

# Thyroid Function And Depression In Pregnant Women In Qatar

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## Abstract

### Context

There is an increased demand on the thyroid gland during pregnancy that results in lower levels of free thyroid hormone as pregnancy progresses. Thyroid peroxidase (TPO) antibodies, which are the most common cause of hypothyroidism and sub-clinical hypothyroidism, are found in 8-20% of women in the reproductive age group. It is unknown whether women with anti-thyroid antibodies are more prone to develop hypothyroidism during pregnancy. Hypothyroidism and sub-clinical hypothyroidism are associated with depression in men and non-pregnant women, but there has been little study of the degree to which low thyroid hormone or anti-thyroid antibodies increase risk of depression during pregnancy.

### Objective

To determine whether low free T4 and TPO antibodies are associated with the development of depression during pregnancy.

### Design

371 non-depressed women were recruited from prenatal clinics in Doha, Qatar. Women were assessed during gestational weeks 8-16 (visit 1), 24-26 (visit 2) and 34-36 (visit 3). We screened women for depression using the Edinburgh Postnatal Depression Scale (EPDS). Full psychiatric diagnoses were established using the Mini International Neuropsychiatric Interview (MINI) at visit 1 for all subjects, and then repeated at later visits if the EPDS score was greater than 9. TPO antibodies were measured once at visit 1 and free T4 and TSH were measured at visit 1 and visit 3.

### Results

14% of subjects had TPO antibodies in the first trimester. The proportion of subjects who screened positive for depression (EPDS >11) was 16% at visit 1, 11% at visit 2 and 3% at visit 3. The proportion of subjects with major depression was 3.2% at visit 1, 3.6% at visit 2 and 0% at visit 3. In the 1st trimester, there was no relationship between any of the thyroid parameters and EPDS score, but in the 3rd trimester women with lower free T4 levels had higher EPDS scores ( $p < 0.03$ ). TPO antibody status was not related to EPDS score in any trimester. Free T4 levels dropped significantly from visit 1 to visit 3 ( $p < 0.001$ ) however, subjects with TPO antibodies did not show this decrease ( $p < 0.01$ ). Free T4 levels were lower in women that were TPO positive at visit 1, however, at visit 3 there was no difference in free T4 levels in women with TPO antibodies.

### Conclusion

Anti-thyroid antibodies are common among pregnant women in Qatar and are associated with lower free T4 in 1st trimester but not later in pregnancy. In addition, TPO antibody status is not a predictor of increased risk of depression during pregnancy.