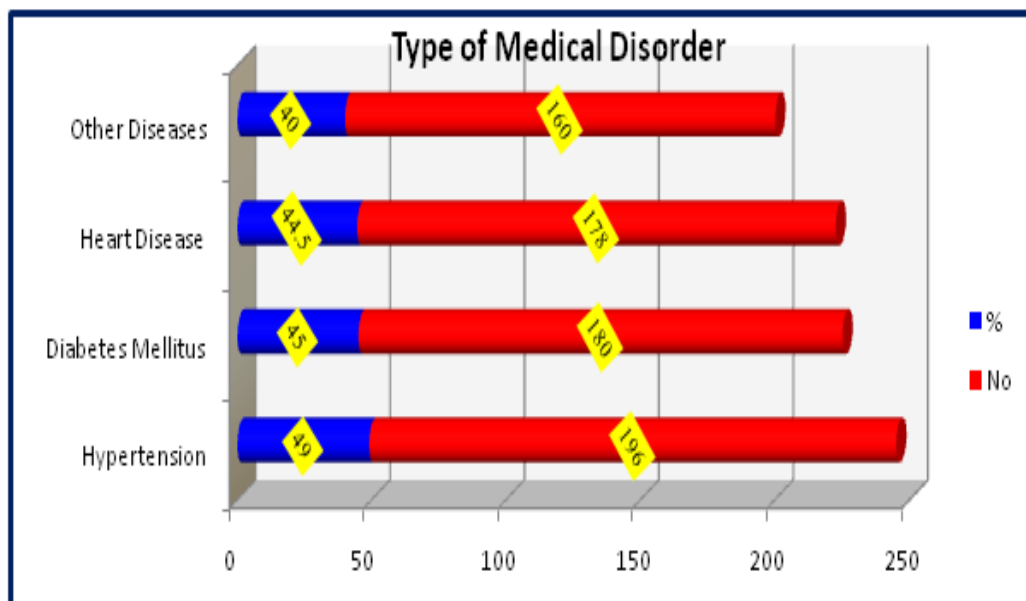
The association between psychological distress (depression, anxiety & stress) outcome measures of the studied subjects and their obstetrical history are clarified in **Table (5)**. This table demonstrates a statistically significant impact of gestational age, parity, history of abortion, history of stillbirth or birth defects on psychological states which risk later in life among pregnant women, which in turn is predictive of the occurrence of psychological distress later in life. Baseline DASS-21 and the type of medical disorder is shown in **Table (6)**. A highly statistically significant difference in negative psychological status amongst those studied women in relation to their hypertension, and diabetes mellitus. Moreover, statistically significant differences in depression & anxiety (p=0.000, 0.021), respectively, amongst those studied women in relation to their other diseases. In addition, there was no significant difference in psychological status (except in depression p= 0.000) amongst those women in relation to heart disease (p=0.708 & 0.515), respectively.

**Table 2:** Distribution of the Studied Sample According to their Sociodemographic Characteristics.

| Variables                           | Frequency | Percent % |
|-------------------------------------|-----------|-----------|
| <b>Age</b> (mean ± SD)              | 25±4.495  |           |
| < 20                                | 46        | 11.5      |
| 20-                                 | 126       | 31.5      |
| 25-                                 | 196       | 49.0      |
| 30-                                 | 32        | 8.0       |
| <b>Educational level</b>            |           |           |
| Elementary education (read & write) | 35        | 8.8       |
| Secondary education or equal        | 337       | 84.2      |
| University education                | 28        | 7.0       |
| <b>Occupational status</b>          |           |           |
| Working                             | 218       | 54.5      |
| Housewives                          | 182       | 45.5      |
| <b>Income adequacy</b>              |           |           |
| Enough                              | 54        | 13.5      |
| Not enough                          | 346       | 86.5      |

**Table 3:** Distribution of the Studied Sample According to their Obstetrical History.

| Variables  | Frequency | Percent % |
|--|-----------|-----------|
| <b>Gestational age</b>   |           |           |
| 1 <sup>st</sup> - 13 <sup>th</sup> week (1 <sup>st</sup> Trimester)  | 290       | 72.5      |
| 14 <sup>th</sup> - 27 <sup>th</sup> week (2 <sup>nd</sup> Trimester) | 70        | 17.5      |
| 28 <sup>th</sup> - 40 <sup>th</sup> week (3 <sup>rd</sup> Trimester) | 40        | 10.0      |
| <b>Gravida</b>   |           |           |
| Multigravida   | 294       | 73.5      |
| Primigravida   | 106       | 26.5      |
| <b>Parity</b>  |           |           |
| Multiparous  | 210       | 52.5      |
| Nulliparous  | 190       | 47.5      |
| <b>History of abortion</b>   |           |           |
| None   | 316       | 79.0      |
| Once or more   | 84        | 21.0      |
| <b>History of stillbirth or birth defects</b>                        |           |           |
| None   | 266       | 66.5      |
| One or more  | 134       | 33.5%     |



**Figure 1:** Distribution of the Studied Sample as Regards Prevalence of Medical Disorders.

**Table 4:** Relationship between Sociodemographic Characteristics of the Studied Subjects and their Negative Psychological Symptoms.

| Variables                      | Depression  |           |         | Anxiety     |           |         | Stress      |           |         |
|--------------------------------|-------------|-----------|---------|-------------|-----------|---------|-------------|-----------|---------|
|                                | Symptomatic | Co-morbid | P-Value | Symptomatic | Co-morbid | P-Value | Symptomatic | Co-morbid | P-Value |
| <b>Age</b>                     |             |           |         |             |           |         |             |           |         |
| < 20-                          | 24          | 22        | 0.224   | 16          | 30        | 0.000   | 34          | 12        | 0.005   |
|                                | 10.2%       | 13.4%     |         | 7.4%        | 16.7%     |         | 15.5%       | 6.6%      |         |
| 20-                            | 81          | 45        |         | 87          | 39        |         | 66          | 60        |         |
|                                | 34.3%       | 27.4%     |         | 39.5%       | 21.6%     |         | 30.1%       | 33.1%     |         |
| 25-                            | 111         | 85        |         | 96          | 100       |         | 99          | 97        |         |
|                                | 47.0%       | 51.8%     |         | 43.6%       | 55.6%     |         | 45.2%       | 53.6%     |         |
| 30-                            | 20          | 12        | 21      | 11          | 20        | 12      |             |           |         |
|                                | 8.5%        | 7.4%      | 9.5%    | 6.1%        | 9.2%      | 6.7%    |             |           |         |
| <b>Educational level</b>       |             |           |         |             |           |         |             |           |         |
| Primary education (read/write) | 30          | 5         | 0.000   | 10          | 25        | 0.000   | 15          | 20        | 0.002   |
|                                | 12.7%       | 3.0%      |         | 4.5%        | 13.9%     |         | 6.8%        | 11.0%     |         |
| Secondary education or equal   | 198         | 139       |         | 201         | 136       |         | 196         | 141       |         |
|                                | 83.9%       | 84.8%     |         | 91.4%       | 75.5%     |         | 89.5%       | 78.0%     |         |
| University education           | 8           | 20        |         | 9           | 19        |         | 8           | 20        |         |
|                                | 3.4%        | 12.2%     |         | 4.1%        | 10.6%     |         | 3.7%        | 11.0%     |         |
| <b>Occupational status</b>     |             |           |         |             |           |         |             |           |         |
| Working                        | 110         | 108       | 0.000   | 103         | 115       | 0.001   | 131         | 87        | 0.055   |
|                                | 46.6%       | 65.9%     |         | 46.8%       | 63.9%     |         | 59.8%       | 48.1%     |         |
| Housewives                     | 126         | 56        |         | 117         | 65        |         | 88          | 94        |         |
|                                | 53.4%       | 34.1%     | 53.2%   | 36.1%       | 40.2%     | 51.9%   |             |           |         |
| <b>Income adequacy</b>         |             |           |         |             |           |         |             |           |         |
| Enough                         | 32          | 22        | 0.938   | 13          | 41        | 0.000   | 17          | 37        | 0.000   |
|                                | 13.6%       | 13.4%     |         | 5.9%        | 22.8%     |         | 7.8%        | 20.4%     |         |
| Not enough                     | 204         | 142       |         | 207         | 139       |         | 202         | 144       |         |
|                                | 86.4%       | 86.6%     |         | 94.1%       | 77.2%     |         | 92.2%       | 79.6%     |         |

**Table 5:** Relationship between Obstetrical History of the Studied Subjects and their Psychological Symptoms.

| Variables  | Depression  |           |         | Anxiety     |           |         | Stress      |           |         |
|--|-------------|-----------|---------|-------------|-----------|---------|-------------|-----------|---------|
|  | Symptomatic | Co-morbid | P-Value | Symptomatic | Co-morbid | P-Value | Symptomatic | Co-morbid | P-Value |
| <b>Gestational age/ Trimesters</b>                                   |             |           |         |             |           |         |             |           |         |
| 1 <sup>st</sup> - 13 <sup>th</sup> week (1 <sup>st</sup> Trimester)  | 190         | 100       | 0.000   | 186         | 104       | 0.000   | 168         | 122       | 0.000   |
|  | 80.5%       | 61.0%     |         | 84.6%       | 57.8%     |         | 76.7%       | 67.4%     |         |
| 14 <sup>th</sup> -27 <sup>th</sup> week (2 <sup>nd</sup> Trimester)  | 26          | 44        |         | 19          | 51        |         | 32          | 38        |         |
|  | 11.0%       | 26.8%     |         | 8.6%        | 28.3%     |         | 14.6%       | 21.0%     |         |
| 28 <sup>th</sup> - 40 <sup>th</sup> week (3 <sup>rd</sup> Trimester) | 20          | 20        |         | 15          | 25        |         | 19          | 21        |         |
|  | 8.5%        | 12.2%     |         | 6.8%        | 13.9%     |         | 8.7%        | 11.6%     |         |
| <b>Gravida</b>   |             |           |         |             |           |         |             |           |         |
| Multigravida   | 180         | 114       | 0.004   | 159         | 135       | 0.521   | 169         | 125       | 0.170   |
|  | 76.3%       | 69.5%     |         | 72.3%       | 75.0%     |         | 77.2%       | 69.1%     |         |
| Primigravida   | 56          | 50        |         | 61          | 45        |         | 50          | 56        |         |
|  | 23.7%       | 30.5%     | 27.7%   | 25.0%       | 22.8%     | 30.9%   |             |           |         |
| <b>Parity</b>  |             |           |         |             |           |         |             |           |         |
| Multiparous  | 121         | 89        | 0.000   | 126         | 84        | 0.031   | 116         | 94        | 0.965   |
|  | 51.3%       | 54.3%     |         | 57.3%       | 46.7%     |         | 53.0%       | 51.9%     |         |
| Nulliparous  | 115         | 75        |         | 94          | 96        |         | 103         | 87        |         |
|  | 48.7%       | 45.7%     | 42.7%   | 53.3%       | 47.0%     | 48.1%   |             |           |         |
| <b>History of abortion</b>   |             |           |         |             |           |         |             |           |         |
| None   | 204         | 112       | 0.000   | 193         | 123       | 0.006   | 155         | 161       | 0.011   |
|  | 86.4%       | 68.3%     |         | 87.7%       | 68.3%     |         | 70.8%       | 89.0%     |         |
| Once or more   | 32          | 52        |         | 27          | 57        |         | 64          | 20        |         |
|  | 13.6%       | 31.7%     |         | 12.3%       | 31.7%     |         | 29.2%       | 11.0%     |         |
| <b>History of stillbirth or birth defects</b>                        |             |           |         |             |           |         |             |           |         |
| None   | 175         | 91        | 0.001   | 166         | 100       | 0.000   | 162         | 104       | 0.002   |
|  | 74.2%       | 55.5%     |         | 75.5%       | 55.6%     |         | 74%         | 57.5%     |         |
| Once or more   | 61          | 73        |         | 54          | 80        |         | 57          | 77        |         |
|  | 25.8%       | 44.5%     |         | 24.5%       | 44.4%     |         | 26.0%       | 42.5%     |         |



**Table 6:** Relationship Type of Medical Disorder of the Studied Subjects and their Psychological Symptoms.

| Variables                | Depression  |           |         | Anxiety     |           |         | Stress      |           |         |
|--------------------------|-------------|-----------|---------|-------------|-----------|---------|-------------|-----------|---------|
|                          | Symptomatic | Co-morbid | P-Value | Symptomatic | Co-morbid | P-Value | Symptomatic | Co-morbid | P-Value |
| <b>Hypertension</b>      |             |           |         |             |           |         |             |           |         |
| No                       | 142         | 62        | 0.000   | 142         | 62        | 0.000   | 130         | 74        | 0.000   |
|                          | 60.2%       | 37.8%     |         | 64.5%       | 34.4%     |         | 59.4%       | 40.9%     |         |
| Yes                      | 94          | 102       |         | 78          | 118       |         | 89          | 107       |         |
|                          | 39.8%       | 62.2%     |         | 35.5%       | 65.6%     |         | 40.6%       | 59.1%     |         |
| <b>Diabetes Mellitus</b> |             |           |         |             |           |         |             |           |         |
| No                       | 157         | 63        | 0.000   | 131         | 89        | 0.038   | 132         | 88        | 0.001   |
|                          | 66.5%       | 38.4%     |         | 59.5%       | 49.4%     |         | 60.3%       | 48.6%     |         |
| Yes                      | 79          | 101       |         | 89          | 91        |         | 87          | 93        |         |
|                          | 33.5%       | 61.6%     |         | 40.5%       | 50.6%     |         | 39.7%       | 51.4%     |         |
| <b>Heart Diseases</b>    |             |           |         |             |           |         |             |           |         |
| No                       | 126         | 96        | 0.000   | 120         | 102       | 0.708   | 118         | 104       | 0.515   |
|                          | 53.4%       | 58.5%     |         | 54.5%       | 56.7%     |         | 53.9%       | 57.5%     |         |
| Yes                      | 110         | 68        |         | 100         | 78        |         | 101         | 77        |         |
|                          | 46.6%       | 41.5%     |         | 45.5%       | 43.3%     |         | 46.1%       | 42.5%     |         |
| <b>Other Diseases</b>    |             |           |         |             |           |         |             |           |         |
| No                       | 146         | 94        | 0.000   | 143         | 97        | 0.021   | 142         | 98        | 0.077   |
|                          | 61.9%       | 57.3%     |         | 65.0%       | 53.9%     |         | 64.8%       | 54.1%     |         |
| Yes                      | 90          | 70        |         | 77          | 83        |         | 77          | 83        |         |
|                          | 38.1%       | 42.7%     |         | 35.0%       | 46.1%     |         | 35.2%       | 45.9%     |         |

### X. Discussion

As a prelude to discussing, despite pregnancy has traditionally been considered a time of emotional well-being for protecting women against psychiatric disorders (hormonal changes during pregnancy, such as increased prolactin, cortisol, and oxytocin may contribute to the suppression of the stress response that occurs during this period).<sup>[1, 36]</sup> Moreover, if pregnancy is associated with medical disorders (hypertensive disorder, diabetes mellitus, heart disease, renal, liver, hyperemesis gravidarum) it will have an impact on psychological wellbeing and increase the risk of negative psychological symptoms.

First and foremost, it is important to recall that Pregnancy is not recommended in the aforementioned high-risk group of women. As the risk to the mother is so high, midwives caring for these patients are challenged with being highly competent in delivering complex care, as many of these patients can be very ill as well as having significant emotional requirements. The midwife must be vigilant in detecting any potential complication.<sup>[51]</sup> A range of studies has examined the effects of maternal stress and mental health on birth outcomes. Evidence has suggested that babies of depressed mothers seem to implement less well than other babies. Untreated depression has been linked to obstetric complications & adverse outcomes such as a higher rate of caesarean sections, low birth weight, preterm birth, feeding difficulties, and prolonged hospital stays.<sup>[28]</sup>

In the earlier times, pregnant women were advised by Hippocrates to beware of unnecessary psychic stress.<sup>[1]</sup> Up to 70% of women report some negative mood symptoms during pregnancy.<sup>[30]</sup> In addition, the prevalence of depression has been declared to be between 10% and 16% during pregnancy.<sup>[1]</sup> There is no doubt that pregnancy associated with medical disorders like another physiological phenomenon has social and emotional aspects and it is classified in the field of behavioral sciences. This study was therefore carried out to determine the prevalence of women with the medical disorder among high-risk antenatal units and clinic attendees at the University of Beni-Suef, health insurance, and general Hospitals. In addition, it aimed to assess and identify the negative psychosocial health profile for those medical disorders associated with pregnancy.

According to a recent report, the most common medical disorders encountered in pregnancy are the hypertensive disorder, diabetes mellitus, heart disease, renal, liver, hyperemesis gravidarum. Hypertension is the most common health problem encountered in pregnancy and remains an important cause of fetal and maternal mortality and morbidity. It complicates almost 10% of all pregnancies.<sup>[7]</sup> The prevalence of the hypertensive disorder in Pregnancy varies according to geographical regions of the world. It ranges from 1.5% of Sweden's to 7.5% in Brazil,<sup>[7]</sup> in 4.0% of all pregnancies in Western Australia (2.7 % due to preeclampsia and 13.6% due to essential hypertension). Moreover, 2.4 % of Perinatal death are due to hypertension in pregnancy.<sup>[52]</sup> GDM is a growing health concern in many parts of the world; GDM occurs in 2.2% to 8.8% of pregnancies<sup>[16]</sup>, it is estimated that the prevalence of chronic kidney disease has increased 20% to 25% in recent years with a significantly associated burden of illness (In the United States).<sup>[25]</sup>

Related to the sociodemographic figure of the studied sample, the present study showed that the mean aged 25±4.495, the majority of them hadn't adequate income, the highest percentage were technical education and 45.5% of them were housewives. The present study results indicated that most of the studied sample's negative psychological symptoms were in the mid twenty-five to thirty years, technical education degree,

working women and those who they hadn't adequate family income. Occupation and educational level had a significant relation with negative psychological symptoms (at all parameters of depression, anxiety & stress) among pregnant women associated with medical disorders while age and economic status have a significant relation with anxiety & stress.

When examining the relationship between pregnant women's educational level and depression, anxiety and stress, the results show highly and moderately significant correlation ( $p=0.000$  &  $0.000$  and  $0.002$ ), respectively. It appears that highly educated ones have other targets to focus on. These findings are congruent with the result of Ell K. et al (2008) as he denotes that, Low education has been associated with the forgetting of medical information and more negative attitudes.<sup>[53]</sup> Schetter C. and Tanner L. (2012) added that Some of the stressors that commonly affect women during pregnancy around the globe are unfavorable employment conditions, low material resources, heavy household and family responsibilities, strain in intimate relationships, and pregnancy complications.<sup>[39]</sup> Touching on women's occupational status, the outcomes of the current study revealed that 54.5% of the studied subjects were going. The working women had the highest prevalence of psychological crisis when compared with the housewives ones. This result may be because the woman economically helps her family and tries to earn money for them. In this case, the woman has much psychological distress related to the burden of her job added to her medical condition. However, work ensures the independence & financial security; it exhausts the women and exposes them to unfavorable social scrutiny which may lead to psychological problems. A statistically significant deviation was noted among participants working group in relation to depression ( $p=0.000$ ), anxiety ( $p=0.001$ ) and stress ( $p=0.055$ ). However, this result was contradicted by Upkong's (2006) and Ramezanzadeh et.al, (2004) as they found that, the rate of psychological disorder was higher among housewives women.<sup>[54, 55]</sup> It was in line what other researchers found<sup>[37, 56, 57]</sup> They establish that of positive psychological disorder were observed more in outside employees than in housewives.

The financial strain is potential to be prevalent among low-income and minority survivors, thus far the shock of economic strain on low-income survivors' disparities in their quality of life (QOL) outcomes remains largely undiscovered. The findings of the present survey showed that the majority (86.5%) of the study sample didn't have adequate income. A high statistic significant relationship between pregnant women's anxiety & stress symptoms ( $p=0.000$ ) and their income adequacy. It was not surprising to find that, negative Psychological symptoms were more prevalent among poor women than rich ones. This may due to that, the patients belonging to poor families were concerned about themselves and about the treatment expenses because they were unable to bear high expenses of treatment of the threaded life medical disorder. These resolutions were confirmed by the fourth world conference (1995) which denoted that statistics or so women and poverty were all too familiar, where women were the majority of 1.3 billion people surviving in extreme poverty.<sup>[37]</sup> In addition Ordolis E. (2009) and Santvana S., et al, (2005) stated, other risk factors for antenatal depression include violence and abuse, marital discord or dissatisfaction, lack of a partner or family psychosocial supports, recent adverse life events, lower socioeconomic status, and unwanted pregnancy.<sup>[1, 28]</sup>

More consistent effects have been found for 'pregnancy anxiety' (known as 'pregnancy-specific anxiety' & similar to 'pregnancy distress').<sup>[39]</sup> A large body of research is now available regarding affective states and stress during pregnancy as predictors of specific pregnancy conditions and birth outcomes.<sup>[58]</sup> Pregnancy either induces or exacerbates pre-existing stress and in turn, stress seems to have a negative effect on pregnancy, especially in the first trimester which is also the period of the highest rate of miscarriage. That abortion occurred as a reaction to joy, wrath, grief, fear and, even, disagreeable odors, was widely believed by the medical profession in the 17<sup>th</sup> and 18<sup>th</sup> centuries.<sup>[1]</sup>

The primary risk factor for psychological suffering, among pregnant women, is gestational age. The finding of the present study illustrated that about three-quarters (72.5%) of the studied subject were in the 1<sup>st</sup> trimester. It was found that psychological distress was greatest observed among the 1<sup>st</sup> trimester pregnancy (61.0% depression, 57.8% anxiety & 67.4% stress) than other trimesters. Although this resembled what Kumar R. & Robson M. (1984) stated, throughout pregnancy, the course of depression varies; most studies report a symptom peak during the first and third trimesters and improvement during the second trimester,<sup>[59]</sup> it contradicted what Evans J., et al. (2001) & Josefsson A., et al., (2001) found in their study. They reported that, the prevalence of women who meet the diagnostic criteria for depression has been displayed to be between 13.6% at 32<sup>nd</sup> weeks gestation and 17% at 35<sup>th</sup> to 36<sup>th</sup> weeks gestation.<sup>[60, 61]</sup> Schetter C. and Tanner L., (2012) stated that Pregnancy anxiety appears to be a distinct and definable syndrome reflecting fears about the health of one's baby, of hospital and healthcare experiences (including one's own well-being and survival in pregnancy), of impending childbirth and its aftermath, and of parenting or the maternal role. It represents a particular emotional state that is closely associated with state anxiety, but more contextually based, that is tied more specifically to concerns about the current pregnancy.<sup>[39]</sup>

Granting to the present study findings, it was found that around half (52.5%) of the studied subject were multiparous. Moreover, 54.3%, 46.7% & 51.9% of multiparous women had a co-morbid level of

depression, anxiety & stress, respectively. Statistically significant impact of Parity among women on their depression and anxiety level, ( $p = 0.000$  &  $0.031$ ), respectively, was observed. This result is expected as women are often overstressed because they play multiple roles and face systemic pressures, such as poverty, inadequate housing, and lack of childcare. In addition, mood swings may occur as a result of normal hormonal changes that women experienced in relation to her life cycle events such as menstruation, pregnancy, and lactation. Ordolis E. (2009) have noted that these normal psychological and emotional reactions to internal and external stressors have increasingly come to be labeled as medical disorders. As this type of labeling makes its way into popular information sources, women's understanding of their mental health and wellbeing is increasingly influenced.<sup>[28]</sup>

Based on the history of abortion and stillbirth or birth defects among study subject, it is evident that 21.0% and one-third (33.5%) of them suffered from abortion and stillbirth or birth defects (once or more), respectively. According to the present study findings, it was found that 31.7%, 31.7% & 11.0% of pregnant women who had a previous abortion had a comorbid level of depression, anxiety and stress, respectively. Moreover, it was clear from the finding that, 44.5%, 44.4% & 42.5% of women who had a history of stillbirth or birth defect had comorbid symptoms of depression, anxiety and stress, respectively. A statistically significant deviation was observed ( $p < 0.05$ ). This may be attributed to that, women were concerned with the fate of their current pregnancy. They were very depressed in thinking that what will take place with their baby later in case of their death.

Clinical screening for depression or anxiety in prenatal health care has been widely recommended. It concerns what screening tools to use; what cutoffs to adopt for identifying women at risk; the need for expert clinicians to follow up on those women who score above thresholds to make diagnoses; and, for those who have established the diagnoses, efficacious treatments & the availability of affordable. These issues must be resolved for prenatal clinical screening to be recommended widely.<sup>[39]</sup> The outcome of this study illustrated that all of the studied subjects suffers from different levels of psychological hurt. Statistically significant difference was observed between type of medical disorder and levels of psychological distress. This result had a serious indicator of the pregnant woman's psychological health, this indicated that she need to review psychological team besides obstetric & other specialized ones as cardiologist ones to receive effective counseling and treatment for her case. Carter D. & Kostaras X. (2005) stated that, during pregnancy, depression symptoms such as changes in appetite, sleep, and energy are often difficult to distinguish from the normal experiences of pregnancy.<sup>[30]</sup> Schetter C. and Tanner L., (2012) added and affirm that, experts have questioned the validity of a diagnosis of depressive disorders using standard diagnostic criteria for mood disturbance because they include typical certain somatic symptoms of pregnancy such as fatigue, sleep disturbance, and appetite changes.<sup>[39]</sup>

Hypertensive disorder during pregnancy is considered to be a major worldwide health problem running an increased risk of Perinatal, fetal and maternal mortality.<sup>[7]</sup> It occurs in women with pre-existing primary or secondary chronic hypertension, as well as women who develop new onset hypertension in the second half of pregnancy. In the United Kingdom (UK), although the rate of eclampsia appears to have fallen, hypertension in pregnancy remains one of the leading causes of maternal death in the UK.<sup>[62]</sup>

It is not amazing to find a high prevalence (about one-half, 49.0%) of hypertension among studied subject from pregnant women. It may be attributed to their personal and obstetrical characteristics as low socioeconomic status, inadequate income, age & parity. In addition, 62.2%, 65.6% & 59.1% reported comorbid psychological symptoms (depression, anxiety & stress), respectively. A highly statistically significant difference was observed ( $p=0.000$ ). According to our study, the majority of the studied sample (86.5%) had inadequate income. The findings were in according with those of Al-Nozha et al. (2007) who found that hypertension was significantly more in the low-income group.<sup>[63]</sup> As well as Moussa M, et al. (2016) and Soliman et al. (2014) have emphasized that low socioeconomic status was associated with elevated rates of blood pressure.<sup>[4]</sup> According to Sajith M., et al (2014) study, the overall frequency of hypertensive disorders in pregnancy was 7.8%. The variations can be attributed to racial differences, socioeconomic status and some other parameters like parity and age.<sup>[7]</sup> Our findings highlighted that 92% of the studied women's aged less than 30 years, as well as 26.5% of them, were primigravidae. This is in line with Sajith M., et al (2014) who reported that age has an influence on the incidence of hypertensive disorder of pregnancy, it was apparently higher in younger pregnant women (less than 30 years). Preeclampsia is primarily regarded as a disease of first pregnancy as young primigravidae under 20 years has an increased chance of hypertension.<sup>[7]</sup> This could be because the majority of conceptions takes place in this age group in our country.

The prevalence of gestational diabetes mellitus in Ugege W., et al (2015) study using the WHO diagnostic criteria was 3.30%.<sup>[21]</sup> However, the prevalence of GDM is within the range quoted for Sub-Saharan Africa<sup>[16]</sup>, this was lower than 13.9% that was obtained in Ibadan, southwest Nigeria but higher than 1.7% that was obtained in a study Enugu, southeastern Nigeria.<sup>[18, 20]</sup> Prevalence rates in different regions vary on account of the type of criteria used for diagnosis.<sup>[22]</sup> The study of Spencer M., et al (2006) revealed that, African Americans in their sample reported notably low levels of emotional distress (mean score of 15.59), particularly

when compared with Hispanics (mean score of 36.75). The present study revealed that, 45.0% of the study sample have diabetes mellitus and 61.6%, 50.6% & 51.4% reported comorbid psychological symptoms (depression, anxiety & stress), respectively, compared to 33.5%, 40.5% & 39.7% reported symptomatic psychological symptoms. This may be attributed to diabetes-related emotional distress can arise from the often continual and burdensome self-care demands related to diabetes, such as testing and monitoring blood sugar levels, injecting insulin, taking medication, engaging in regular physical activity and monitoring food consumption.<sup>[22]</sup> Spencer M., et al. (2006) reported that, diabetes-related emotional distress, in turn, has been found to be a significant contributor both to poor glycemic control and to poor adherence to diabetes self-care recommendations. In addition, to the often burdensome daily medical prescription regimens, adults with type 2 diabetes must also cope with the threat of serious diabetes-related complications, including increased incidence rate of kidney disease, blindness, amputation, & the potential for reduced life expectancy. The constant coping that is required of adults with diabetes can wear on an individual's psyche and adversely affect interpersonal, social, and work functioning.<sup>[22]</sup> These findings are supported by Spencer M., et al (2006) who reported that, among Hispanics, demographic factors (e.g., young age and low educational level) were associated with diabetes-related emotional and psychological distress, suggesting that structural & personal factors may outweigh process variables observed in this study.<sup>[22]</sup>

Structural barriers, such as low access to education that affects subsequent literacy and English proficiency, can lead to psychological distress. Health literacy is an important consideration, even when individuals are English proficient. Heisler and colleagues found that formal education was associated with increases in patients' knowledge about HbA1c, which in turn was associated with accurately assessing diabetes control & better understanding of diabetes care.<sup>[64]</sup> It is not surprising that individuals who develop diabetes mellitus at younger ages have higher levels of emotional distress than their older counterparts as they consider their mortality & management of a chronic illness in midlife. The results of the present study highlight important differences in correlates of negative emotional symptoms among diabetic pregnant women. Significant associations between diabetes-related emotional distress & psychosocial variables, including depression ( $p=0.000$ ), anxiety ( $p=0.038$ ) and stress ( $p=0.001$ ) were observed.

Heart disease in young pregnant women was rare until recent years but is something that will be increasingly witnessed, as patients with complex congenital cardiac anomalies live longer. The changes that typically arise in pregnancy can exacerbate pre-existing problems for women with serious heart disease as they are sometimes left with little or no remaining cardiac reserve. Pregnancy is not recommended in women who present with high-risk cardiac diseases. However, women who elect to become or remain pregnant require considerable psychological support and evidence-based midwifery care, which is often complex. Midwives are therefore challenged with remaining abreast with midwifery and aspects of specialist cardiology.<sup>[51]</sup> prevalence of heart disease in our study was 44.5%. The study emphasized that, 46.1%, 45.5% & 46.6% reported symptomatic psychological symptoms (stress, anxiety & depression), respectively. A highly statistically significant difference was observed only with depression ( $p=0.000$ ). It was expected as British Journal of Midwifery (2005) reported that, most women with heart disease can have successful pregnancies and cardiac complications during pregnancy tend to be rare. Generally, women with serious cardiac disease carry the highest maternal mortality risk, irrespective of their underlying cardiac condition. Moreover, counterparts with less serious underlying cardiac diseases tend to have a higher rate of successful pregnancies.<sup>[51]</sup>

Finally, Norris (2008) has developed a model highlighting how socioeconomic factors such as inadequate income, poor education, residence in poor access to health care and low-income areas are strong predictors of the development of renal failure.<sup>[65]</sup> The present study was also concerned about assessing the other medical disorders among pregnant women. It was noticed that the more than one-third (40.0%) of the studied subjects had other diseases as renal and liver, hyperemesis gravidarum, anemia, and thyroid .... etc. The pregnant women with these disorder experience high rates of co-morbid psychological distress (depression, 42.7%), (anxiety, 46.1%), (stress, 45.9%). A significant association was found among pregnant, having other disorder with their, anxiety and depression ( $p= 0.021$  &  $0.000$ ) respectively. This result is congruent with the results of Mohamed N. et al. (2016) who reported that many psychological problems associated with renal failure. While patients with renal failure exposed to psychological problems such as extreme stress, alteration in the family role, lifestyle and the dependence on the dialysis machine to excrete waste products from the body are other causes. Expected behavior disturbances and marked personality changes may be observed. Insomnia, effort intolerance, inability to work, increased demands of others for self-care, a sense of being different and later depression may occur.<sup>[25]</sup> In addition, Mohamed N., et al (2016) showed that some patients experience weakness and fatigue, confusion, disorientation, seizures, restlessness and other psychological distress such as anxiety, depression and feelings of inadequacy.<sup>[25]</sup> Concerning the level of stress, the present study revealed that high-stress level among the studied sample. This finding goes to the results of Fremon, et. al. (2002) who reported that stress can have implications for health outcomes such as kidney disease.<sup>[66]</sup> A few studies suggesting that stress is directly associated with chronic kidney disease risk factors such as hypertension also

suggested that stress associated with economic and/or social disadvantages has implications for chronic kidney disease development.

## **XI. Conclusion and Recommendation**

### **Conclusion**

Upon the study results, it is concluded that medical disorders negatively influences maternal psychological status. In short, there is substantial evidence that medical disorders, age, education, and occupation are risk factors for adverse psychological symptoms (anxiety, depression, and stress) in pregnancy. More specifically, shorter gestation, parity and gravidity has adverse implications for negative psychological symptoms. Finally, chronic or gestational medical diseases in mothers during pregnancy are associated with a comorbid level of negative psychological symptoms. So, obstetricians, internal medicine physicians, cardiologists must become aware of the adverse psychological impact that medical disorders carry and actively seek to intervene on the factors that may exacerbate disorders-related emotional distress among pregnant women.

### **Recommendation**

In the light of the study findings, it is recommended to:

1. Preconceptual counseling and advice should be provided and sought by all young women who have known medical disease. This will facilitate individual risk assessment and the provision of important information.
2. Keeping in mind the need to treat pregnant women with negative psychological symptoms effectively, the obstetrician/gynecologist should be able to recognize disorders based on the symptoms presented, the appearance of the patient and responses given by the patient.
3. Appropriate follow-up is essential to identify and resolve patients' problems early on. Psychological counseling and psychotherapy may be necessary.

## **References**

- [1]. Santvana S., Shamsah S., Firuza P.& Rajesh P. Psychiatric disorders associated with pregnancy. *The Journal of Obstetrics and Gynecology of India*. 2005; 55(3): 218-227.
- [2]. Ibrahim M. The Egyptian Hypertension Society: Egyptian Hypertension Guidelines. *The Egyptian Heart Journal*. 2014; 66: 79-132. <http://dx.doi.org/10.1016/j.ehj.2014.03.001>
- [3]. Arafa VSA, Ez-Elarab S. Epidemiology of Pre-hypertension and Hypertension among Egyptian Adults. *The Egyptian Journal of Community Medicine*. 2011; 29(1): 1-18.
- [4]. Moussa M., El-mowafy R., El-Ezaby H. Prevalence of hypertension and associated risk factors among university students: Comparative study. *Journal of Nursing Education and Practice*. 2016; 6(5):19-27. DOI: 10.5430/jnep.v6n5p19
- [5]. Tuovinen S., Viljakainen T., Eriksson J. et al. Maternal hypertensive disorders during pregnancy: adaptive functioning and psychiatric and psychological problems of the older offspring. *Royal College of Obstetricians and Gynaecologists*. BJOG. 2014;121:1482-1491. DOI: 10.1111/1471-0528.12753
- [6]. Tuovinen S. Maternal hypertensive disorders during pregnancy and the mental health and cognitive functioning of the adult offspring: the Helsinki Birth Cohort Study. A thesis submitted to Institute of Behavioural Sciences, University of Helsinki, Finland. 2014.
- [7]. Sajith M., Nimbargi V., Modi A., Sumariya R. and Pawar A. Incidence of pregnancy induced hypertension and prescription pattern of antihypertensive drugs in pregnancy. *International Journal of Pharma Sciences and Research*. 2014;5(4): 163-170.
- [8]. Liu C., Cheng P., Chang S. Maternal Complications and Perinatal Outcomes associated with Gestational Hypertension and Severe Preeclampsia in Taiwanese Women. *Journal Formes Medical Association*. 2008; 107(2):129-138.
- [9]. U.S. Department of Health and Human Services (DHHS). *Healthy People 2010: Understanding and Improving Health*. 2nd Ed. Washington, DC: U.S. Government Printing Office, 2000.
- [10]. Smedley D., Stith Y., Nelson R., et al. Institute of Medicine, Committee on Understanding and Eliminating Racial and Ethnic Disparities in Health Care. *Unequal treatment: confronting racial and ethnic disparities in healthcare*. Washington, DC: The National Academies Press, 2003.
- [11]. Centers for Disease Control and Prevention (CDC). *National diabetes fact sheet: general information and national estimates on diabetes in the United States*. 2003, Atlanta, GA: CDC, 2004.
- [12]. Heisler M., Smith M., Hayward A., et al. Racial disparities in diabetes care processes, outcomes, and treatment intensity. *Med Care*. 2003;41(11):1221-32.
- [13]. *The World Health Report 2003. Shaping the future*. Geneva, World Health Organization, 2003.
- [14]. *Diabetes atlas*, 2nd ed. Brussels, International Diabetes Federation, 2003.
- [15]. Khatib O. Guidelines for the prevention, management and care of diabetes mellitus. WHO Library Cataloguing in Publication Data. EMRO Technical Publications Series 32. World Health Organization. 2006.
- [16]. Cheung W. The management of gestational diabetes. *Vasc Health Risk Manag*. 2009; 5(1):53-164.
- [17]. America Diabetes Association. Diagnosis and classification of diabetes mellitus. *Diabetes Care*. 2006; 29(1):S43-48.
- [18]. Hall V., Thomsen W., Henriksen O., Lohse N. Diabetes in Sub Saharan Africa 1999-2011: epidemiology and public health implications. A systematic review. *BMC public health*. 2011; 11(1):564.
- [19]. Inturrisi M., Lintner C., Sorem A. Diagnosis and treatment of hyperglycemia in pregnancy. *Endocrinol metab clin north Am*. 2011; 40(4):703-726.
- [20]. Nwaoguikpe N., Uwakwe A. Blood glucose levels of pregnant women at different gestation periods in Aba area of Abia State of Nigeria. *Sci Res Essays*. 2008; 3(8):372-375.
- [21]. Ugege W., Abasiattai A., Umoyoho A., Utuk N. The prevalence of gestational diabetes among antenatal attendees in a tertiary hospital in south-south Nigeria. *International Journal of Medical and Health Research*. 2015; 1(1): 72-79.
- [22]. Spencer M., Kieffer E., Sinco B. Diabetes-Specific Emotional Distress among African Americans and Hispanics with Type 2 Diabetes. *Journal of Health Care for the Poor and Underserved*. 2006; 17: 88-105.

- [23]. Swinburne C. Take Heart. *Nursing Standard*. 2004; 18(42): 18-19.
- [24]. Pushpalatha K. Cardiac Diseases in Pregnancy-A Review. *JIMSA*. 2010; 23(4): 269-274.
- [25]. Mohamed N., Azer S. and Mahmoud M. Psychosocial health profile and social support among patients with chronic renal failure at Assuit university hospital. *IOSR Journal of Nursing and Health Science (IOSR-JNHS)*. 2016;5(1) ver II (Jan.- Feb.):46-55. [www.iosrjournals.org](http://www.iosrjournals.org). DOI: 10.9790/1959-05124655.
- [26]. Harvey-Banchik L., & Trujillo K. Hyperemesis Gravidarum and Nutritional Support. *American College of Gastroenterology*. [www.acg.gi.org](http://www.acg.gi.org)
- [27]. Fleming J., & Zein N. Liver Diseases in Pregnancy. *American College of Gastroenterology*. [www.acg.gi.org](http://www.acg.gi.org)
- [28]. Ordolis E. Pregnancy and Mental Health: A Review of Popular Pregnancy Information Sources. 2009.
- [29]. Dunkel Schetter C. Psychological science on pregnancy: stress processes, biopsychosocial models, and emerging research issues. *Annu Rev Psychol*. 2010; 62:531–558.
- [30]. Carter D., Kostaras X. Psychiatric disorders in pregnancy. *BC Medical Journal*. 2005; 47 (2):96-99.
- [31]. Gaynes N. et al. Perinatal depression: prevalence, screening accuracy and screening outcomes. *Evid Rep/Technol Assess (Summ)* 2005:1-8.
- [32]. Yonkers K., Wisner K., Stewart D. et al. The management of depression during pregnancy: a report from the American Psychiatric Association and the American College of Obstetricians and Gynecologists. *General Hospital Psychiatry*. 2009; 31:403-413. DOI: 10.1016/j.genhosppsych.2009.04.003.
- [33]. Murray L. The impact of postnatal depression on infant development. *J Child Psychol Psychiatry*. 1997;77: 99-101.
- [34]. Weinberg M., Tronick E. The impact of maternal psychiatric illness on infant development. *J Clin Psychiatry*. 1998;59:53-61.
- [35]. O'Hara W., Neunaber J. & Zekoski M. A prospective study of post-partum depression: prevalence, course and predictive factors. *J Abnorm Psychol*. 1984;93:158-71.
- [36]. Cloitre M., Yonkers A., Pearlstein T. et al. Women and anxiety disorders: implications for diagnosis and treatment. *CNS Spectr*. 2004;9:1-16.
- [37]. Hassan H. Infertility profile, psychological ramifications and reproductive tract infection among infertile women, in northern Upper Egypt. *Journal of Nursing Education and Practice*. 2016; 6 (4): 92-108. <http://dx.doi.org/10.5430/jnep.v6n4p92>.
- [38]. Woods S., Melville J., Guo Y, et al. Psychosocial stress during pregnancy. *AJOG*. 2010; 202:61.e1–61.e7.
- [39]. Schetter C. and Tanner L. Anxiety, depression and stress in pregnancy: implications for mothers, children, research, and practice. *Curr Opin Psychiatry*. 2012; 25(2):141-148. DOI:10.1097/YCO.0b013e3283503680. [www.co-psychiatry.com](http://www.co-psychiatry.com)
- [40]. Leight L., Fitelson M., Weston C., Wisner K. Childbirth and mental disorders. *Int Rev Psychiatr*. 2010; 22:453–471.
- [41]. Ross L, McLean L. Anxiety disorders during pregnancy and the postpartum period: a systematic review. *J Clin Psychiatry*. 2006; 67:1285–1298.
- [42]. Taha N., Mahmoud K., Eisa M., Darder A. Structural heart disease in pregnancy in El-Minia localities. *Egyptian Society of Cardiology. The Egyptian Heart Journal*. 2013; 65: 99-109. <http://dx.doi.org/10.1016/j.ehj.2012.04.003>.
- [43]. Definition, diagnosis and classification of diabetes mellitus and its complications. Report of a WHO Consultation. Part 1: diagnosis and classification of diabetes mellitus. Geneva, World Health Organization. 1999 (WHO/NCD/NCS/99.2).
- [44]. Parkitny L. & McAuley J. The Depression Anxiety Stress Scale (DASS). *Journal of Physiotherapy*. 2010; 56 (3): 204. <http://www2.psy.unsw.edu.au/dass/over.htm>
- [45]. Lovibond F., Lovibond SH. Manual for the Depression Anxiety Stress Scales. 1995; 2nd ed. Sydney, Psychology Foundation.
- [46]. Crawford R. & Henry D. *Brit J Clin Psych*. 2003; 42: 111-131.
- [47]. Brown A., et al. *Behav Res Ther*. 1997; 35: 79-89.
- [48]. Antony M. et al. *Psychol Assess*. 1998; 10: 176-181.
- [49]. Clara I. et al. *J Psychopathol Behav Asses*. 2001; 23: 61–67.
- [50]. Page C., et al. *Brit J Clin Psych*. 2007; 46: 283-297.
- [51]. Managing Cardiac Disease in Pregnancy. *British Journal of Midwifery*. 2005;11: 1-3
- [52]. Le M. and Tran N. Perinatal Statistics in Western Australia, 2008: Twenty-sixth Annual Report of the Western Australian Midwives' Notification System, Department of Health- Government of Western Australia. 2008.
- [53]. Ell K., Xie B., Wells A., et al., Economic Stress among Low-Income Women with Cancer. *Cancer*. 2008; 112 (3): 616-625. DOI 10.1002/cncr.23203
- [54]. Upkong D& Orji E. Mental health of infertile women in Nigeria. 2006 Winter; 17 (4): 259-65.
- [55]. Ramezanzadeh F, Aghssa M, Abedinia N, Zayeri F, Khanafshar N, Shariat M, & Jafarabadi M. A Survey of Relationship between Anxiety, Depression and Duration of Infertility. *BMC women's health*. 2004; 4:9. <http://www.biomedcentral.com/1472-6874/4/9>.
- [56]. Webster S, Gallagher S, Brown P, Evans J, Flynn M & Lopez V. The perceptions of nurses in their management of patients experiencing anxiety. *Journal of Nursing Education and Practice*, 2012; 2 (3): 38-45.
- [57]. Thekdi K, Mehta P, Thekdi P, Kartha G. Fertility Profile, Anxiety, Depression of Married Women and Its Association with Reproductive Tract Infections in the Rural Area of Surendranagar District. *Scholars Journal of Applied Medical Sciences (SJAMS)*, 2014; 2 (1A): 104-108.
- [58]. Beydoun H, Saftlas A. Physical and mental health outcomes of prenatal maternal stress in human and animal studies: a review of recent evidence. *Paediatr Perinat Epidemiol*. 2008; 290:595–596.
- [59]. Kumar R., Robson M. A prospective study of emotional disorders in child-bearing women. *Br J Psychiatry*. 1984; 144:35-47.
- [60]. Evans J., Heron J., Francomb H., et al. Cohort study of depressed mood during pregnancy and after childbirth. *BMJ*. 2001;323:257-260.
- [61]. Josefsson A., Berg G., Nordin C., et al. Prevalence of depressive symptoms in late pregnancy and postpartum. *Acta Obstet Gynecol Scand*. 2001;80:251-255.
- [62]. Empson M., Lassere M., Craig J., Scott J. Prevention of recurrent miscarriage for women with antiphospholipid antibody or lupus anticoagulant. *The Cochrane Database of Systematic Reviews* .2005;(8).
- [63]. Al-Nozha M., Abdullah M., Arafah MR., et al. Hypertension in Saudi Arabia. *Saudi Medical Journal*. 2007; 28(1): 77-84. PMID:17206295.
- [64]. Heisler M., Piette D., Spencer M., et al. The relationship between knowledge of recent HbA1c values and diabetes care understanding and self-management. *Diabetes Care*. 2005;28(4):816–22.
- [65]. Norris, K, Nissenon, A.R. (2008): Race, gender and socioeconomic disparities in CKD in the United States. *J Am Soc Nephrology*. 19(7): 1261- 1270.
- [66]. Fremon, A. Bird, C. (2000): Social and psychological factors physiological processes and physical health. *Hand book of medical sociology*. Upper Saddle, NJ: Prentice Hall: pp. 334- 352.