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**Al- Quds University**



**Determinants of Gestational Diabetes Mellitus in Southern  
Area of the West Bank: A Case-Control Study.**

**Ghadir Hanna Nasri Issa Saed**

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Determinants of Gestational Diabetes Mellitus in Southern  
area of the West Bank: A Case-Control Study.

Prepared by:

Ghadir Hanna Nasri Issa Saed

B.Sc. Medical Technology Al- Quds University – Palestine

Supervisor: Dr. Amira Amr

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Student name: Ghadir Hanna Nasri-Issa Saed


Registration #: 21610073

Supervisor: Dr. Amira Amr


Master thesis submitted and accepted, Date: 29 / 05 / 2019

The names and signatures of the examining committee members are as follows:

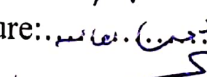
1- Head of Committee: Dr. Amira Amr

Signature:.....

2- Internal Examiner: Dr. Hazem Agha

Signature:.....

3- External Examiner: Dr. Aref Abu Rmeileh

Signature:.....

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## **Dedication**

### **Mom and Dad,**

I could never have done this without your faith, support, and constant encouragement. Thank you for teaching me to believe in myself, in God, and in my dreams.

### **Sisters and brother,**

I am so thankful that you are always beside me. I have learned so much from you and I can honestly say that you are a blessing to me.

### **My fiancée,**

You've been an inspiration. Thank you for your support and encouragement.

Ghadir Saed, 2019

## **Declaration**

I certify that this thesis submitted for the degree of Master of Public Health is the result of my own research, except where otherwise acknowledged, and that this thesis has not been submitted for a higher degree to any other university or institution.

Signed: Ghadir Saed

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Date: 29 / 05 / 2019

Ghadir Hanna Nasri Issa Saed

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## **Abstract**

**Background:** The prevalence of gestational diabetes mellitus (GDM) is increasing throughout the world. In Palestine, the prevalence of GDM in 2010 among pregnant women was 4.8% in the West Bank and 2.2% in Gaza Strip. This study aims to identify the extent to which physical inactivity and bad eating patterns may contribute to the risk of GDM in Palestinian pregnant women. Similar studies are not available in Palestine, which makes it a rich area for research.

**Methodology:** A Retrospective Case-Control Study was conducted from July 2018 to April 2019 using questionnaires and anthropometric measurements. The target population of this study was Palestinian pregnant women with gestational age between 24 – 28 weeks, being treated at Holy Family Hospital (HFH) diabetic and antenatal clinics. The total number of pregnant women who participated in the study was 180, 60 cases and 120 controls with case: control ratio 1:2 matched by age and gestational age. Data were collected by face-to-face interview using a questionnaire. The questionnaire gathers data about dietary patterns, physical activity, demographic factors, anthropometric measurements, socioeconomic factors, maternal obstetric variables, and medical history. Height and current weight were measured during the data collection period by the interviewer. Glucose tests needed in the study were extracted from the files.

**Results:** The researcher documented 60 cases of GDM during 5 months of the data collection period. After matching by age and gestational age, cases were found to have significantly higher pre-pregnancy BMI, where 41.7% and 4.2% of cases and controls, respectively, had pre-pregnancy BMI  $\geq 30\text{kg/m}^2$ .

Regarding the dietary pattern, cases were found to eat significantly higher number of servings per day of animal protein, oils and fats, sweets and sugars, and milk and dairy products. On the other hand, controls were found to eat significantly higher number of servings per day of fruits, vegetables, and grains and starchy vegetables.

When assessing the total physical activity, controls were found to practice significantly higher level of physical activity than cases.

**Conclusion:** These findings suggest that several modifiable risk factors in particular maternal obesity before pregnancy, dietary patterns, and physical activity may be related to GDM risk.

## محددات سكري الحمل في المنطقة الجنوبية من الضفة الغربية : دراسة الحالات المرضية والمجموعات الضابطة.

المشرفة الدكتورة : اميرة عمرو.

اعداد : غدير حنا نصر عيسى سعد.

### ملخص

**الخلفية:** يزداد انتشار مرض سكري الحمل في جميع أنحاء العالم. في فلسطين، بلغ معدل انتشار سكري الحمل في عام 2010 بين النساء الحوامل الى 4.8% في الضفة الغربية، 2.2% في قطاع غزة. تهدف هذه الدراسة الى تحديد مدى تأثير قلة النشاط البدني والعادات الغذائية السيئة في زيادة خطر الإصابة في سكري الحمل لدى النساء الفلسطينيات الحوامل. لا يوجد دراسات مماثلة متوفرة في فلسطين مما يجعلها دراسة غنية للبحث.

**المنهجية:** أجريت دراسة الحالات والشواهد بأثر رجعي في الفترة من يوليو 2018 إلى نيسان 2019 باستخدام الاستبيانات والقياسات البشرية. الفئة المستهدفة في هذه الدراسة هي النساء الفلسطينيات الحوامل التي تتراوح اعمار الحمل بين 24 و28 أسبوعاً، ويتم علاجهن في عيادات مرضى السكري. كان العدد الإجمالي للنساء الحوامل التي شاركن في الدراسة 180, 60 حالة سكري حمل و120 من النساء الأصحاء بنسبة 1:2. تم جمع البيانات عن طريق المقابلة وجها لوجه باستخدام الاستبيان. يشمل الاستبيان بيانات عن الأنماط الغذائية، والنشاط البدني، والعوامل الديموغرافية، والمقاييس البشرية، والعوامل الاجتماعية والاقتصادية، والمتغيرات التوليدية للأمهات والتاريخ الطبي. تم قياس الطول والوزن الحالي خلال فترة جمع البيانات من قبل الباحثة. تم استخراج اختبارات السكري اللازمة في الدراسة من الملفات.

**النتائج:** جمعت الباحثة 60 حالة من سكري الحمل خلال 5 أشهر من فترة جمع البيانات. بعد عمل تطابق بين العمر و عمر الحمل بالأسابيع، تبين أن السيدات المصابات بسكري الحمل كان لديهن مؤشر كتلة الجسم قبل الحمل أعلى من السيدات السليمات، حيث كانت نسبة السيدات اللواتي لديهن مؤشر كتلة الجسم  $\leq 30$  م/كغم 41.7% و 4.2% للسيدات المصابات والسليمات على الترتيب.

فيما يتعلق بالنمط الغذائي، وجد أن السيدات المصابات يتناولن عدد أكبر من الحصص اليومية من كل من البروتين الحيواني، الزيوت والدهون، والسكريات والحلويات.



بينما وجد أن السيدات السليمات يتناولن عدد أكبر من الحصص اليومية من كل من الفواكه، الخضروات، والحبوب والخضار النشوية.

عندما تم تقييم مجمل النشاط البدني، تبين أن السيدات السليمات يمارسن النشاط البدني بمستوى أعلى من السيدات المصابات كان الفرق بينهم ذات دلالة إحصائية.

**الملخص:** تشير هذه النتائج إلى أن العديد من عوامل الخطر القابلة للتعديل وأهمها السمنة قبل الحمل، وأنماط النظام الغذائي، والنشاط البدني قد تكون ذات صلة بخطر الإصابة بسكري الحمل.

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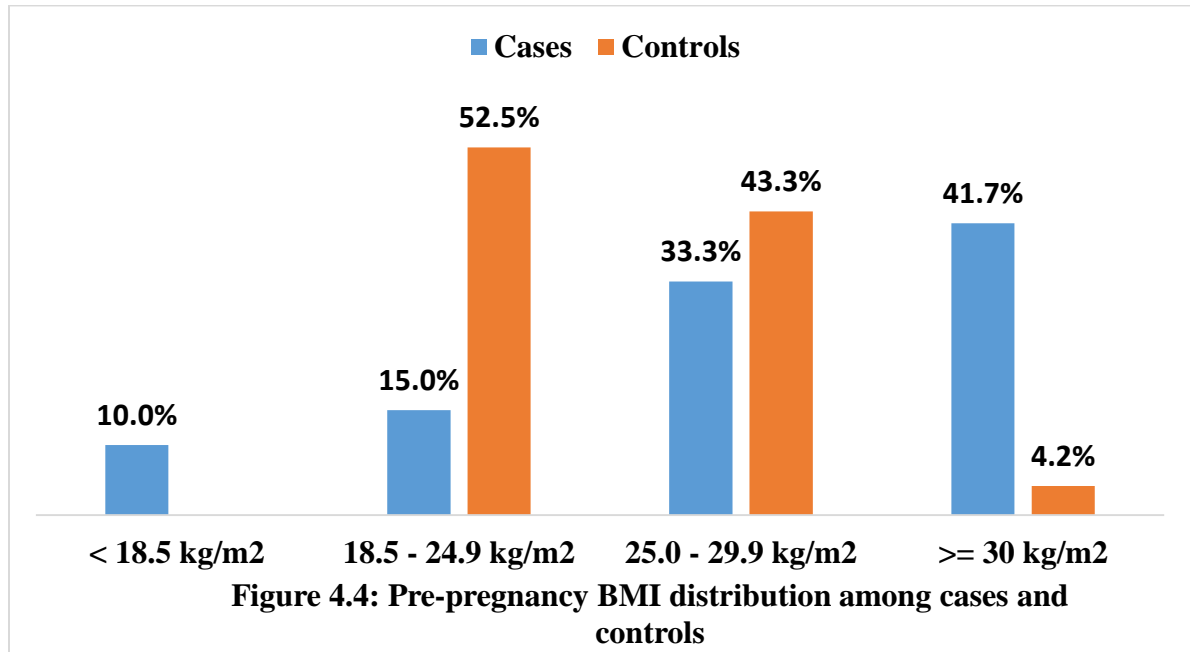
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