Deanship of Graduate Studies

Al- Quds University

Impact of COVID-19 Pandemic on Dietary Habits and Lifestyle Among Palestinian Pregnant Women in East Jerusalem.

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Impact of COVID-19 Pandemic on Dietary Habits and lifestyle among Palestinian pregnant women in East Jerusalem.

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Thesis Approval

"Impact of COVID-19 Pandemic on Dietary Habits and Lifestyle Among Palestinian Pregnant Women in East Jerusalem."

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Dedication:

This research is lovingly dedicated to my son, husband, mother, and father, who have been my constant source of inspiration; they have given me the continuous support and drive to finish my work. Without their love and support, this research would not have been made possible**.**

Declaration

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

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Abstract:

COVID-19 viral infection emerged in 2019 in China, and WHO reported it as a pandemic in March 2020.

Public health recommendations and governmental measures during the Pandemic have resulted in several restrictions, including lockdown, social distancing, self-quarantine, and travel restrictions. These measures are essential to decrease the spread of COVID-19, but on the other hand, there is a negative impact on health behaviors and lifestyles. The impact of these restrictions on the economic, social, psychological, and clinical levels will consequently affect dietary habits and lifestyle. High levels of apparent stress developed by the preventive measures such as lockdowns during the pandemic are associated with poorer diet, physical inactivity, and reduced sleep duration and quality. There is no adequate information available about the effect of the Pandemic on pregnant women. However, since what resulted from past epidemics (SARS and MERS) and the mental and physical changes during pregnancy, pregnant women are more likely to be affected by the virus.

Aim: The study aims to assess the impact of the pandemic on dietary habits, lifestyles, and stress among pregnant women.

Methodology: This study is a part of the international online survey launched in October 2020 by several Arab countries. A random sample of 302 participants was selected from the Red Crescent Society Hospital's patients' registry. The selection criteria include currently pregnant or women who gave birth on or after March 1st, 2020, at Red Crescent Society Hospital in Jerusalem. Interviews have been conducted after women agreement to participate through phone calls due to the pandemic situation, and the answers were directly filled using an anonymous online survey using Google forms. The questionnaire includes six parts: personal information, pregnant woman health, nutritional status, lifestyle, and psychological status.

Findings: One hundred ninety-nine participants completed the survey, 83 were still pregnant during the data collection period, and 116 gave birth. The results showed that 74% of the participants lived in urban areas, 59% were less than 30 years old, 62% had

secondary school level and higher, and 60% were unemployed. More than two-thirds of the participants reported that their income decreased since the lockdown start (74 %).

Two-thirds of the study participants indicated a change in eating times during the Pandemic. In addition, the study results showed an around 5% deviation in participants' dietary habits pre and post pandemic.

Moreover, the results found that 67% of the participants decreased their physical activity during the pandemic. The percentages of people who use smartphones, computers, and televisions for 3 hours and more have risen from 44.8% to 58.2%, 4% to 38%, and 3% to 47%, respectively. Furthermore, sleep disturbances have been reported by about 77% of participants.

Finally, the results showed that the Pandemic had imposed higher stress levels on the participants; 84% of the participants reported increased stress during the Pandemic; though, in this study, stress, and tension were associated with changes in eating patterns during the Pandemic.

Conclusion: some changes in dietary habits were associated with the pandemic-related events. The Pandemic contributed to lower physical activity, sleep disturbances, and feelings of stress and tension among participants. Evaluating the changes in pregnant women's dietary habits and physical activity during the lockdown is crucial. It will help predict the pregnant women's future health and well-being after the Pandemic, consequently taking the ideal impact-reducing strategies and plans to better pregnant women's health.

اثر وباء كورونا على العادات الغذائية وأسلوب الحياة بين النساء الفلسطينيات الحوامل في القدس الشرقية.

اعداد : رنا سميح محمد غباش

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الملخص :

ظهر فايروس كورونا في عام 2019 في الصين وهو ينتشر على نطاق واسع في جميع أنحاء العالم. وقامت منظمة الصحة العالمية بتصنيف فايروس كورونا كوباء عالمي في اذار 2020.

أسفرت توصيات منظمة الصحة العامة والتدابير الحكومية خلال وباء كورونا عن فرض عدة قيود على الحياة اليومية ، بما في ذلك الإغلاقات ، والتباعد الاجتماعي ، والحجر الصحي الذاتي ، والقيود المفروضة على السفر. على الرغم من أن هذه التدابير ضرورية للحد من انتشار انتقال فايروس كورونا ، ولكن من ناحية أخرى ، هناك تأثير سلبي على السلوك الصحي وأساليب الحياة، حيث أن تأثير هذه القيود على المستويات الاقتصادية والاجتماعية والنفسية والسريرية سيؤثر على العادات الغذائية وأسلوب الحياة. وترتبط المستويات العالية من التوتر والقلق الذي تطورت نتيجة الاجراءات الوقائية مثل الإغلاقات أثناء الوباء ، بعادات غذائية غير صحية ، وقلة النشاط البدني ، وانخفاض عدد ساعات النوم وجودته. الى الان لا تتوفر معلومات كافية عن تأثير الوباء على السيدات الحوامل بصفة خاصة ، ولكن المعلومات الواردة من الأوبئة السابقة مثل السارس ، والتغيرات العقلية والجسدية أثناء الحمل، تجعل النساء الحوامل أكثر عرضة للتأثر بالفايروس.

هدف الدراسة : تهدف الدراسة إلى تقييم تاثير فايروس كورونا على العادات الغذائية و**أسلوب** الحياة بين النساء الحوامل.

منهجية البحث: هذه الدراسة هي جزء من الدراسة الدولية التي بدأت في شهر تشرين الأول عام 2020 والتي اقيمت في العديد من الدول العربية. واختيرت عينة عشوائية من 302 مشاركة من سجل المرضى التابع لمستشفى جمعية الهلال الأحمرفي القدس. وقد تم اختيار السيدات الحوامل حاليا أو اللواتي أنجبن في الأول من آذار أو بعده 2020 في مستشفى الهلال الأحمر/ القدس. وقد أجريت المقابلات من خلال المكالمات الهاتفية حيث تم تعريف هدف الدراسة وتسجيل موافقة للمشاركة بالدراسة من قبل السيدات المشاركات ، وتم ملئ الإجابات باستخدام المسح الالكتروني عن طريق استمارات جوجل ؛ ويشمل الاستبيان ستة أجزاء: المعلومات الشخصية ، وصحة المرأة الحامل والتي انجبت ، والحالة التغذوية ، وأسلوب الحياة ، والحالة النفسية.

النتائج : اظهرت النتائج أن 74% من المشاركات في الدراسة يسكنن في المناطق الحضرية, و 59% منهن كانت اعمارهن اقل من 30 عاما, 62% منهن لديهم شهادات توجيهي وأعلى واخيرا 60% منهن عاطلات عن العمل . وأفاد أكثر من ثلثي المشاركات أن دخلهن انخفض منذ بداية الإغلاق (74.4%) . وأشار ثلثا المشاركات في

الدراسة إلى حدوث تغير في أوقات تناول الطعام خلال الوباء .فضلاً عن ذلك فقد خلصت نتائج البحث إلى انخفاض النشاط البدني بنسبة 67%. ولقد ارتفعت النسب المئوية للسيدات اللواتي يستخدمن الهواتف الذكية ، وأجهزة الكمبيوتر ، وأجهزة التلفزيون لمدة ثلاث ساعات وأكثر من ذلك من 44.8% إلى 58.2% ، و 4% إلى 38% ، و3% إلى 47% على التوالي. وعلاوة على ذلك ، أبلغت حوالي من 77% من المشاركات عن اضطرابات في النوم. وأخيرا ، أظهرت النتائج أن الوباء فرض مستويات أعلى من القلق والتوتر على النساء الحوامل ؛ حيث أبلغت 84 % من المشاركات عن زيادة القلق والتوتر أثناء الوباء ؛ وعلاوة على ذلك فإن الإجهاد والتوتر ارتبطا في هذه الدراسة بالتغيرات في أنماط تناول الطعام أثناء وباء كورونا.

الخلاصة : ارتبطت بعض التغيرات في العادات الغذائية بالأحداث المرتبطة بالوباء .حيث أسهم هذا الوباء في انخفاض النشاط البدني ، واضطرابات في النوم ، ومشاعر القلق والتوتر بين المشاركات. يعد تقييم التغيرات في العادات الغذائية والنشاط البدني للحوامل خلال فترة الإغلاق مهم لأنه سيساعد على التنبؤ بمستقبل صحة الحوامل بعد الوباء ، وبالتالي فهو يفيد في اتخاذ الاستراتيجيات والخطط المثالية للحد من الآثار السلبية الناتجة عن الوباء لتحقيق نتائج أفضل مستقبلا.

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List of Abbreviations

CDC	Centers for Disease Control and Prevention.
EE	Emotional Eating.
GDM	Gestational Diabetes Mellitus.
ICU	Intensive Care Unit.
MERS	Middle East Respiratory syndrome.
PCBS	Palestinian Center Bureau of Statistics.
PMOH	Palestinian Ministry of Health.
SARS	Severe Acute Respiratory Syndrome.
SDG	Sustainable development goal.
SPSS	Statistical Package for Social Sciences.
UNICEF	United Nations International Children's Emergency Fund.
WASH	Water, Sanitation, and Hygein.
WHO	World Health Organization

Chapter one: Introduction

This chapter gives a general overview of the research concept and problem statement. In addition, it presents the main objectives to be achieved.

1.1 Background of the study:

The COVID-19 disease had started to spread in Wuhan, China, resulting in a cluster of pneumonia cases in January 2020. COVID-19 spread to the whole world, after the 13-fold increase in the number of confirmed cases outside China and the tripled increase in the number of countries with the outbreak, the World Health Organization (WHO) has accepted the recommendations and declared COVID-19 as a pandemic (Spinelli & Pellino, 2020).

People all over the world are suffering from the effects of COVD-19 pandemic, vulnerable groups are at high risk of being hit the hardest, such as pregnant women, who are easily affected by changes in clinical, social, economic, and psychological situations , therefore, it's essential to study the impact of the Pandemic on pregnant women (Biviá-Roig et al., 2020).

Pregnancy is considered a door to future health, thus, the focus from long time ago was considering the impact of maternal health and lifestyle during pregnancy in order to recognize and prevent the susceptibility of intergenerational inheritance of chronic diseases. Maternal nutrition and lifestyle are considered factors that directly impact fetal development and infant health, so healthy and balanced dietary habits are necessary for a healthy pregnancy and good fetal development (Castrogiovanni & Imbesi, 2017; Gluckman et al., 2014). Therefore, this study aims to assess the impact of the pandemic on dietary habits and lifestyles among pregnant women.

Preventive measures to confront the pandemic are social distancing, self-quarantine, and travel restrictions, which urged many people to lose their jobs because of the workforce's reduction across all economic sectors. Many schools have closed down worldwide, and the demand for supplies and products has reduced, and the need for medical supplies has increased. A panic desire for buying food products has increased during the lockdowns, but a bad economic situation accompanied it. Strict preventive

measures are compulsory to protect public health, but they may negatively change the dietary habits and lifestyle of people who live the pandemic situation (Whitaker et al., 2021)

The pandemic urged people to commit to obligatory stay-at-home orders, resulting in unusual lifestyle habits and adverse behavioral changes, particularly dietary habits. People had boredom feelings because they had loads of free time during the quarantine; this would encourage people to overeat and negatively affect their lifestyle by increasing screen time and being inactive. Also, the status of disorganized time during the Pandemic induces overeating and increases screen time, consequently enhancing sedentarism and weight gain (Husain & Ashkanani, 2020.). This new condition may negatively alter dietary habits as well as regular physical activity. For example, restrictions on daily grocery shopping possibly will reduce the consumption of fresh foods like fruits, vegetables, and fish compared to highly processed ones, such as convenience foods, snacks, and ready-to-eat food items, which are high in fats, sugars, and salt (Pellegrini et al., 2020).

Pregnant women could find a situation of lockdown alarming as the emergence of the Pandemic associated with restrictive preventive measures which induced some psychological disorders and problems such as, stress, anxiety, family conflicts, and fear of infecting by the COVID -19 virus. These psychological impact and distressing symptoms could affect their dietary habits and physical activity level. Multiple issues regarding the lockdown can influence the extent of the psychological impact of the Pandemic, including the mysterious future of the situation, the inexact means of virus transmission, fake news that is exaggerated by media and people, therefore pandemic-related quarantine can be classified as a stressful event. In general, such events are known to affect eating patterns (Whitaker et al., 2021).

With the spread of COVID-19 globally, vulnerable people living in countries with weak health systems are at high risk of exposure to the most severe impacts. The health system in Palestine is largely fragmented and under-resourced, which will influence its' capacity to tackle this pandemic. The Palestinian health system is constituted by four health providers: the MoH as regulator and main provider, the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA), private sector,

and NGOs. This system lacks effective governance, evidence-based policies, financing, knowledge and information sharing, resources and technologies, and coordination between health actors. This pandemic is expected to deepen the fragility of the Palestinian health system, which is already crossing its borders. This will hamper their ability to address this pandemic and other urgent health need of the Palestinian people (AlKhaldi et al., 2020)

Based on the WHO's recommendations, the WHO published a guidebook with several recommendations to cope with home quarantine. The guidebook teaches people the importance of maintaining healthy eating habits and staying physically active during the home quarantine and demonstrates that by following an exercise routine. Thus, in light of these considerations, this study's main objective was to collect and analyze data related to the impact of the Pandemic on pregnant women's adherence to healthy dietary habits and physical exercise engagement (Coulthard et al., 2021).

1.2 Problem Statement:

The psychological, economic, social, and clinical impact of the Pandemic is assumed to change pregnant women's dietary habits and lifestyle, consequently affecting maternal health and fetal growth and development. High levels of anxiety and stress during the epidemic, such as those caused by lockdowns and social isolation, are associated with poor dietary habits, lower physical activity, and reduced sleep hours and quality. Pregnant women may be more vulnerable to negative lifestyle changes in response, particularly regarding negative lifestyle changes during pregnancy that have significant implications for maternal and child health.

Studying the epidemiological situation and related events and linking them to eating habits is very important to avoid many health problems that can emerge in the near, not very distant, future. Studying the impact of the pandemic on dietary habits can help develop the ideal impact-reducing strategies and plans and have better pregnancy outcomes.

According to researcher knowledge, few national studies considered any pandemic's impact included the Pandemic and the dietary habits and lifestyle among pregnant women in Palestine. Therefore, this study is conducted to catch the gap in this area.

1.3 Study Justification:

A pregnant woman's diet can play an essential role in her health, fetal development (Ramakrishnan et al., 2012). Maternal malnutrition is linked to adverse pregnancy outcomes, including excessive or inadequate maternal weight gain, increased preterm birth rates, fetus growth retardation, and maternal and infant morbidity and mortality (King, 2003; Rifas-Shiman et al., 2009). Also, suboptimal intake of macro-and some micronutrients are considered critical for the development and the growth of the fetus; folate and iron deficiency in preconception and during pregnancy may lead to many health problems that may affect the mother and fetus (Cetin et al., 2019). Malnutrition is a global concern that no country in the world can neglect. A third of reproductive-age women are anemic, while 39% of the world's adults are overweight or obese, and each year around 20 million babies are born underweight (UNICEF, 2018). Anemia is still considered a public health issue among Palestinian pregnant women, with prevalence rates of more than two times higher than European pregnant women (Khader et al., 2009). The 2018 annual report of the Palestinian Ministry of Health (PMOH) indicated that the percentage of anemia among pregnant Palestinian women registered at public health clinics was 27.5% (Palestinian Ministry of Health, 2018). Therefore, an evidence-based decision-making process should set maternal nutrition and lifestyle a priority on the PMOH agenda.

The world has adopted the sustainable development goals (SDGs) since 2015 and is intended to be achieved by 2030. Good Health and wellbeing are ones of the significant 17-SDGs which focus on various aspects of a healthy life; it has 13 targets and 28 indicators. The first issue covered is the mother's health. It focuses on reducing the global maternal mortality ratio to less than 70 per 100.000 live births by 2030, which is crucial to saving the lives of hundreds of thousands of women who die because of pregnancy complications and childbirth. A high percentage of maternal mortality cases could be prevented if pregnant women have been provided with adequate balanced nutrition, health services, and safe water and sanitation facilities during pregnancy and childbirth. The global maternal mortality ratio (deaths per 100,000 live births) decreased from 216/100.000 in 2015 to 211/100.000 in 2017 (Sustainable Development Goals | UNDP, 2015).

All these indicators and information received from science on the importance of proper nutrition during pregnancy and its significant impact on the health of the mother and the fetus, confirm the need for to pay attention to dietary habits and lifestyle of the pregnant women and to study the events that could negatively change these dietary habits, especially Palestinian pregnant women, who continue to suffer from health problems during pregnancy due to nutrients deficiencies and bad dietary habits.

As this research has been conducted during the pandemic situation (2020), there is inadequate national studies that evaluate the economic, social, and psychological effects of the Pandemic on dietary habits and lifestyle behaviors; their results were inconsistent. But previous studies have assessed the impact of many public health crises caused by disease outbreaks, including Severe Acute Respiratory Syndromes (SARS) in 2003 and Influenza "A" Virus Subtype H7N9 (H7N9) in 2013. SARS and H7N9 epidemics have led to massive harmful impacts on population health and the economy. They can be used as sources of information to study the effect of the Pandemic on dietary habits and lifestyle behaviors (Qiu et al., 2018).

In the context of Palestine, the brutal Israeli occupation resulted in burdensome restrictions on movement, lack of ability to control borders and import/export processes, lack of control on the water, limited resources and access to healthcare, and negatively affected the economic situation leading to a high percentage of unemployment. The pandemic situation and the lockdown and isolation procedures worsened the quality of the living situation, which led to stress and increased violence, overpopulated Palestinians living areas made social distancing impossible.

Availability of safe WASH services for all is a key preventive infectious diseases measure, including the COVID-19. Personal hygiene and hand washing are among the most important measures to prevent COVID-19 infection. But as a result of the the regular attacks of the Israeli occupation in destruction the Palestine's water, and sanitation infrastructure, water quality, and sanitation systems are insufficient (Al-Khaldi et al., 2020.)

Globally, results from different studies conducted in different countries like, Italy, Brazil, Spain, Poland, UAE, and Kuwait, have assessed the dietary and lifestyle changes

during the pandemic, many of these studies showed that the subsequent lockdowns induced changes in dietary habits and lifestyle (Pellegrini et al., 2020 ; Renzo et al., 2020; Górnicka et al., 2020 ; Allabadi et al., 2020; Whitaker et al., 2021 ; Husain &Ashkanani, 2021) . These results could give a clue to increase awareness about the effect of the Pandemic on people who live under the stress and pressure of the pandemic situation.

The results of this study can be used as a starting point for policy and decision-makers to formulate new policies and plans to increase the knowledge of pregnant women about their health and nutrition and how to deal with pandemic situation. Programs and campaigns like, giving nutrition education programs for pregnant women during emergencies, campaigns to educate mothers about the importance of physical activity during pregnancy, functional approach to provide pregnant women supplements and the needed multivitamins, forming support groups to support pregnant women with her needs and increase her knowledge about the importance of well-balanced diet and good physical activity and increase the awareness about the importance of home fitness as an alternative to gyms and clubs.

Development of Telemedicine systems to facilitate the communication between pregnant women and the medical team during the pandemic is also an essential strategy to be followed during the pandemic. Telemedicine uses information and communication technology to deliver healthcare at a distance to limit physical human contact. In the present the Pandemic, social distancing and lockdown have been applied as effective methods to reduce the spread of COVID-19. Telemedicine has been considered a tool to deliver affordable, effective, and attractive healthcare and reduce the need for physical attendance in outpatient clinics; thus, minimizing contact exposure as much as possible (Bokolo,2020).

The research needs to be expanded and looked more into because there aren't enough studies relating to COVID- 19 or other pandemics and the dietary habits and lifestyle of pregnant women. New national programs needs to be held to help pregnant women pass their pregnancy with the least possible unhealthy outcomes and direct public health measures taken to increase the focus on healthier and safer food options, especially during pandemics among Palestinian pregnant women.

Understanding how this pandemic situation can make changes in people's dietary habits and lifestyle, especially pregnant women, is crucial to magnify the role of nutritionists and dietitians during emergencies, especially in epidemic-related lockdowns and quarantine in the future.

1.4 Aim

The study aims to assess the impact of the pandemic with its implications on dietary habits and lifestyle among pregnant women.

1.5 Objectives:

1- To assess the impact of the Pandemic on pregnant women's eating habits and food consumption.

2- To assess lifestyle (physical activity and screen time) changes during the Pandemic among pregnant women.

3- To assess the effect of the Pandemic on the psychological situation (feelings of stress and sleeping patterns) of pregnant women.

1.6 Research question:

1- How did the changes in family monthly income affect pregnant women's dietary habits and lifestyle?

2- Did the Pandemic affect the psychological situation of pregnant women?

3- Did the psychological situation of the pregnant women during the pandemic affect dietary habits and lifestyle?

4- Are there any differences in pregnant women's dietary habits and lifestyle during the pandemic according to age and educational level?

1.7 Expected outcome: the study findings are expected to provide some evidence and recommendations to the decision-makers for setting a unique national program to increase the quality of pregnancy during Pandemics and increase the awareness and knowledge of pregnant mothers about the importance of high-quality dietary habits and lifestyle for their and fetus health.

Chapter Two: Literature review and conceptual framework

2. Literature review:

2.1 Introduction:

A considerable amount of literature has been globally published on the impact of the Pandemic on eating habits and lifestyle and to what extent these changes can affect maternal health and fetal development, still, to the researcher's knowledge, there are limited studies in Palestine, mainly Jerusalem assessed the impact of the Pandemic on eating habits and lifestyle. So, this study was among the first to consider the effect of the Pandemic on eating habits and lifestyle among Palestinian pregnant women.

In this chapter, a briefing review of literature is done on some related factors to the study. The imposed lockdown affected in some way two main areas which are the socioeconomic and psychological situation of people (Ammar et al., 2020 ; Forte et al., 2020 ; Lin et al., 2020 ; Mattioli et al., 2020 ; Scarmozzino and Visioli, 2020 ; Sidor and Rzymski, 2020 ; Tison et al., 2020). All aspects related to these variables will be studied while reviewing the literature.

2.2 Literature review:

2.2.1 The effect of COVID-19 on health

COVID-19, which is caused by the SARS-CoV-2 virus mainly attacks the respiratory system of the infected body causing cough and shortness of breath with a wide range of other confirmed symptoms; fever, fatigue, headache, nausea and vomiting, loss of taste or smell, sore throat, congestion, or runny nose, and diarrhea (Nobel et al., 2020). No one is excluded from COVID-19 viral infection. COVID-19 virus transmits through droplets of saliva and discharge of nose from an infected person to another; the incubation period of COVID-19 virus ranges from 2 to 14 days (Alhusseini & Alqahtani, 2020). The highest risk groups are older people and others with medical problems such as cardiovascular disease, cancer, chronic respiratory disease, pregnant women, and those with a higher risk of being hospitalized and are at a higher risk for

intensive care unit (ICU) admission and mechanical ventilation placement. The risk of death is also high, but much remains unknown (CDC, 2020).

There is noenough information regarding the transmission of the virus that can lead to severe illness. This Pandemic has led to restrictive measures and lockdown by governments of many countries, including Palestine, to reduce the spread of cases among the population. Furthermore, WHO has evaluated several vaccines and considered them safe and effective against COVID-19 infection, but no vaccine is 100% protective (WHO, 2021.).

2.2.2 Nutrition and physical activity during pregnancy.

Pregnant women have a risk to be easily affected by clinical, social, economic, and psychological conditions (Stampini et al., 2020). While the worldwide are being influenced by the impact of imposed lockdown, it's essential to study the effects on pregnant women (Moyer et al., 2020).

Pregnancy is considered a door to future health. Several studies, researches, and clinical practices have focused on the impact of maternal factors such as health and lifestyle during pregnancy as a base to recognize and prevent the susceptibility of intergenerational inheritance of chronic disease. Adverse pregnancy Outcomes have severe and long-lasting effects on the mother and fetus (Gluckman et al., 2014).

Maternal nutrition is considered a primary factor that directly impacts fetal development and health, so maintaining healthy and balanced dietary habits can affect pregnancy outcomes. Maternal nutrition provides energy and essential macronutrients and micronutrients for herself, fetus growth, and breastfeeding after delivery (Castrogiovanni & Imbesi, 2017). Many pregnant women face a prevalent health problem: malnutrition, which refers to deficiencies, excesses, or imbalances in a person's energy and nutrients intake. Malnutrition addresses three main nutritional health conditions: over-nutrition, under-nutrition, and micronutrient-related malnutrition; the three types have severe implications on pregnancy outcomes. The well-balanced diet includes adequate consumption of fruits and vegetables, legumes, nuts, unrefined cereals, fish, moderate intake of olive oil and dairy products, consumption of red meat, poultry, and unsaturated fats. On the other hand, an

unhealthy, imbalanced diet during pregnancy can contribute to overweight or obesity and promote adverse complications and maternal-fetal pathologies (Gluckman et al., 2014).

Overweight and obesity in pregnancy are associated with several adverse complications during pregnancy and after delivery. Breastfeeding depends on the deposition of fat during pregnancy. This deposition results in some way from insulin resistance which develops in pregnancy due to the placenta hormones secretion. Over-nutrition results in severe consequences for mothers and fetus health because of metabolic imbalance. The risk of later childhood obesity has a strong association with excessive maternal weight gain >20 kg during pregnancy. The adverse health consequences during pregnancy include intrauterine fetal death, preeclampsia, gestational diabetes, and thrombosis (Farhud, 2015; Gluckman et al., 2014).

Under-nutrition contributes to lifelong health impacts, including increased preterm birth rates, fetus growth retardation, and maternal and infant morbidity and mortality. Babies born to mothers who are undernourished in late gestation were frequently of low birth weight. They had decreased glucose tolerance at the age of 50 compared with individuals with normal maternal nutrition during pregnancy (Gluckman et al., 2014).

A well-balanced, healthy diet consisted of fruits and vegetables, legumes, healthy fats, and rich protein. These foods typify the Mediterranean diet and rich in vitamins A, D, C, folate, E, and B-complex. It is required for an optimal immune response. Adequate physical activity is the primary plan to support the immune system and limit seasonal and viral infections. So it would be of interest to study the events that may adversely affect the eating patterns. A well-balanced diet is an essential strategy for personal risk management during pandemics. It does not fully protect the body against infection. Still, it may play a good function in the immune response to an infectious virus. Many macro-nutrients, micro-nutrient, and phytonutrients have an immunomodulatory role. They help in immune competence, while nutritional deficiencies are associated with higher host vulnerability to viral infection and a more severe clinical course of the disease (Cheikh Ismail et al., 2020).

Moderate and regular physical activity helps both mothers and children. Several studies have focused on how exercising and physical activity play a role in reducing the risks of GDM, preeclampsia, cesarean delivery, large-for-gestational-age, and preterm birth. The desirable guidelines are 30 minutes or more of moderate physical activity per day on most days of the week. Also, adequate physical activity levels are necessary for cardiovascular fitness and maintaining healthy body composition (Farhud, 2015; Gluckman et al., 2014).

2.2.3 WHO preventive measures for confronting the spread of COVID-19.

WHO recommendations have focused on confronting the spread of COVID-19 viral infection through preventive measures, which mainly are social distancing, self-quarantine, and travel restrictions. These measures urged many people to lose their jobs because of the reduced workforce across all economic sectors. Many schools have closed down worldwide, and the demand for supplies and products has reduced, and the need for medical supplies has increased. A panic desire for buying food products has increased during the lockdowns, but a bad economic situation accompanied it. Stress, anxiety, family problems, and fear of infection from the virus were prevalent psychological disorders during the global Pandemic. However, these prevention measures meant that the usual routine of people's life including pregnant women, was modified as the imposed lockdown can have clinical, social, economic, and psychological impacts, which accordingly can affect dietary habits, physical activity, and sleep patterns (Eftimov et al., 2020 ; Pellegrini et al., 2020 ; Ammar et al., 2020 ; Latha Narayanan et al., 2020)

On the one hand, strict preventive measures were beneficial to protect public health; on the other hand, they may negatively influence people facing the Pandemic. Lockdown, a term generally used as an alternate for "mass quarantine," is embodied in staying-at-home ordinances enacted by governments to enforce social distancing. It is the typical action taken to counteract an outbreak; all residents have to stay at home, especially those who do the nonessential activities that are stopped or carried out from home. These restrictions work on all residents except those who have clinical visits, essential daily activities, or working in healthcare sectors, police forces, firefighting, crucial manufacturing.

2.2.4 Lockdown and dietary habits.

Food accessibility and availability may be affected during times of lockdowns. Lockdown contributed to limited access to daily grocery shopping, limit the ability to buy fresh foods, especially fruit, vegetables, and fish, replace it with high caloric processed food items, such as convenience foods, junk foods, snacks, and ready-to-eat cereals, which tend to be high in fats, sugars, and salt. So, Lockdown imposed during the Pandemic may change dietary habits (Hobbs, 2020).

Problems at the economic level that resulted from the Pandemic are assumed to affect pregnant women's dietary habits and lifestyles. The Pandemic imposed the possibility of reduced income, job losses, and concerns about an uncertain future. Consequently, many people cut down expenditures, including their food expenses, consume more palatable, affordable, and possibly unhealthy options and food groups, and neglect other more essential and expensive food groups like meat and affect quantity and availability (Renzo et al., 2020). Results of a study conducted in China have discussed the factors consistently associated with undesirable lifestyle changes like worse diet, being inactive and less sleeping quality. The main factors were loss of income, social isolation, and pregnancy complications (Rochelson et al., 2020).

Furthermore, the Pandemic has occurred in a time of unimpeded access to the internet, and social media is now an essential part of people's daily life. The trend on social media websites was posting many unhealthy recipes, which made many people try them for enjoyment and filling their free time. The pandemic situation affected people's choices to cook more or buy prepared food more often. Moreover, hearing or unceasingly reading about the Pandemic from social media can be stressful.

Lockdown forced many people to work from home; the cessation of the work routine caused by the quarantine could result in boredom. It can be associated with changing dietary habits and lifestyles as they have unlimited access to food and lower physical activity (Sidor & Rzymski, 2020).

However, the available literature has shown the adverse effects of lockdown on dietary behaviors such as increasing the high caloric fast food consumption, eating frequency was increased due to quarantine, reducing intake of fresh fruits and vegetables, and

weight gain. For example, in an online cross-sectional survey of adults in Poland, Sidor et al. found that nearly 45% of participants reported a higher intake of foods during lockdowns. Over 50% of participants reported snacking more frequently (Sidor & Rzymski,2020).

A study conducted in Poland assessed the dietary and lifestyle changes during the pandemic and the subsequent lockdowns among Polish Adults, reported the influence of the Pandemic on motivation to eat, changing in lifestyle, attachment to poor quality diet, and promoting overconsumption. About 34% of the participants reported increased food consumption, with 19% reported increased unhealthy eating patterns (Górnicka et al., 2020).

A study conducted in Saudi Arabia discussed the effects of the pandemic preventive measures to limit the virus spread, specifically the effect of home confinement quarantine. These measures are associated with increased food intake, especially easy-to-prepare foods and high sugary foods. The quantity of food means score was higher during the pandemic period as compared to the before period. Food craving increases serotonin levels, positively impacts mood levels, and can be a way to combat stress. Carbohydrates craving could increase the risk of obesity, diabetes, which can increase complications of COVID-19. Although some good healthy habits increased, such as cooking at home and reducing the fast food intake, the quality and quantity of the food were compromised. Food quality and quantity became worse during the Pandemic (Alhusseini & Alqahtani, 2020).

2.2.5 Physical activity and Lockdown

Lockdowns have also affected levels of physical activity. Lockdowns are followed by the closure of clubs, gyms, parks, and movement restrictions, contributing to reducing the ability to engage in physical activity. Some studies described the role of sudden disruption of physical exercising and prolonged inactivity with adverse health changes, such as the development of insulin resistance, muscle atrophy, and bone loss, decreased aerobic capacity, increased blood pressure, dyslipidemia, a collapse in the whole body happen when turning back to exercising (Gluckman et al., 2014; Farhud, 2015).

Osteoporosis, diabetes, cardiovascular disease, cancer, dementia, and overweight are also well-known consequences of physical inactivity(Castrogiovanni & Imbesi, 2017).

The current WHO global recommendations on pregnant women's physical activity are at least 150 minutes of moderate-intensity aerobic exercise per week during pregnancy and after delivery (Stampini et al., 2020). The accomplishment of these recommendations is challenging for people who live in lockdown areas, as outdoor activities are almost totally banned. As droplets mostly transmit SARS-CoV-2, maintaining a sufficient interpersonal distance is crucial; exercising in sports activities that don't need a distance between players increases ventilatory demand, which in turn increases the risk of infection. Given the above, pregnant women could find a lockdown situation alarming, especially that most pregnant women consider walking as their primary physical activity (Cheikh Ismail et al., 2020).

The risk of weight gain is one of the most adverse effects of high caloric intake and physical inactivity. Body mass index (BMI) is used to categorize overweight as a BMI ≥25 and obesity BMI ≥30 kg/m2, which increases the risk of diabetes, cardiovascular disease, pulmonary embolism, cancers, low back pain, osteoarthritis (Pellegrini et al., 2020.). However, it is reasonable to assume that prolonged lockdown ordinances are associated with weight gain, which is magnified by physical inactivity accompanied by prolonged screen time (Cheikh Ismail et al., 2020).

2.2.6 Lockdown and psychological impact

The emergence of the Pandemic contributed to significant psychological impact; studies have reported an increased rate of anxiety, depressive symptoms, stress, boredom, and poor sleep quality, and distressing mental health symptoms in the population. Multiple factors influence the extent of the psychological impact of Pandemic, including unknown means of virus transmission, the unpredictability of the future, fake news that is amplified by media, and lockdowns. Consequently, such stressful events strongly worsened sleeping patterns and leading to insomnia, poor eating habits along with decreased levels of physical activity and, increased sedentary behaviors. A study including 5,461 individuals in China found that self-reported sleep quality and insomnia were adversely altered during the Pandemic compared to before the Pandemic

(Rochelson et al., 2020). Other results of a study conducted in Emirates aimed to investigate the effect of quarantine on eating habits, physical activity, stress, and sleep behaviors among adult UAE residents have shown that individuals in the UAE experienced negative lifestyle changes, unbalanced food choices, a reduction in physical activity, and psychological problems during the Pandemic (Cheikh Ismail et al., 2020). Around 61% of the participants had sleep disturbances during the Pandemic, and a high percentage of participants reported tension, emotional exhaustion, and irritability during the Pandemic.

The general stressful status produced by the Pandemic can stand for overeating and uncontrolled anxiety towards food, especially foods rich in sugar. Boredom during the Pandemic contributes to psychological and emotional responses, which increase the risk of developing dysfunctional eating behaviors and overeating. Daily monotony and boredom feelings could be escaped by overeating or eating restrictions, related to the physiological stress reactions that affect the internal feelings of satiety. Prolonged staying at home may also support eating palatable meals, snacking, and alcohol consumption (Reyes-Olavarría et al., 2020).

Following the uncontrolled news and updates about the Pandemic or reading continuously about the pandemic from social media can put people under stress. Stress makes people overeat, especially easy to prepare foods that are rich in sugar. These food items increase serotonin production levels and reduce stress (Biviá-Roig et al.,2020).

2.2.6.1 Emotional Eating (EE)

Emotional eating (EE) is a common eating behavior that responds to stressful events, just as the pandemic. It is a dysfunctional eating behavior leading individuals to increase their food intake for reasons other than hunger, especially during pregnancy. Individuals start feeling a need to reward and gratification themselves by food consumption, overriding other satiety and hunger signals.

EE may cause impacts on pregnant women. High caloric intake causes excessive weight gain, leading to many adverse pregnancy outcomes, such as higher gestational weight gain (GWG), higher cesarean section rate, macrosomia, and early-onset obesity (Zhang et al., 2020).

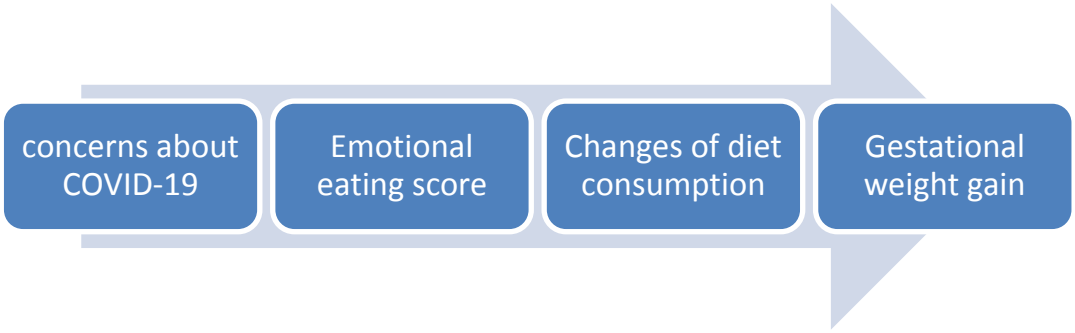

Figure (1): The effect of emotional eating on gestational weight gain**.**

Many concerns feed the anxiety feeling for pregnant women; the first concern is the fact that pregnant women are more likely to be at a higher risk of becoming seriously ill from COVID-19; pregnancy is a risk factor for death, intubation, and ICU admission in COVID -19 infected women at their reproductive age. A previous study has shown in its result that women have changes in their bodies that may increase the risk of other illnesses, such as viral respiratory infections. Other worries about food running out or being unavailable; losing a job or decrease in family income; other concerns about the adequacy of antenatal care; concerns and worries about conflicts between family members as all the members are compulsory staying at home; and finally concerns about family members getting infected with COVID-19 (Moyer et al., 2020).

As the COVID-19 Pandemic can be considered a stressful event, increasing anxiety increases; consequently, smokers will take cigarettes as stress relief. Some experiments show that smoking during stressful circumstances may decrease the level of arousal resulting in temporary stress relief. But other studies have also shown that smoking may ultimately contribute to the development of negative psychological states, support unfavorable coping plans, and increase the overall stress level. Until the study's date, the increase in smoking during the lockdown is not approved to result in higher consumption of cigarettes in the future. But on the other hand, there is a strong relationship exists between COVID-19 infection and air pollution, and so more severe COVID-19 symptoms occur (Sidor & Rzymski,2020).

All those psychological impacts of the Pandemic will consequently affect the lifestyle of pregnant women during the Pandemic (Pellegrini et al., 2020). So, as a result of the fact that lockdowns and social isolation can be major stressors that are associated with

changes in dietary habits and the lifestyle of the population, which in turn will affect people's health, the WHO published a guide to help people cope with lockdowns quarantine, and self-isolation. It shows the significance of following healthy eating habits and staying physically active by following an exercise routine(Forte et al., 2020). Testing positive with COVID-19 for pregnant women also could be a reason for changing dietary habits because they lose their taste and smell senses, and consequently, they lose their appetite (Górnicka et al., 2020).

The situation of an unpredictable Pandemic urged people to commit to mandatory stay-at-home orders, which result in unusual lifestyle habits and adverse behavioral changes, particularly dietary habits. People had loads of free time during the stay-at-home; this would encourage people to overeat and negatively affect their lifestyle by increasing screen time and being inactive. Lockdowns and quarantine increased the feeling of being stressed and tension which could affect the dietary habits of pregnant women and decrease their physical activity; they stay at home for many days, not enough space for walking and exercising, and just watching television and using smartphones (Pellegrini et al., 2020.). Also, the status of disorganized time during the Pandemic induces overeating and increases screen time which consequently enhances sedentarism and weight gain (Husain & Ashkanani, 2020). All of the studies reviewed support the hypothesis that there is an association between the Pandemic and changes in dietary habits and lifestyle among pregnant women. However, the results are still preliminary and narrow in focus and need to be more studied along with larger population samples since poor dietary habits and unhealthy lifestyle can cause serious health problems (Coulthard et al., 2021).

2.3 The Study conceptual framework

Study conceptual framework: the conceptual framework is a map used by researchers to clarify the relationships between variables, and so helping in designing and implementing the study. This study is a part of the international corona pregnancy survey that assessed the impact of the Pandemic on the nutritional status, lifestyle, depression, and stress among pregnant women in some Arabic countries. The conceptual study framework was developed according to the literature about the impact of COVID-19 on pregnant women's dietary habits and lifestyle (Gluckman et al., 2014).

The conceptual framework will include all the impact factors resulting from the Pandemic, affecting pregnant women's dietary habits and lifestyle during the outbreak situation. It will consist of the following variables:

Independent Variables:

1. Demographic and other characteristics: refers to different features of a population, including age, race, gender, ethnicity, education, religion, income, homeownership, sexual orientation, marital status, family size, health, and disability status (Islam & Ali, 2012). Questions of this variable are from 1 to question 6 in part 1.

2. Socio-Economic Status: it's considered one of the most extensively studied social sciences variables. Different ways are used to measure Socio-Economic Status include some quantification of family income, parental education, and occupational status (Bradley & Corwyn, 2002). Questions of this variable are from 7 to question 11 in part 1.

3. Health status: " it is an individual's level of wellness and illness, taking into account the presence of biological or physiological dysfunction, symptoms, and functional impairments" (American Thoracic Society, 2007). Questions of this variable are in parts 2+3.

4. Psychological situation: the current emotional, mental status, or behavioral motivation of a target group subjected to influence events and circumstances (Lutz & Kakkar, 2007). Questions of this variable are 1 to 7 in part 7.

Dependent Variable

- Dietary Habits: These are the decisions which individuals or groups of people make concerning the foods they consume. Appropriate dietary habits require the individual to consume the necessary vitamins, minerals, carbohydrates, proteins, and fats. Nutritional habits are essential for human health (Smetanina et al., 2015). Questions of this variable are in part 4.
- The lifestyle of pregnant women refers to a population's characteristics at a specific time and place. It reviews the day-to-day behaviors and functions of people in jobs,

activities, fun, and diet. According to the World Health Organization, 60% of the quality of life is correlated with the individual's lifestyle (Farhud, 2015). Questions of this variable are in part 5.

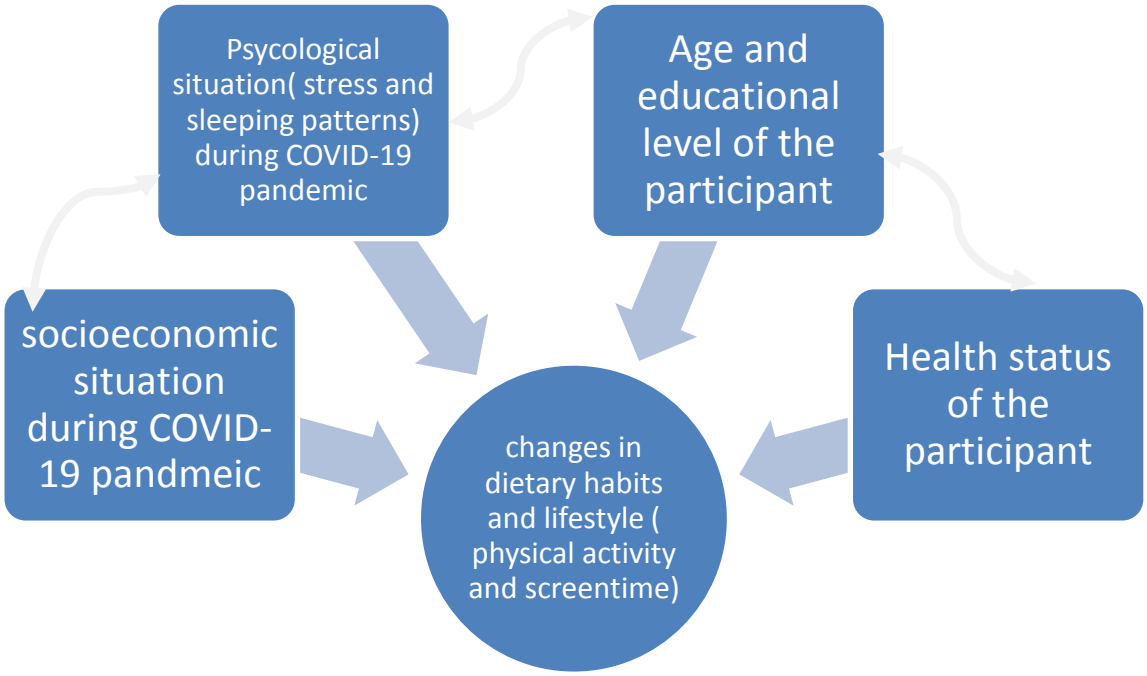

Figure (2): Conceptual framework of the study**.**

Chapter Three: Methodology

This section will discuss the study setting's design, the study population, the sample and its inclusion and exclusion criteria, the instruments, and the ethical considerations.

3.1 Study Design: There are different types and scientific research methods that differ in their purpose, approach, and process; in this study, quantitative research was utilized. Quantitative research is a formal, objective, systematic process in which numerical data is used to obtain information about the world. This research method describes variables, examines relationships among variables, and determines cause-and-effect interactions between variables (Burns & Grove 2005:23). The cross-sectional design that was utilized in this study sample involves the analysis of data collected from a representative group at one specific point in time. Although cross-sectional studies are generally not used to compare before and after the intervention, since there is no temporal sequence, it is the best design to use when previous information is not available to draw inferences (Creswell, 2019).

3.2 Population: Around 1400 pregnant women who are currently pregnant or women who gave birth on or after March 1st, 2020, at Red Crescent Society Hospital in Jerusalem were the population of this study.

3.3 Sample: In this study, a simple random sample was utilized. A simple random sample is a probability sampling technique where subjects are selected randomly. This sampling method was applied because it is just a simple and easy method for the researcher and represents the target population and obtains data without bias (Etikan & Bala, 2017). Participants were selected for the study using randomly generated phone numbers from the Red Crescent Society Hospital registry. Three hundred and two(302) currently pregnant or women who have given birth on or after March 1st, 2020, at Red Crescent Society Hospital in Jerusalem were selected to obtain a 95% confidence level where the true value is within 5% of the surveyed values. 199 completed responses out of 302 (response rate was 66%). Thirty-four (34%) of participants didn't respond to the study, some of them refused to participate, and the others were busy.

3.4 Inclusion and Exclusion criteria

• Inclusion Criteria –currently pregnant or women gave birth on or after March 1st, 2020 at Red Crescent Society Hospital in Jerusalem

• Exclusion Criteria – pregnant women who were not pregnant before the lockdown of March or those who have delivered before the lockdown of March.

3.5 Study settings: the study participants were selected from the Red Crescent Society Hospital registry; interviews were conducted online through phone call, with a private online environment.

3.6 Period of the study: The study was conducted in the period between October and December 2020.

3.7 Study tool: A multicomponent, self-administrated online survey was developed by the ethical committee of the Jordanian University as they were part of an international study to assess the effect of the Pandemic on the psychological, nutritional, and lifestyle conditions of pregnant women in some Arabic countries, and this study was part of the international study. The study researchers' international committee developed an English and Arabic version survey that consisted of six parts: personal information-current pregnant health- Pregnant health during the Pandemic, and the birth outcome-nutritional status-lifestyle-psychological situation. The food groups in the nutritional section used the Australian guidelines as their reference. A validated and reliable questionnaire was used in the data collection and analysis. In the case of filling the survey, the participant can choose the English or Arabic language vision. This questionnaire contained questions on dietary habits and lifestyle habits before and during the Pandemic lockdown. The survey took an average of 25 minutes to completed. (See Annexes 3,4).

3.8 Validity: the questionnaire was submitted to an expert group (annex 1) with expertise and knowledge in the subject matter to judge the quality and efficiency of the questionnaire in covering the objectives of the study and the research problem, and to make any suggestions for improving the statistical quality of the questionnaire.

3.9 Pilot study: the pilot study is essential to test the feasibility of the research proposal, validity, and reliability of the research tool (Kottner et al., 2011)**;** the international committee piloted this instrument with 100 women to evaluate any unforeseen problems in question design and response collection. Slight changes were made to the questionnaire after the pilot study.

3.10 Reliability: is a method used to measure the degree to which the research tool produces consistent results. A measure is considered reliable if it is applied a different number of times and produces the same results. The international committee determined the reliability and had a result of 0.75 (Kottner et al., 2011). The researcher also repeated the questionnaire's determination, and the researcher used Cronbach Alpha for reliability. The questionnaire's reliability coefficient was 0.764, which indicated that the questionnaire was reliable, and this reliability coefficient value is suitable for research purposes.

3.11 Ethical Consideration:

- The interviews were conducted through phone calls; a pre-verbal consent form was taken at the beginning of the phone interview and then a brief introduction about the study's aim and objectives was given to the participants.

• Ethical approval form Al-Quds University was obtained (Annex 1).

• The confidentiality was guaranteed to all participants by assuring that the information will not be available for anyone not involved in the study. The data was kept in a locked computer.

• The name of the participants was not required.

3.12 Data collection: participants were selected for the study using randomly generated phone numbers from the Red Crescent Society Hospital registry. After taking the verbal consent form from the participant, an online phone call interview was arranged to assess: dietary habits, physical activity, screen time, sleeping patterns, and then the answers were directly filled using an anonymous online survey using Google forms.

3.13 Data analysis: after data coding and cleaning, a statistical analysis was performed using the SPSS (version 20) software package. Frequency tables were performed, and an ANOVA test with a value of 95% was used to determine the presence of an association between the variables. A p-value $\leq$ of 0.05 was considered statistically significant.

Chapter 4: Study Results

This chapter illustrates the results of the data analysis. Descriptive statistics including frequencies, means and percentages, and the ANOVA test were used in the statistical analysis.

4.1 Demographic factors

4.1.1. Socio-demographic factors.

Table (4.1) shows that 41.7% of the participants were currently pregnant, and 58.3% were pregnant and gave birth during the pandemic period. The majority (74 %) of the participants live in urban areas, whereas 26% live in non-urban. Around 59% of the participants were less than 30 years old, and about 41% were 30 years old and more.

About 43.7% of the participants have a bachelor's degree, and 26.6% have finished high school. In comparison, 11.6% of the participants haven't completed high school, 9.5% have diploma degrees, and 8.5% have a postgraduate degree. Around 60% of the participants were unemployed, and 40% of the participants were employed.

Table (4.1) Socio-Demographic characteristics of the study participants. (N=199)

The area of living	**Frequency**	**Percent**
Urban	147	74
Non-Urban	52	26
Total	**199**	**100**
Age	**Frequency**	**Percent**
less than 30	118	59.3
30 and more	81	40.7
Total	**199**	**100**
Education qualification	**Frequency**	**Percent**
Secondary school and less	76	38
Higher than secondary school	123	62
Total	**199**	**100**
Work status.	**Frequency**	**Percent**

Working	80	40.2
Not working	119	59.8
Total	**199**	**100**
Pregnancy	**Frequency**	**Percent**
Still pregnant	83	41.7
I was pregnant and gave birth during a pandemic	116	58.3

4.1.2. The effect of the Pandemic on the family's monthly income.

Table (4.2) shows that about 74 % of the participants reported that their monthly income has decreased. In comparison, 25.6% of the participants said their monthly income was not affected or increased during the Pandemic.

Table (4.2) Reported changes in the monthly income during the Pandemic. (N=199)

Monthly Income	Frequency	Percent
Decreased	148	74.4
Not affected	51	25.6
Total	**199**	**100**

4.2. Health history

4.2.1 Participants distribution by diagnosis with COVOID 19 (Women, family members, and close relatives).

Table (4.3) shows that around 35% of the participants haven't been nor their family members and relatives diagnosed with COVID-19 virus, 12.6% of the participants get infected with COVID-19, and 52.7% of the participant's family members and relatives were infected.

Table (4.3) Participant distribution by diagnosis with COVID-19 (Women, their family members, and close relatives). (N=199)

Diagnosis History	Frequency	Percent
No	69	34.7
Yes, I was diagnosed	25	12.6

Family members	61	30.7
Relatives	44	22
Total	**199**	**100**

4.2.2 Participant health status

Table(4.4) shows that more than 90% of the participants have no medical problems; 5% (10 women out of 22 women) of the participants were diagnosed with Gestational Diabetes, while 6% have other medical conditions like (High blood pressure, Thyroid disorders, Respiratory problems)

Table (4.4) Medical condition of the study participants. (N=199)

Health condition	Frequency	Percent
I don't have any health problems	180	90.45
Gestational diabetes	10	5
Other medical condition	12	6

4.2.3 Body mass Index before pregnancy

Table (4.5) shows that around 61% of the participants had a normal average weight before pregnancy, 32% were overweight, and 5.5% were obese. Only 1% of the participants were underweight.

Table (4.5) BMI before pregnancy for the study participants. (N=197)

BMI (Before Pregnancy)	Frequency	Percent
Normal weight (18.5 to 24.9)	122	61.3
Overweight(25 to 29.9)	64	32.1
Obese (30 and more)	11	5.5
Total	**197**	**100**

4.3 Services accessibility

4.3.1 Weight monitoring during pregnancy by health professionals

Table (4.6) shows that around 68% of the participants reported their weight had not been monitored routinely during pregnancy, and 32% of the participants indicated that their weight was routinely monitored during pregnancy.

Table (4.6) Weight monitoring during pregnancy by the health professional (N=199)

weight monitoring during pregnancy by professionals	Frequency	Percent
Yes	63	31.7
No	136	68.3
Total	**199**	**100**

4.3.2 Difficulties in accessing health care facilities during the pandemic period

Table (4.7) shows that around 50% of the participants reported difficulties accessing healthcare facilities to follow-up on their pregnancy during the pandemic, while 30% rarely had difficulties and 20% never had difficulties.

Table (4.7) Difficulties faced by the study sample in accessing health care facility during the pandemic period. (N=199)

Facing difficulties	Frequency	Percent
Never	40	20.1
Rarely	59	29.6
Mostly	60	30.1
Always	40	20.1
Total	**199**	**100**

4.3.3 Types of difficulties encountered in gaining access to health care facility during the pandemic.

Table (4.8) shows that about 50% of the participants said that the difficulties encountered in gaining access to health care facilities during the Pandemic were

because of precautionary procedures; 21.3% reported that the main difficulties were due to the fear of infection with the COVID-19 virus. The rest of the 28.4% of the participants had difficulties due to the cancellation of their follow-up appointments by the health facility, closing the health facility due to the transformation of the health facility to quarantine centers.

Table (4.8) Types of difficulties encountered in gaining access to health care facilities during the Pandemic by the study participants (N= 159)

Types of difficulties	Frequency	Percent
Precautionary procedures	80	50.3
Cancellation of my follow-up appointments by the health facility	15	9.4
Closing the health facility due to the transformation of the health facility to a quarantine centers	20	12.5
Because of my fear of infection, with the COVID-19 virus.	34	21.3
Others	10	6.2

4.4 Smoking Habits:

4.4.1: Smoking during pregnancy

Eighty participants out of 199 continued section four as they were smokers; table (4.9) shows that 92.5% reported that they didn't smoke since they were pregnant, and 6.3% said they smoked less than ten cigarettes.

Table (4.9) Cigarettes frequency smoked daily since study participants became pregnant. (N=80)

No. of cigarettes	Frequency	Percent
20-40 cigarettes	1	1.3
Less than 10 cigarettes	5	6.3
I didn't smoke at that time when I get pregnant	74	92.5
Total	**80**	**100**

4.4.2: Effect on smoking pattern during the period of the Pandemic.

When participants were asked whether their smoking pattern was affected during the pandemic period, 16% reported it was not affected, and 33% of the participants said that it was increased, and 50% reported that it was decreased.

Table (4.10) the effect of the Pandemic on the smoking pattern of the study participants (N=6)

Smoking pattern during the Pandemic	Frequency	Percent
No, it was not affected	1	16.7
Increase smoking	2	33.3
Decrease smoking	3	50
Total	**6**	**100**

4.5 Nutritional status

4.5.1 Changes in regular diet specifically for this pregnancy.

Table (4.11) shows that around 51% of the participants reported that they had not changed their regular diet before pregnancy, especially for this pregnancy. In comparison, about 49% said they made some changes.

Table (4.11) Changes on a regular diet by the study participants specifically for this pregnancy. (N=199)

Changes to regular diet	Frequency	Percent
Yes	97	48.8
No	102	51.2
Total	**199**	**100**

4.5.2 Number of main meals (breakfast-lunch-dinner) consumed per day before and during the pandemic.

Table (4.12) shows that around 20 % of the participants reported that they had one meal per day before COVID-19, and only 3% of the participants indicated that they had one meal after COVID-19. About 45% of the participants reported that they ate three meals per day before COVID-19, and it has increased by around 10% after COVID-19. Approximately 35% of the participants said they had two meals per day before COVID-19, and 41.7% of the participants reported that they had two meals per day after the Pandemic.

Table (4.12) Number of main meals (breakfast-lunch-dinner) consumed by the study participants per day before and during COVID-19. (N=199)

Number of main meals	**Before COVID-19**		**During COVID-19**	
	Frequency	**Percent**	**Frequency**	**Percent**
One meal per day	40	20.1	6	3
Two meals a day	70	35.2	83	41.7
Three meals a day	89	44.7	110	55.3
Total	**199**	**100**	**199**	**100**

4.5.3 The effect of the pandemic on food patterns.

Table (4.13) shows that nearly 75% of the participants reported that their food pattern was not affected by the Pandemic, while 24.6% reported that their food pattern was affected by COVID-19.

Table (4.13) the effect of corona pandemic on study participants' food patterns. (N=199)

Effect of the pandemic on food pattern	**Frequency**	**Percent**
Yes	49	24.6
No	150	75.4
Total	**199**	**100**

4.5.4 The effect of the Pandemic on eating times throughout the day.

Table (4.14) shows that about **7**6 % of the participants reported that the Pandemic affected their eating times, while around 24% reported that their eating times were not affected by COVID-19.

Table (4.14) the effect of corona pandemic on study participants' eating times throughout the day. (N=199)

The effect of the pandemic on eating times	Frequency	Percent
Yes	151	75.9
No	48	24.1
Total	**199**	**100**

4.5.5 The effect of the COVID-19 Pandemic on the amount of foods consumed per day.

Table (4.15) shows that around 70% of the participants reported that their food amount per day was not affected during the pandemic. In comparison, 9.6% reported less food, and 20 % said their food amount was increased during the pandemic.

Table (4.15) the effect of the pandemic on the amount of food consumed per day. (N=199)

Effect of the pandemic on the amount food consumed	Frequency	Percent
The amount of food I eat has increased	40	20.1
I have less food	**19**	9.**6**
Not affected	140	70.**4**
Total	199	100

4.5.6 Changes in dietary pattern due to the pandemic.

Table (4.16) shows that 28.6% of the participants indicated that the quality of food they ate has changed to worse. In comparison, 13.6% of the participants reported that the change in their dietary pattern was choosing cheaper foods, 10.6% of the participants went to choose easy-to-prepare foods such as sandwiches, French fries, etc. About 6%

reported that they reduced the amount of food eaten due to insufficiency in food, and another 6% reported that they chose food that doesn't require many food items when preparing. Only 4.5% said that they reduced the intake of vegetables, fruits, meat, and dairy products due to a lack of financial means.

Table (4.16) Types of changes in dietary patterns of the study participants during pandemic. (N=199)

Changes in dietary patterns	Yes		No	
	frequency	Percent	Frequency	Percent
The quality of the food I eat has changed to worse	57	28.6	142	71.4
Going to cheaper foods	27	13.6	172	86.4
Reducing the Number of meals because there is not enough food	9	4.5	190	95.5
Reducing the amount of food eaten due to insufficient food	12	6	187	94
Go to easily prepared foods such as sandwiches, French fries…. Etc	21	10.6	178	89.4
Go to foods that do not require many food ingredients when preparing them	12	6.0	187	94.0
Reducing the intake of vegetables, fruits, meat, and dairy products due to lack of financial means)	9	4.5	190	95.5

4.5.7 The rate of eating different food groups before and during the pandemic:

Table(4.17) shows that more than half of the participants(56.5%) had three servings of Bread, cereal, rice, pasta, noodles per day before the pandemic, while it was drastically

increased to 78% during COVID-19. About 26% of the participants ate one serving of Bread, cereal, rice, pasta, noodles per day before the pandemic, while 14 % of the participants ate the same amount during COVID-19.

Table (4.17) Participant distribution by their consumption of "Bread, cereal, rice, pasta, noodles per day before and during the pandemic." (N=199)

Serving	Before COVID-19		During COVID-19	
	frequency	Percent	frequency	Percent
1	52	26	27	14
2	35	17.5	17	8
3 and more	112	56.5	155	78

Table (4.18) shows that nearly 72% of the participants ate three servings and more vegetables and fruits per day before the pandemic, while only 5% had these servings during the pandemic. About 8.5% had two servings before COVID-19, whereas 54% had one serving during the COVID-19**.** According to the one serving, 19% had this serving before COVID-19, and 41% had it during COVID-19.

Table (4.18) Participant distribution by their consumption of "**Vegetables and fruits per day before and during the pandemic." (N=199)**

Serving	Before COVID-19		During COVID-19	
	frequency	Percent	frequency	Percent
1	38	19.1	82	41
2	17	8.5	108	54
3 and more	144	72.4	9	5

Table (4.19) shows that around 60% of the participants ate two servings of all kinds of legumes per day before the pandemic, while only 6% had this serving during the pandemic. About 38% of them ate one serving before the COVID-19, and around 25% ate this serving during the pandemic.

Table (4.19) Participant distribution by their consumption of "**Legumes in all kinds per day before and during the pandemic.**" **(N=199)**

Serving	Before COVID-19		After COVID-19	
	frequency	percent	frequency	Percent
1	76	38	49	24.6
2	119	60	12	6.1
3 and more	4	2	138	69.3

Table (4.20) shows that about 41% of the participants ate one serving of Milk and milk products per day before the pandemic, 57% consumed 2 servings, and 2.5% ate three and more servings during the pandemic. Around 69.5% of them started to increase their servings to 3 servings during the COVID-19, and 21% had one serving during the pandemic.

Table (4.20) Participant distribution by their consumption of "**Milk and milk products per day before and during the pandemic." (N=199)**

Serving	Before COVID-19		After COVID-19	
	frequency	percent	frequency	Percent
1	82	41.2	42	21
2	112	57.2	19	9.5
3 and more	5	2.5	138	69.5

Table(4.21) shows that about 14.5% of the participants ate one serving of meat, fish, poultry, eggs, nuts per day during the pandemic, whereas 74.4% ate 2 servings before the pandemic, only 11% ate 3 servings and more. During the pandemic, 90% of the participants ate one serving of meat, fish, poultry, eggs, nuts, while 4% ate 2 servings, and only 6% ate 3 and more.

Table (4.21) Participant distribution by their consumption of "Meat, fish, poultry, eggs, nuts per day before and during the pandemic." (N=199)

Serving	Before COVID-19		After COVID-19	
	frequency	percent	frequency	Percent
1	29	14.6	179	90
2	148	74.4	8	4
3 and more	22	11	12	6

Table (4.22) shows that nearly 36% of the participants ate one serving of Miscellaneous (ice cream, donuts, cakes, biscuits, and potato chips) per day before the pandemic, 5% ate 3 and more servings, and 3.5% ate two servings. In comparison, around 83% of them started to consume 3 and more servings of these food items during the COVID-19, and only 8.5% ate one serving, and 8.5% ate 2 servings.

Table (4.22) Participant distribution by their consumption of "Miscellaneous foods (ice cream, donuts, cakes, biscuits, and potatoes chips) per day before and during the pandemic." (N=199)

Serving	Before COVID-19		After COVID-19	
	frequency	percent	frequency	Percent
1	72	36	17	8.5
2	117	3.5	17	8.5
3 and more	10	5	165	83

4.6 Lifestyle

4.6.1 Participant distribution by exercising regularly before pregnancy.

Table (4.23) shows that around 52% of the participants have not been exercising regularly before pregnancy, while 47.7% have been exercising regularly

Table (4.23) Exercising level of the study participants before pregnancy (N=199)

Exercising regularly before pregnancy	Frequency	Percent
Yes	95	47.7
No	104	52.2
Total	**199**	**100**

4.6.2 Participant distribution by changing physical activity after pregnancy.

Table (4.24) shows that around 67% of the participants reported that their physical activity decreased after pregnancy. In comparison, 24% reported no change, and 9% reported an increase in the physical activity level after pregnancy.

Table (4.24) Changing in study participants' physical activity level after pregnancy (N=199)

Change in physical activity during pregnancy	Frequency	Percent
Yes it increased	18	9.0
Yes it decreased	133	66.8
No	48	24.1
Total	**199**	**100**

4.6.3 The Reason for changing physical activity after pregnancy

Table (4.25) shows that about 77% of the participants reported that their physical activity changed because of pregnancy and pandemic together, around 18% said that their physical activity changed because of pregnancy, and about 5% reported that their physical activity changed because of the pandemic

Table (4.25) Reasons for changing study participants' physical activity level after pregnancy (N=151)

Reason for changing physical activity after pregnancy.	Frequency	Percent
Because of pregnancy	27	17.8
Because of lockdown	7	4.6
Because of pregnancy and pandemic	117	77.4
Total	**151**	**100**

4.6.4 Type of physical activity and screen time.

Table (4.26) shows that around 15% of participants practiced low intense activities for less than one hour while 85% practiced for 1 hour and more before COVID-19. About 53% of the participants reported that they practice low intense activities for less than one hour during the pandemic, while 47% of the participants reported they practice for 1 hour and more during the pandemic.

Approximately 48% of participants practiced moderate intense activities for less than one hour, while 52% practiced from 1 hour and more before COVID-19. During COVID-19, 67% of participants practiced moderate intense activities for less than one hour, while 33% of the participants practiced from 1 hour and more before COVID-19. About 95 % of participants have practiced high intense activities before COVID-19 for less than one hour, and only 5 % practiced for one hour and more. During COVID-19, the percentage of participants who practiced for less than one hour was 98% of the participants, and only 2% practiced high intense activities for one hour and more.

Table (4.26) Levels of sport study participants' exercise. (N=199)

Variables	Pre- COVID-19	(%)	During COVID-19	(%)
The extent of practice of low intensity sports and activities				
Less than 1 hour	30	15	106	53.3
1 hour and more	169	85	93	46.7
Total	**199**	**100**	**199**	**100**
The extent of practice of moderate-intensity sports and activities				
Less than 1 hour	96	48	133	67
1 hour and more	103	52	66	33
Total	**199**	**100**	**199**	**100**
The extent of practice of high-intensity sports and activities				
Less than 1 hour	190	95.5	196	98.5
1 hour and more	9	4.5	3	1.5
Total	**199**	**100**	**199**	**100**

Table (4.27) shows that about 45% of participants used the Smartphone for 3 hours and more per day before COVID-19, but during COVID-19, the percentage increased as 58% of the participants used the Smartphone for 3 hours and more per day. Before COVID-19, around 24% of the participants used the Smartphone for less than 1 hour, while it decreased to 18% during COVID-19. About 4% of the participants used the computer and electronic devices for 3 hours and more a day, while more than 32% of the participants used devices for 3 hours and more a day during COVID-19.

About 80% of the participants used computers and other electronics for less than 1 hour before COVID-19, 51% of the participants used computers and other electronics for less than 1 hour during COVID-19,

Around 3% of the participants watched TV for 3 hours and more before COVID-19; but around 47% of the participants watched TV for 3 hours and more during COVID-19, also, 42% of the participants watched TV from 1-2 hours before COVID-19, while 21% of them watched TV from 1-2 hours during COVID-19.

According to hours of sitting and reading daily, 93% of the participants reported that they sat for less than one hour for reading before COVID-19, and 85.5% reported during COVID-19.

Table (4.27) Reported changes in Screen time before and during the COVID-19 pandemic. (N=199)

Use electronic appliances and sit down to read				
Hours of using the Smartphone daily	**Pre -COVID**		**During COVID-19**	
Less than 1 hour	49	24.6	36	18.2
From 1 to 2 hours	61	30.6	47	23.6
3 hours and more	89	44.8	116	58.2
Total	199	100	199	100
Hours of using the computer and other electronic devices daily				
Less than 1 hour	160	80.4	103	51.7
From 1 to 2 hours	31	15.5	19	9.5
3 hours and more	8	4	77	38
Total	199	100	199	100
Hours of watching television daily				
Less than 1 hour	110	55	64	32
From 1 to 2 hours	83	42	42	21
3 hours and more	6	3	93	47
Total	199	100	199	100
Hours of sitting and reading daily				
Less than 1 hour	185	93	170	85.5
From 1 to 2 hours	11	5.5	19	9.5
3 hours and more	3	1.5	10	5
Total	199	100	199	100

4.6.5 Foods consumed while using electronic devices.

As shown in Table (4.28), nearly half of the participants (50%) ate nuts while they are sitting on electronic devices, chips, and French fries come in second place by a percentage of 31.7%, all kinds of chocolate come in third place by a percentage of 24.6**%,** Coffee, tea, Nescafe, and its substitutes come in the fourth place by percentage 23.6%.

Table (4.28) Foods consumed by study participants while using electronic devices. (N=199)

Foods consumed while using electronic devices	Frequency	Percent
I never eat food	24	12
Vegetables and fruits	37	18.5
All kinds of milk, yogurt, and Eran milk	12	6
Healthy snacks (lupine, popcorn, and corn)	29	14.6
Arabic and Western sweets	28	14
Chips and French fries	63	31.7
Nuts	99	50
Nonnatural juices and soft drinks	19	9.55
Coffee, tea, Nescafé, and its substitutes	47	23.6
Fast food	4	2
All kinds of chocolate	49	24.6

4.7 Psychological state during the pandemic:

4.7.1 Average sleeping hours per day

Table (4.29) shows that before COVID-19, 33% of the participants reported that they slept for less than 6 hours, but during COVID-19, 42% of the participants said they slept for less than 6 hours. Before COVID-19, 47.7% of the participants slept for 7-10 hours, but 52% reported that they slept for 7-10 hours a day during COVID-19. The average sleeping hours before Covid-19 were 6.8 hours, while the average sleeping hours during COVID-19 was seven hours.

Table (4.29): Average sleeping hours before and during COVID-19. (N=199)

Variables	**Pre-COVID-19**	**(%)**	**During COVID-19**	**(%)**
Number of sleeping hours				
Less than 6 hours	99	33	83	42
7-10 hours	95	47.7	104	52
More than 10 hours	5	2.5	12	6
Total	**199**		**199**	**100**

4.7.2 Feelings of sleeplessness, trouble sleeping, and cutting sleep at least three times a week during the pandemic.

Table(4.30) shows that 77% of the participants reported that they felt sleeplessness, had trouble sleeping, and cut sleep at least three times a week during the pandemic, and 23% answered that they didn't have those feelings**.**

Table (4.30): Feelings of sleeplessness during the Pandemic. (N=199)

Feelings sleeplessness, during the pandemic	**Frequency**	**Percent**
Yes	153	77
No	46	23
Total	**199**	**100**

4.7.3 Feeling stressed/tense during the pandemic.

Table (4.31) shows that nearly 84% of the participants reported that they felt stressed and tense during the pandemic, and 16% said that they didn't have this feeling.

Table (4.31): Participant distribution by feeling stressed/tension during the pandemic. (N=199)

Feeling stressed/tense during the pandemic	Frequency	Percent
Yes	168	84
No	31	16
Total	**199**	**100**

4.7.4 Reasons behind feeling stressed during the pandemic.

Table (4.32) shows that about 55% of the participants reported that their stress and tense feelings came from the current life conditions and disease prevalence. In comparison, 27% of the participants chose financial problems as the reason for stress feeling, 27% of the participants chose the family problem as the reason for their tense and stressful feelings.

Table (4.32): Reasons behind feeling stressed during the pandemic. (N=168)

Reason for stress feeling	Frequency	Percent
Family problems (with family, spouse, etc.)	45	26.7
Financial problems	46	27
Social problems (with friends, co-workers, etc.)	8	4.7
Psychological stress (dissatisfaction with shape or weight)	30	17.8
Current life conditions and disease prevalence	93	55
Work stress	9	5
I don't know	8	4.7

4.7.5 Ways to cope with stress.

Table (4.33) shows that about 36% of the participants reported that their way to cope with stress is to stay alone and isolate themselves from people. In comparison, 19% reported that they sleep, and 86% of the participants reported that they eat or drink to cope with stress.

Table (4.33): Ways to cope with stress during the pandemic. (N=168)

ways to cope with stress	Frequency	Percent
Refrain from eating	24	14.2
Staying alone and isolated from people	61	36.3
I smoke (cigarettes or shisha)	5	2.9
I Talk to friends, relatives or family	26	15
Sleep	32	19
Going out of the house or going out with friends	15	8.9
Eat or drink	144	85.7
None of the above, Other	8	4.7

4.7.5 Foods consumed during periods of anxiety and tension during the COVID-19 pandemic.

Table (4.34) shows that about 28% of the participants reported that they ate all kinds of chocolates during periods of anxiety and tension during the COVID-19 pandemic, 18% reported they ate sweets and Arabic sweets, 11% reported they drank energy drinks, while 21% reported that they eat Chips, biscuits, citrus, and salted nuts. Only 12% of the participants said they eat fruits, dried fruits, fruit salad, 4% ate vegetables and vegetable salads during periods of anxiety and tension during the COVID-19 pandemic.

Table (4.34): Foods consumed during periods of anxiety and tension during the COVID-19 pandemic. (N=144)

Foods consumed during periods of anxiety and tension	Frequency	Percent
All kinds of chocolate	47	28
Sweets (like cakes, brownies, donuts, waffles, crepe, ice cream)	17	10
Arabic sweets (Konafa, Mamoul and others)	13	8
Energy drinks and stimulants such as tea and coffee	18	11
Soft drinks	7	4
Fast food (shawarma, burger, pizza) or French fries	11	6
Healthy snacks (such as popcorn, corn, lupine, chickpeas)	8	5
Chips, biscuits, citrus and salted nuts	35	21
Vegetables and vegetable salads or fruits, dried fruits, fruit salad	27	16
Other	4	2

Associations:

Table (4.35): Differences in changes in food patterns during the COVID-19 pandemic due to feeling stressed/tension.

Domain	Answer	N	Mean	Std. Deviation	F	df	Sig.
Did the COVID-19 pandemic affect food pattern?	**YES**	159	1.2	0.443	7.944	**197**	**0.005**
	NO	40	1.45	0.506			

Table (4.36): Differences in changes in food patterns during the COVID-19 pandemic due to medical conditions.

Domain	Gestational Diabetes	N	Mean	Std. Deviation	F	df	Sig.
Did the COVID-19 pandemic affect food pattern?	**No**	196	1.31	0.465	12.009	**197**	**0.001**
	Yes	3	1.00	.000			

Table (4.37): Differences in changes in food patterns during the COVID-19 pandemic and monitoring weight routinely during pregnancy.

Domain	Monitoring weight by a health professional	N	Mean	Std. Deviation	F	df	Sig.
Has the COVID-19-pandemic affected eating Patterns throughout the day	**yes**	58	1.45	0.799	6.076	157	**0.015**
	No	141	1.72	0.885			

Chapter five: Discussion

5.1.1 Introduction

This chapter discusses the findings of the impact of COVID-19 pandemic-related restrictive preventive measures on pregnant women's dietary habits and lifestyle via an online survey during the COVID-19 pandemic (October- 2020). It includes a discussion of sociodemographic, financial, psychological effects on dietary habits and lifestyle of pregnant women during the pandemic.

There has been considerable speculation about the possible effects of lockdown, particularly on the population's eating habits as a whole. These concerns have been reinforced by potential restrictions on food availability and difficulties related to fresh products' daily procurement, among other factors. Indeed, some studies carried out during the COVID- 19 outbreak have already shown changes in the diet quality among some population groups (Biviá-Roig et al., 2020).

Studies carried out in different countries have reported changes in eating habits associated with lockdown regardless of the imposed restrictions (Cheikh Ismail et al., 2020.; Eftimov et al., 2020; Husain & Ashkanani, 2020.; Khubchandani et al., 2020.). As pregnant women, one of the most vulnerable groups, pregnant women's health during the COVID-19 pandemic has gotten great concern worldwide (Whitaker et al., 2021). To the best of the researcher's knowledge, this was the first study to assess dietary habits and lifestyle changes among Palestinian pregnant women.

5.1.2 Socio-demographic characteristics

One hundred ninety-nine participants, currently pregnant or women have given birth on or after March 1st, 2020, at Red Crescent Society Hospital in Jerusalem, completed the survey. About 74% of participants reside in urban areas. More than half of the participants (59%) were aged less than 30 years old and were unemployed (60%). About 44% of the participants completed a bachelor's degree inconsistent with information available from the Palestinian Center Bureau of Statistics (PCBS), as the proportion of young women (18-29 years) with a bachelor's degree in Palestine (west

bank and Gaza) was about 23 % in 2020 (PCBS., 2020). This difference could be because women inside Jerusalem had better opportunities for education as their financial situation is better than women who live in the west bank and Gaza. There is a delayed age of marriage in cities compared to villages and camps. More than two-thirds of the participants (74%) reported that their income decreased since the start of the lockdown. Although this high percentage, a relationship between changing dietary habits and decreased family income during the COVID-19 pandemic was not revealed, and it could be due to one of the limitations in the study, as the interview was held by a phone call which caused the participants to be embarrassed in reporting about income or dietary habits and lifestyle during COVID-19 pandemic. Also, people who live in Jerusalem had the opportunity to get financial aid during the pandemic.

As for employment, this finding is different from the PCBS information, according to which women's unemployment rate in 2020 was 41% in the west bank and Gaza (PCBS. 2020). The result can be explained as the difference between the unemployment rate in this study and PCBS rate because the participants in this study are all pregnant or have children. They may have left their jobs and became unemployed because of pregnancy, or their priority was to take care of their family.

The results showedno differences in food patterns (defined as the amount, frequency, diversity of different food groups, and drinks consumed in a regular diet (Górnicka et al., 2020.) during the COVID-19 pandemic due to age. It is possible because more than half of the women participating in this study were in the same age group. Hence, participants anticipate a close way of thinking, as 59% of the participants' ages are less than 30.

It is well documented that lower education is associated with a low socioeconomic level, which consequently affects food choice; people with lower socioeconomic level purchase more energy-dense foods and highly processed foods at the expense of healthier fresh, and less energy-dense, foods which are usually more expensive (Pellegrini et al., 2020; Smetanina et al., 2015). The higher percentage of participants had an educational level higher than secondary school, so this can be a reason for not having an association between education and changes in eating patterns in this study.

Moreover, Palestinian families are depending on home based food and they cook their home recipes.

5.1.3 Participants Health

Around 35% of the participants haven't been nor their household members diagnosed with COVID-19 virus, 65% of the participants answered they or family members and relatives diagnosed with COVID-19. Around 12% of the 199 participants were infected with COVID-19 (24 participants), much lower than the percentage of infection cases with COVID-19 among females in Palestine until 01/10/2021 which reached 49% of the total 51,062 infected cases (UN., 2020). The difference with this result is the greater prevalence of the COVID-19 virus in the West Bank compared to East Jerusalem; the lockdown was very restricted and controlled in Jerusalem which limited the number of infected cases.

More than 90 % of the participants don't have a medical problem. This could be because all the participants involved in the study chose Red Crescent Hospital for delivery; women with health problems choose a general hospital to give birth in, not like Red Crescent Hospital, specializing only in obstetrics and gynecology.

About 5% of the participants were diagnosed with gestational diabetes, different from the Red Crescent society hospital birth registry, which indicates that 10% of the delivering patients are diagnosed with gestational diabetes. As the results shown in table (4.7) indicated that 50% of the participants faced difficulties in accessing health care facilities to follow-up on their pregnancy during the pandemic period, so many participants involved in the study could not do all the necessary tests during pregnancy, including a Glucose tolerance test. However, in this study, gestational diabetes was associated with changes in eating patterns during the COVID-19 pandemic as p=0.001. The explanation for this relationship is that the nature of the gestational diabetes treatment plan requires specific changes to dietary habits and lifestyle to mitigate the disease's consequences (Gluckman et al., 2014).

Since BMI scales are not recommended during pregnancy, BMI before pregnancy scale was used (Whitaker et al., 2021). According to the BMI weight status categories, a BMI between 25 and 29.9 would be classified as overweight, a BMI over 30 would be

classified as obesity, a BMI between 18.5 and 24.9 would be classified as normal weight, and a BMI under 18.5 would be classified as normal weight (Gluckman et al., 2014).

More than half of the participants (61%) had a normal weight before pregnancy; that can give an indication about the participants' dietary patterns and lifestyle before pregnancy, which can be linked to the results later, as it can help making a comparison between lifestyle and dietary habits before and during COVID-19 pandemic.

5.1.4 Services accessibility

More than half of the study participants (69%) indicated that their weight was not routinely monitored during pregnancy, which could be attributed to the lockdowns in Jerusalem city and the cancellation of follow-up appointments by the health facilities as one of the preventive measures followed during the pandemic. However, in this study, monitoring weight during pregnancy was associated with changes in eating patterns during the COVID-19 pandemic as p=0.015, which is agreed with the fact that monitoring weight is an effective tool in following healthy dietary habits and lifestyle (Stampini et al., 2020).

Around 50% of the participants reported difficulties in accessing healthcare facilities to follow-up on their pregnancy during the pandemic period. The reasons of these difficulties were because of precautionary procedures; which are defined as infection prevention practices that apply to all people, regardless of suspected or confirmed infection status of the individual, in any setting (Zhao et al., 2020). This result is expected due to the repeated closures imposed by the Government in Jerusalem and the significant restrictions that have followed.

A study conducted in Italy aimed to assess the effect of lockdown on lifestyle, access to health services, and psychological status of Italian pregnant women during the COVID-19 pandemic. Concerning access to healthcare services, only 25% of the participants were attending pre-birth educational courses. Around 12% of them avoided going to obstetrics and gynecology hospitals because of the fear of being infected. About 26% of the participants skipped their routine pregnancy appointments (Stampini et al., 2020).

5.1.5 Smoking

Tobacco use is one of the significant public health concerns worldwide. About 40% of the participants were smokers; a smoker is a person who smokes any of the tobacco products daily or frequently, whether smoking was regular cigarettes, hookahs, or electronic cigarettes. In comparison, according to the data of PCBS, only 5% of women are smokers (PCBS, 2019).

The significant difference between the smoking ratios of women participating in the study compared to the information of the PCBS may be because most of the participants in the study were from Jerusalem City. This might be a typical of urban women behavior as a kind of equality with men, and an indication of women liberty. In addition, it might be due to high stress level that women in Jerusalem encounter because of the of lack of political stabilities in the city.

In this study, around 92% of the participants stopped smoking since they got pregnant (only 6 participants were still smoking throughout their pregnancy during the COVID-19 pandemic period); three of the six participants who were still smoking decreased their smoking patterns. One of the reasons for this is that women are more concerned about their health, and they know smoking can increase vulnerability to SARS-CoV-2 infection and worsen the clinical course of COVID-19. Simultaneously, they cannot completely stop smoking or even reduce it as it's considered a stress reliever (Sidor & Rzymski, 2020.).

5.1.6 Nutritional habits.

Regarding the number of meals, the percentage of women who ate three meals before COVID-19 and during COVID-19 increased by 10.6%. It could be because study participants are spending more time at home as a result of the interruption in working routine during closures and quarantines; for the same reason, the percentage of women who consume one meal a day has decreased from 20% to 3%, women spent more time at home. Hence, they get a higher chance to prepare more meals.

Two third of the study participants (75.4%) indicated that there had been no changes in their eating habits during the COVID-19 pandemic. This result is consistent with

Whitaker et al.(2021) study, which showed that over 80% of participants reported their diet stayed the same or even improved.

Two-thirds of the study participants (76%) indicated a change in eating times during the COVID-19 pandemic; this result could be referred to the significant difference in their daily routine. Study participants started to stay up late at night during the closures and home quarantine, and they consumed snacks during their night out. Husain & Ashkanani, found in their research which was conducted in Kuwait to assess the changes in dietary habits and lifestyle among Kuwaiti adults during the COVID-19 pandemic, that people were much more likely to have a late-night snack or meal past 10 pm during COVID-19 with $p < 0.001$ compared to before COVID-19 (Husain & Ashkanani, 2020.). In addition, the study results showed an around 5% deviation in participants' dietary habits pre and post COVID-19.

However, more than two-thirds of the participants (70%) said the amount of food they ate regularly was not affected during the COVID-19 pandemic. Different than the results of a study conducted in Saudi Arabia to assess the impact of COVID-19 on eating habits, which found that the quantity of food mean score was higher ($p<0.001$) during the COVID-19 pandemic in comparing to the quantity of food consumed by the participants before COVID-19 (Alhusseini & Alqahtani, 2020).

About 29% of the participants said their food quality was worsened during the COVID-19; maybe some people couldn't buy fresh foods like vegetables, fruits, and fresh meats because of the lockdowns. The result is supported by the answers about the rate of eating different food groups before and during the pandemic.

According to the Australian dietary guidelines , the number of servings needed for pregnant women for each groups are : (4 and more servings of vegetables , 3.5 servings of meat, 2-3 servings of fruits, 2 servings of legumes, 4 servings of dairy products, and 8 servings of bread and grains (Bailey et al., 2019).

There was a 21% increase in the rate of eating 3 and more servings of bread, cereal, rice, pasta, and noodles. This starch group is cheaper than other food groups, explaining why starch consumption increased during the pandemic period, in addition to the fact that Palestinian like to eat traditional home based foods.

There is a high drop in the percentage of participants who consume 3 and more servings of vegetables by around 5%. The limited ability of many people to buy fresh products on a daily basis as a result of the closures and home quarantine has been a reason why pregnant women are unable to consume the recommended servings of vegetables and fruits.

Around 2.5% of the participants consumed 3 servings of milk and its products before the COVID-19 pandemic; a higher percentage of participants who consumed these servings was during the COVID-19 pandemic (69.5%). Participants reported that they consumed more milk and its products because they started making homemade dessert recipes that mainly depend on milk and its products. Inconsistent with the results of a study conducted in the United Arab Emirates, which found that 46.2% of their participants did not consume milk and dairy products on a daily basis (Cheikh Ismail et al., 2020).

Around 70% drop in the percentage of participants consumed 2-3 and more servings of meat, fish, poultry, eggs, and nuts daily during the pandemic, whereas 90% consumed one serving during the pandemic. This could be due to the lack of purchasing power, as meat prices are high compared to other food items and are not regularly available due to frequent closures during the pandemic period. Regarding legumes, 2% of the participants consumed three and more serving during the pandemic, while 69% consumed this serving during the pandemic; the prices of legumes that are fairly appropriate for most people increased their consumption rate, as well as their availability and long storage time, many people have resorted to them during the pandemic period.

Around 5% of the participants consumed 3 and more servings of miscellaneous foods like ice cream, donuts, cakes, and biscuits before the pandemic. In contrast, more than 83% of the participants consumed 3 and more servings of these miscellaneous foods. Boredom and stress can result in a higher intake of these kinds of foods. This result consistent with the results of an international online survey that aimed to elucidate the impact of COVID-19 restrictions on eating behaviors and physical activity, which resulted in a higher percentage of consuming unhealthy food (cakes, ice cream, sweets) during quarantine ($p<0.001$). However, it is different than the results of the polish study that was performed to study the dietary and lifestyle changes of polish adults during the

COVID-19 pandemic, which found that only 19% of the participants followed unhealthy food patterns (ice cream- donuts..) during COVID-19 (Górnicka et al., 2020.).

5.1.7 Lifestyle

About 67% of the participants reported that their physical activity level decreased; this is normal, as mentioned in previous studies (Ammar et al., 2020; Biviá-Roig et al., 2020.; Cheikh Ismail et al., 2020; Górnicka et al., 2020.; Stampini et al., 2020). Many people refrained from practicing physical activity outside, whether in nature or sports centers. Around 77% of the participants reported this was due to lockdowns and pregnancy.

Insufficient PA and excessive screen time were described as a global public health problem before this pandemic (Sidor & Rzymski, 2020.). The current COVID-19 pandemic may further worsen this situation; as in the results of table (4.27), the percentages of people who use smartphones, computers, and televisions for 3 hours and more have risen from 44.8% to 58.2%, 4% to 38%, and 3% to 47% respectively. Because of the quarantine period, avoiding sedentary behaviors or physical inactivity is difficult. There was a significant decrease in physical activity levels ($p < 0.01$): Lockdowns and quarantine reduced overall PA level and access to exercise. Although more different home-based training programs appeared in the media, people could not adapt to train at home.

The possible causes could be lack of equipment, insufficient spaces, decreased income, and increased screen time related to online work. Subsequently, it was more difficult for people to maintain their usual PA, as the screen time was sometimes compulsory prolonged during online learning and working. Likewise, the results of a study conducted to assess dietary habits and lifestyle during the COVID-19 pandemic in UAE reported that the proportion of people who spent more than five hours a day on screen time was increased by 23.3% during the pandemic (Cheikh Ismail et al., 2020).

The study findings are consistent with other studies indicating that the current COVID-19 pandemic dramatically impacted lifestyle behaviors globally, including diminished engagement in sports and physical activity in general (Whitaker et al., 2021, Stampini et

al., 2020, Zhang et al., 2020). Also, Biviá-Roig et al. showed in their research that there was a significant decrease in participating in all three levels of physical activity (vigorous, moderate, and walking) by participants during the lockdown, compared to their physical activity engagement during pregnancy from before the lockdown(Biviá-Roig et al., 2020.). In contrast, Whitaker et al.'s research showed that less than 25% of the participants reported changes in their physical activity (Whitaker et al., 2021).

However, in this study, 77% of the participants reported that the changes could be due to pregnancy and pandemic. The participants involved in the research were in the last trimester of their pregnancy or already delivered; it's normal, according to previous studies, to decrease physical activity participation due to the discomfort of pregnancy progression, rather than in response to the COVID-19 pandemic. Physical activity participation tends to decline in the third trimester of pregnancy than in other trimesters (Borodulin et al., 2020).

In this study, sedentary activities during screen time are worsened by unhealthy snacking when sitting on these devices; 31% of participants eat chips and French fries while using smartphones and other electronics, 24% eat all kinds of chocolates while using these devices.

In countries with less restrictive preventive measures, which allowed PA in the open air, an increase in PA has been reported, accompanied by increased prolonged screen time, negatively impacting perceived health (Pietrobelli et al., 2020).

Being physically active at home during lockdown should be encouraged. Social media publishes daily advices and live training sessions; a good indicator was increased sales of machines used for exercising at home during quarantine, such as stationary bicycles, treadmills, and dumbles (Pérez-Rodrigo et al., 2020.).

5.1.8 Psychological status during the pandemic

In terms of psychosocial risk factor indicators, sleeping hours have also been affected by the COVID-19 pandemic. Following the recommendations, pregnant women need to sleep between eight to ten hours per night (Moyer et al., 2020.). The proportion of participants who slept for more 7-10 hours a night before the pandemic was increased by 4% during COVID-19. The average sleeping hours before COVID-19 was six hours,

then seven hours during COVID-19; that is definitely due to boredom during quarantine and lockdown. Many women try to escape boredom and stress by sleeping throughout the day.

Moreover, sleep disturbances have been reported by about 77% of participants. Pandemic-related stress might cause these sleep disturbances and interrupted sleeping periods. Studies in the context of changes in sleeping patterns during the COVID-19 pandemic in different countries found an increase in stress feelings, consequently decreasing sleep quality and duration (Cheikh Ismail et al., 2020.; Górnicka et al., 2020.). Thus, concerns about pandemic-related stressors that may lead to additional adverse changes in the sleeping patterns of pregnant women have been aroused and studied.

Poor sleep is a common complaint during pregnancy, with nearly 80% of pregnant women self-reporting poor sleep across pregnancy trimesters, compared to 35-52% of non-pregnant women (Mindell et al., 2015). This trading in the facts can lead to the dilemma of finding the real cause of lack of sleep, whether lockdown or the pregnancy itself. The pandemic-related quarantine can be classified as a stressful event. Therefore, multiple studies are needed to assess the impact of the COVID-19 pandemic-related stressors and their effects on dietary habits and lifestyle behaviors. While not surprising but undoubtedly alarming, the pandemic has imposed higher stress on pregnant women; 84% of the participants reported increased stress. The highest proportion chose current life conditions and disease prevalence as the reason behind feeling stressed, financial problems coming in the second class, and family problems in the third class (55% - 27% - 26.7%). Events related to the pandemic can lead to many problems; adherence to mandatory orders requiring everyone to stay at home was a cause of many family problems. Decreased family income increases tension and creates problems. Fear of the disease itself and the fear of possible contagion cause anxiety and concerns among people (Stampini et al., 2020). Moreover, in this study, stress and tension were associated with changes in eating patterns during the COVID-19 pandemic as $p=0.05$.
Some authors also observed increased anxiety and depression levels during confinement in pregnant women in different studies. Wu et al. (2020) analyzed the anxiety and depression of 4124 Chinese women during the COVID-19 pandemic. Their results showed an increase in anxiety and depression symptoms during lockdowns and a higher

percentage of women with thoughts of suicide (Wu et al., 2020.). Other studies on Italian pregnant women have also observed a significant negative impact on pregnant women's mental health due to COVID-19 pandemic-related lockdown (Stampini et al., 2020.). Results showed that fear of possible contagion was among the main concerns reported by pregnant women during COVID-19. Stressful situations produced by the pandemic can cause overeating and uncontrolled binges towards food, especially sugary foods, which can reduce stress by stimulating serotonin production. In this study, around 38.6% of the participants prefer to eat chocolates, sweets like cakes, brownies, donuts, waffles, crepe, ice cream, and Arabic sweets (Konafa, Mamoul, and others). It is not surprising that stress was associated with unhealthy dietary patterns among study participants as $p=0.005$.

The data was collected during October; most of the questions were about changing dietary habits during March at the beginning of the lockdown when people had higher levels of stress about the pandemic and contributed to changes in dietary habits. In March, when the pandemic was at its beginnings, people were terrified of being infected, but then the pandemic was part of their life, and they used to live with the pandemic-stressful events. This time difference when collecting data can lead to inaccuracies in answers and change facts, which interpret many of this study's results; it showed the disassociation between pandemic-related events and dietary habits and lifestyle changes.

Many studies have shown a correlation between pandemic-related events and changes in dietary habits in all groups. Taking pregnant women as the only category of the study sample could have been a reason for the lack of associations in this study's findings. Pregnant women are worried about their diet because they are concerned about fetal health. So more accurate results would have been possible if the study had been taken over multiple categories of males and females.

Notably, these explanations are based on conjecture. There is a possible residual confounding or confounding related to unmeasured variables.

Chapter Six: limitations, conclusion, and recommendations

6.1 Limitations of the study:

Despite the feasibility of this study, each study has limitations, so the following are the limitations of this study:

1-The generalization of this study's findings may be limited as this study includes women residing in East Jerusalem, which may have influenced the study results due to sociodemographic status.

2-Data collection depends on the questionnaire, so the participants may feel embarrassed to report or underestimate their dietary habits and lifestyle during the COVID-19 Pandemic.

3- The data collection was done during the pandemic situation, so the fear of being infected by the study participants is high. Therefore, a phone call interview was utilized instead of a face-to-face interview.

4- As the data depended on self-reporting, some recall bias of food intake or misreporting data has been found.

5- A cross-sectional study had to be used, so it was challenging to make a causal inference.

6- Besides, participants were recruited from an obstetrics-gynecology hospital rather than a general one, which may have influenced the study results.

6.2 Conclusion:

The COVID-19 pandemic is caused by the SARS-CoV-2 virus, which has resulted in prolonged lockdown with another restricted preventive measure. The COVID-19 pandemic has disrupted lives globally. While the sources related to the pandemic are multifaceted, some vulnerable groups, such as the group of pregnant women, continue to bear the brunt of greater stress caused by the pandemic. The unhealthy dietary habits and lifestyle of pregnant women can lead to serious health problems for their health and fetal development; therefore, it is essential to determine factors that adversely affect dietary habits and lifestyle.

To the best of the researcher's knowledge, for the first time, this study provided information on pregnant women's eating habits and lifestyle changes during the COVID-19 pandemic after the beginning of the lockdown period. Lockdown decreased the level of moderate physical activity that these pregnant women had engaged in before the pandemic and doubled the number of hours they spent sitting. The main obstacles to engagement in physical activity reported by these women were pandemic-related restrictions and fatigue due to pregnancy. The lockdown also negatively affected their sleeping patterns. Furthermore, a large number of the participants were stressed during the pandemic. Finally, there was an association between **c**hanges in food patterns during COVID- 19 pandemic and feeling stressed/tension ($p<0.005$).

The results are still preliminary and need to be confirmed with further studies among a larger group of pregnant women living in severely affected areas in Palestine.

6.3 Recommendations:

The researcher recommends that the study be expanded later. Data must be confirmed and investigated in future larger population studies because there are insufficient studies on the national level regarding COVID- 19 and changes in dietary habits and pregnant women's lifestyle.

Government should consider the need for organized campaigns, lectures, and nutrition education programs to teach the basics of nutrition, meal planning, and how to adapt and maintain healthy eating and lifestyle practices. There was a need to convey teaching people the value and importance of following healthy dietary patterns, lifestyle, adequate levels of PA, outdoors whenever possible, and promoting resilience and emotional balance at the individual and group levels.

Furthermore, social media should be used more frequently to step up nutrition advice by increasing the presence of experts in the field of nutrition and sports, such as dietitians, sports coaches, and health workers. This need is more pressing during this period of the devastating pandemic.

The results of this study can be used as a starting point for policy and decision-makers to formulate new policies and plans regarding nutrition during emergencies such as pandemic

Health policymakers should develop telemedicine systems to facilitate the communication between pregnant women and the medical team during the Pandemic, and deployment of digital technologies for enhancing accessibility, and control the preventive measures.

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Annex (1)

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جامعة القدس
القدس
كلية الصحة العامة

التاريخ:2021/2/16
المرجع.

عزيزتي الطالبة رنا غياش المحترمة
برنامج: السياسات والادارة الصحية

الموضوع: موافقة لجنة اخلاقيات البحث العلمي

قامت اللجنة الفرعية لأخلاقيات البحث التابعة لكلية الصحة العامة بمراجعة مشروع الرسالة بعنوان:

(Assesssment of the impact of Covid -19 on Dietary Habits and lifestyle among Paleestinian pregnant women)

المقدم من (مشرف الرسالة/ د.اسمى الامام). يعتبر مشروعك مستوفيًا لمتطلبات أخلاقيات البحث في جامعة القدس.

نتمنى لكم كل التوفيق في تسيير المشروع.

رئيسة لجنة اخلاقيات البحث
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ص.ب. 51000 القدس

Annex (2)

Names of experts:	work setting
1- Professor Rima Tayyem	Jordanian University
2- Dr Maha hotit	Lebanon University
3- Dr halima sabbah	Zayed University
4- Dr Narmin Awad	Jordanian University
5- Dr khuloud Bukhari	Al-Madina Almonawwara University

Annex(3)

تأثير جائحة كورونا على الحالة التغذوية وأسلوب الحياة بين النساء الحوامل .

مرحبًا بك في الاستبيان الاقليمي لمعرفة تأثير جائحة كورونا على الحالة التغذوية وأسلوب الحياة بين النساء الحوامل. قبل المتابعة، يمكنك اختيار اللغة المناسبة لك. شكرًا لك على اهتمامك ومرحبًا بك في هذا الاستبيان.

ما هي الدراسة؟ يدور الاستبيان حول تحديد التغيرات في الحالة التغذوية وأسلوب الحياة بين النساء الحوامل في بعض الدول العربية قبل وأثناء جائحة فايروس كورونا المستجد.

من يمكنه المشاركة؟ ومن المتوقع أن يشارك في هذه الدراسة 150 امرأة حامل او كانت حاملا خلال فترة الجائحة.

ما هو المتوقع منك؟ بعد منح الإذن الخاص بك، سيبدأ الاستبيان. سيقيم الاستبيان بأكمله الوضع قبل وأثناء جائحة فايروس كورونا المستجد. من المهم أن تعرف مقدمًا أن معظم الأسئلة تتكرر دائمًا. الاستبيان طويل. نقدر أن الأمر يستغرق حوالي 25 دقيقة حتى يكتمل.

ما هي حقوقك ومسؤولياتك؟

- مشاركتك تطوعية ومجهولة تمامًا.

- لن نطلب بيانات شخصية ولن يتم تخزين عنوان IP الخاص بك.

- لك الحق في رفض المشاركة

- يمكنك التوقف في أي وقت، حتى بعد منح الإذن -لست مضطرًا لإعطاء سبب للتوقف

- لن يؤدي إيقاف مشاركتك إلى أي سلبيات

- إذا بدأت ولكن انتهيت قبل إكمال الاستبيان، فأنت توافق على أننا نستخدم الردود التي قدمتها حتى ذلك الوقت

تمت الموافقة على هذه الدراسة من قبل لجنة أخلاقيات مستقلة، وهي اللجنة المسؤولة عن اعطاء الموافقة الأخلاقيه في الجامعة الاردنية في الاردن.

نشكرك مقدمًا على ملء استبياننا.

القسم 1: معلومات شخصية

1) **هل أنت حامل حالياً؟ او كنت حاملا خلال فترة الجائحة؟**

- نعم
- لا

2) **بلد الإقامة**

3) **المحافظة**

4) **مكان السكن**

- مدينة
- قرية
- بادية

5) **الجنسية**

6) **العمر**

7) **المؤهل العلمي**

- غير متعلمة
- أقل من توجيهي
- توجيهي
- دبلوم
- بكالوريوس
- دراسات عليا

8) **العمل**

- اعمل
- لا اعمل

9) **هل تأثر الدخل الشهري للعائلة أثناء الجائحة؟**

- قل
- زاد
- لم يتأثر

10) **هل تم تشخيصك أنتِ أو أي من أفراد منزلك بفيروس كورونا (كوفيد-19)؟ يمكنك اختيار أكثر من إجابة:**

- لا
- نعم تم تشخيصي
- نعم تم تشخيص زوجي
- نعم تم تشخيص طفلي/أطفالي
- نعم تم تشخيص والدي/والدا زوجي
- نعم تم تشخيص الأخ/الأخت
- نعم تم تشخيص العم/العمة/الخال/الخالة
- نعم تم تشخيص خادمة المنزل
- نعم تم تشخيص السائق
- نعم أخرى الرجاء التحديد:

11) **هل أنت حامل حالياً؟**

- نعم
- كنت حاملا وتمت الولادة أثناء الجائحة.

القسم 2: صحة الأم الحامل حاليا

1) **هل تعانين أيا من المشاكل الصحية؟ (يمكن الاجابة بأكثر من اختيار)**

- لا أعاني أيا من المشاكل الصحية
- السكري
- سكري الحمل
- ارتفاع ضغط الدم
- ارتفاع ضغط الدم الحملي
- أمراض القلب والشرايين

- أمراض الكبد
- ارتفاع الكوليسترول
- ارتفاع الدهون الثلاثية
- اضطرابات الغدة الدرقية
- مشاكل تنفسية
- حساسية طعام
- اخرى حددي

2) ما هو وزنك قبل الحمل (كغم)؟

3) ما هو وزنك الحالي (كغم)؟

4) ما هو طولك (سم)؟

5) هل تمت متابعة وزنكِ خلال فترة الحمل من قبل الأخصائي / الأخصائية المشرفة على حملك؟

- نعم
- لا

6) هل كانت متابعة وزنك خلال فترة الحمل تتم بشكل روتيني من قبل الأخصائي/ الأخصائية المشرفة على حملك؟

- نعم
- لا

7) كم مرة تم توزينك خلال فترة حملك إلى الأن من قبل الأخصائي/ الأخصائية المشرفة على حملك ؟

8) اي شهر في الحمل انت(رقم)؟

9) التاريخ المتوقع للولادة

10) ما نوع المنشأة الصحية التي تتابعين فيها حملك؟

- منشأة صحية حكومية
- منشأة صحية خاصة

11) هل المنشأة الصحية التي تتابعين فيها حملك قريبة من مكان سكنك؟

- نعم
- لا

12) هل تواجهين عادةً أي صعوبات في الوصول إلى الرعاية الصحية لمتابعة حملك أثناء فترة الجائحة؟

- أبدا
- نادرا
- غالبا
- دائما

13) من وجهة نظرك ماهي الصعوبات التي واجهتها للوصول إلى الرعاية الصحية أثناء الجائحة؟ (تستطيعين اختيار أكثر من سبب)

- لم اواجه أي صعوبة
- إجراءات الحجر الإحترازي
- إلغاء المواعيد بسبب الحجر
- إغلاق المنشأة الصحية
- عدم الذهاب بسبب خوفي من الإصابة بالفيروس
- أخرى الرجاء التحديد

القسم 3: صحة الأم الحامل خلال الجائحة وانجبت الطفل

1) هل كنت تعانين أيا من المشاكل الصحية اثناء الحمل؟ (يمكن الاجابة بأكثر من اختيار)

- لا أعاني أيا من المشاكل الصحية
- السكري
- سكري الحمل
- ارتفاع ضغط الدم
- ارتفاع ضغط الدم الحملي
- أمراض القلب والشرايين
- أمراض الكبد
- ارتفاع الكوليسترول
- ارتفاع الدهون الثلاثية

- اضطرابات الغدة الدرقية
- مشاكل تنفسية
- حساسية طعام
- اخرى حددي

2) ما نوع المنشأة الصحية التي كنت تتابعين فيها حملك؟

- منشأة صحية حكومية
- منشأة صحية خاصة

3) هل المنشأة الصحية التي كنت تتابعين فيها حملك قريبة من مكان سكنك؟

- نعم
- لا

4) هل واجهتي أي صعوبات في الوصول إلى الرعاية الصحية لمتابعة حملك أثناء فترة الجائحة؟

- أبدا
- نادرا
- غالبا
- دائما

5) من وجهة نظرك ماهي الصعوبات التي واجهتها للوصول إلى الرعاية الصحية أثناء الجائحة؟ (تستطيعين اختيار أكثر من سبب)

- لا توجد أسباب لأنني لم اواجه أي صعوبة
- إجراءات الحجر الاحترازي
- إلغاء مواعيد المتابعة الخاصة بي من قبل المنشأة الصحية
- إغلاق المنشأة الصحية بسبب تحول المنشأة الصحية التي اتابع فيها الى مستشفى للحجر الصحي
- بسبب خوفي من الإصابة بفايروس كورونا قررت عدم الذهاب الى المنشأة الصحية لمتابعة الحمل
- أخرى الرجاء التحديد

6) **كم كان الوزن قبل الحمل (كغم)؟** ☐

7) **كم كانت زيادة الوزن خلال فترة الحمل بالكامل (كغم)؟** ☐

8) **كم هو الوزن الحالي؟** ☐

9) **ما هو طولك (سم)؟** ☐

القسم 4 : التدخين

هذا القسم للنساء الحوامل

هل سبق ودخنت سجائر أو نرجيلة سابقا؟

- نعم
- لا

في الأشهر الثلاثة السابقة للحمل، كم كانت عدد السجائر التي دخنتها في اليوم العادي؟ (علما بأن علبة السجائر تحتوي على 20 سيجارة).	**منذ أن أصبحت حاملا، كم عدد السجائر التي تدخنينها في اليوم العادي؟ (علما بأن علبة السجائر تحتوي على 20 سيجارة).**
أكثر من 40 سيجارة	أكثر من 40 سيجارة
من 20-40 سيجارة	من 20-40 سيجارة
اقل من عشر سجائر	اقل من عشر سجائر
لم أدخن حينها	لم أدخن حينها

خلال الأشهر الثلاثة السابقة للحمل، كم مرة استخدمت السجائر الإلكترونية، أو أي أو منتجات أخرى من النيكوتين الإلكترونية؟	**منذ أن أصبحت حاملا، كم مرة استخدمت السجائر الإلكترونية، أو أي أو منتجات أخرى من النيكوتين الإلكترونية؟**
أكثر من مرة في اليوم	أكثر من مرة في اليوم
مرة في اليوم	مرة في اليوم
6-2 مرات في الأسبوع	6-2 مرات في الأسبوع
مرة واحدة في الأسبوع أو أقل	مرة واحدة في الأسبوع أو أقل
لم أستخدم السجائر الإلكترونية أو منتجات أخرى	لم أستخدم السجائر الإلكترونية أو منتجات أخرى

خلال الأشهر الثلاثة السابقة للحمل، كم مرة استخدمت النرجيلة/الارجيلة ؟	**منذ أن أصبحت حاملا، كم مرة استخدمت النرجيلة/الارجيلة؟**
أكثر من مرة في اليوم	أكثر من مرة في اليوم
مرة في اليوم	مرة في اليوم
6-2 مرات في الأسبوع	6-2 مرات في الأسبوع
مرة في الأسبوع أو أقل	مرة في الأسبوع أو أقل
لم أستخدم النرجيلة/الارجيلة	لم أستخدم النرجيلة/الارجيلة

7) **خلال فترة جائحة كورونا المستجد (كوفيد-19) هل تأثر نمط التدخين لديك:**

- لا لم يتأثر
- نعم تأثر وزاد بمقدار ..... سيجارة في اليوم
- نعم تأثر ونقص بمقدار ..... سيجارة في اليوم

هذا القسم للنساء في فترة ما بعد الولادة

1) **يرجى اختيار أحد العبارة الموجودة أدناه والتي تصف تدخينك حاليا:**

- لا أدخن

- أدخن بين الحين والآخر، ولكن ليس كل يوم
- أدخن كل يوم، ولكن أقل مما كنت عليه عندما كنت حاملاً
- أدخن كل يوم، ونفس الوقت الذي كنت فيه حاملاً
- أدخن كل يوم، وأميل إلى التدخين الآن أكثر مما كنت حاملاً

2) هل كنتِ تدخنين في الأسبوع الذي يسبق ولادة طفلك؟

- نعم
- لا
- لا أتذكر

3) خلال فترة جائحة كورونا المستجد (كوفيد-19) هل تأثر نمط التدخين لديك:

- لا لم يتأثر
- نعم تأثر وزاد بمقدار ..... سيجارة في اليوم
- نعم تأثر ونقص بمقدار ..... سيجارة في اليوم

القسم 5: الوضع التغذوي

1) هل أجريت أي تغييرات على نظامك الغذائي المعتاد (قبل الحمل) خصيصًا لهذا الحمل؟

- نعم
- لا

2) متى بدأت في إجراء تغييرات على نظامك الغذائي لأول مرة بسبب الحمل؟ (حددي خيارًا واحدًا فقط)

- بمجرد أن بدأت التخطيط للحمل
- بمجرد أن اكتشفت أنني حاملا
- خلال فترة الحمل بعد تشخيصي بمضاعفات الحمل الأخرى
- أخرى (يرجى التحديد)

3) حدث ذلك التغير خلال:

- الأشهر الثلاثة الأولى
- بين 3-6 أشهر
- بين 6-9 أشهر

الأسئلة التالية عن التغير في عادات الاكل قبل وبعد الجائحة، الرجاء وصف هذه التغييرات:

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4) العادات التغذوية قبل الجائحة:

1. قبل الجائحة، كم عدد الوجبات الرئيسية (الفطور-الغداء-العشاء) التي تتناولينها في اليوم؟

- وجبة واحدة يوميا
- وجبتان يوميا
- ثلاث وجبات يوميا

5) العادات التغذوية بعد الجائحة:

1. بعد الجائحة، كم أصبح عدد الوجبات الرئيسية (الفطور-الغداء-العشاء) التي تتناولينها في اليوم؟

- وجبة واحدة يوميا
- وجبتان يوميا
- ثلاث وجبات يوميا

2. **هل أثرت جائحة الكورونا على نمط غذائك؟**

- نعم
- لا

3. هل أثرت جائحة الكورونا على أوقات تناولك للطعام على مدار اليوم؟

- نعم
- لا

4. كيف أثرت جائحة الكورونا على كمية الطعام التي تتناولها في اليوم؟

- زادت كمية الطعام التي أتناولها
- قلت كمية الطعام التي أتناولها
- لم تتأثر

5. **أي من العبارات التالية تصف التغيرات التي طرأت على نمطك الغذائي بسبب جائحة الكورونا؟ (بإمكانك اجابة أكثر من اختيار)**

- لم أقم بأي تغييرات
- تغيرت نوعية الغذاء الذي أتناوله إلى الأسوأ

- التوجه إلى الأطعمة الأقل سعرا
- تقليل عدد الوجبات لعدم توفر ما يكفي من الطعام
- تقليل كمية الطعام المتناولة لعدم توفر ما يكفي من الطعام
- التوجه إلى الأطعمة سهلة التحضير كالسندويشات والبطاطا المقلية وغيرها
- التوجه إلى الأطعمة التي لا تتطلب الكثير من المواد الغذائية عند تحضيرها
- التقليل من تناول خضروات، فواكه، الحوم والألبان لعدم توفر الإمكانيات المادية)

6. هل ازداد تناولك للأطعمة الصحية والأطعمة ذات القيمة الغذائية العالية بعد جائحة الكورونا؟

- نعم
- لا

7. لماذا ازداد تناولك للأطعمة الصحية والأطعمة ذات القيمة الغذائية العالية بعد جائحة الكورونا؟

- أحرص على الحفاظ على صحتي وتقوية جهازي المناعي
- أخاف من أن أصاب بالمرض
- ليس لدي خيار آخر فبسبب إجراءت الحجر الإحترازي
- قل خروجي للمطاعم التي تقدم الوجبات السريعة في الوقت الحالي
- اخرى

8. اي من العبارات التالية: تعتقدين انها تصف **نظامك الغذائي** بشكل أفضل خلال فترة جائحة كورونا؟

- اتبعت نظام غذائي متوازن وغني بالفواكه والخضروات والحبوب الكاملة والبقوليات
- اتبعت نظام غذائي غير صحي وغني بالدهون والسكريات والحلويات واللحوم المصنعة
- اتبعت أحد الأنظمة الغذائية المشهورة والمنتشرة بين المتفاعلين على مواقع التواصل الاجتماعية
- اخرى الرجاء التحديد

9. معدل تناول المجموعات الغذائية المختلفة قبل وخلال الجائحة:

فكري في الأطعمة التي تناولتها منذ أن أصبحت حاملاً.

1. في العامود 1، يرجى تسجيل العدد التقديري للوجبات التي تتناولينها من كل مجموعة غذائية كمثال على متوسط أسبوعي **خلال فترة حملك.**

2. في العامود 2، يرجى تسجيل العدد التقديري للوجبات التي تتناولينها من كل مجموعة غذائية كمثال على متوسط أسبوعي **خلال فترة الجائحة.**

أكمل مربع واحد في كل صف:

بالنسبة للأطعمة التي تتناولينها عادةً كل يوم، أكملي المربع "يوميًا"

بالنسبة للأطعمة التي لا تتناولينها عادةً كل يوم، أكملي المربع "في الأسبوع"

ضعي في الاعتبار جميع الأطعمة التي يتم تناولها، بما في ذلك المكونات المضافة إلى الوصفات، والتي يتم تناولها في الوجبات المختلطة والمطاعم أو تناول الوجبات الجاهزة.

المجموعة	مثال على الحصة الواحدة	العامود 1: قبل الجائحة (املأ مربع واحد فقط)	العامود 2: خلال الجائحة (املأ مربع واحد فقط)
مجموعة الحبوب والخبز والارز والمعكرونة	• 2 شريحة خبز • رغيف خبز متوسط أو خبز مفرود • كوب وثلث رقائق فطور أو • 2 فطائر معجنات صغيرة • 1 كوب أرز مطبوخ، او فريكة او معكرونة، نودلز، حبوب أخرى.	____ في اليوم أو _____ في الاسبوع	____ في اليوم أو _____ في الاسبوع
مجموعة الخضروات بانواعها	• ½ كوب خضار نيء أو مطبوخ (مثل الجزر أو اليقطين) أو القرنبيط أو الملفوف) • كوب من الخضار ذات الأوراق الخضراء أو خضار السلطة (الخام) • طماطم (بندورة) صغيرة متوسطة الحجم • الخضروات النشوية مثل البطاطا الحلوة والذرة	____ في اليوم أو _____ في الاسبوع	____ في اليوم أو _____ في الاسبوع
مجموعة البقوليات بانواعها	• كوب من الفاصوليا المطبوخة أو المعلبة أو البازلاء أو العدس او الحمص او الفول او الترمس • 6 حبات فلافل او طعمية	____ في اليوم أو _____ في الاسبوع	____ في اليوم أو _____ في الاسبوع
مجموعة الفواكة	• حبة فاكهة متوسطة (مثل التفاح والموز) • حبتين صغيرتين (مثل المشمش ، فاكهة الكيوي) • كوب مكعب قطع / فواكه معلبة • ½ كوب عصير • فواكه مجففة (مثل 4 أنصاف من المشمش المجفف ، 1.5 ملاعق طعام من الزبيب)	____ في اليوم أو _____ في الاسبوع	____ في اليوم أو _____ في الاسبوع
مجموعة الحليب والالبان والاجبان	• كوب حليب (250 مل) • ½ كوب حليب مكثف • 2 شريحة جبنة بيضاء بحجم علبة الكبريت • 4/1 كوب (2 ملعقة طعام) لبنة • كوب لبن (200 جرام) • 1 كوب كاستر (250 مل) • 1 كوب حليب الصويا أو الأرز أو غيره من مشروبات الحبوب	____ في اليوم أو _____ في الاسبوع	____ في اليوم أو _____ في الاسبوع

	مدعم بالكالسيوم		
مجموعة اللحوم والمكسرات	• 65 غ من اللحم المطبوخ (لحم البقر، لحم العجل، لحم) بحجم علبتين من الكبريت. • ½ كوب من اللحم المفروم (3 حبات كفتة صغيرة) أو 2 قطعة راس عصفور • 65 غم من الدواجن المطبوخة (مثل صدر دجاج متوسط) • 65 جرام من السمك المطبوخ أو علبة السمك الصغيرة • 2 بيضة • 3/1 كوب مكسرات (مثل الفول السوداني واللوز) • ¼ كوب (مثل عباد الشمس والسمسم)	____ في اليوم أو _____ في الاسبوع	____ في اليوم أو _____ في الاسبوع
أطعمة اخرى	• 2 سكوب (كرتين) آيس كريم عادي (75 جم) • 1 شريحة كيك عادي أو دونات • 3-2 بسكويت حلو • قطعة شوكولاتة صغيرة (25 جم) • 2 ملعقة كبيرة كريمة • 1 ملعقة صغيرة زبدة، سمن، زيت • 1 علبة مشروب غازي (375 مل) • 12 شريحة شيبس بطاطا	____ في اليوم أو _____ في الاسبوع	____ في اليوم أو _____ في الاسبوع

القسم 6

: أسلوب الحياة

1) هل كنت تمارسين الرياضة قبل الحمل؟

- نعم
- لا

2) هل تغير معدل نشاطك البدني بعد الحمل؟

- نعم، زادت
- نعم، قلت
- لا

3) ما سبب تغيير معدل نشاطك البدني بعد الحمل؟

- بسبب الحمل
- بسبب الجائحة
- بسبب الحمل والجائحة

4) ما نوع الرياضة التي كنت تمارسيها **<u>عندما اصبحت حاملا وقبل الجائحة؟</u>**

السؤال	مطلقًا	أقل من ١/٢ ساعة/اليوم	من ١/٢ ساعة إلى حوالي ساعة واحدة/اليوم	من ساعة إلى حوالي ساعتين/اليوم	من 2 إلى حوالي ٣ ساعات/اليوم	٣ ساعات أو أكثر/اليوم
ما مدى ممارستك لنشاطات رياضية قليلة الشدة؟ - المشي ببطء واعمال المنزل اليومية كالكنس ونشر الغسيل وجلي الصحون - إلباس أطفالك وغسلهم وإطعامهم وأنت جالسة، للّعب مع الأطفال وأنت جالسة أو واقفة - الجلوس للقراءة، للتّحدّث إلى أحدهم أو للإتّصال						
ما مدى ممارستك نشاطات رياضية متوسطة الشدة؟ - المشي بسرعة متوسطة وممارسة رياضه منزليه بجهد متوسط والسباحة متوسطة السرعة -بعض الاعمال المنزلية التي تتطلب مجهود متوسط كتنظيف الشبابيك ومسح الارض، -إلباس أطفالك وغسلهم وإطعامهم وأنت واقفة - اللّعب مع الأطفال وأنت تمشين أو تركضين						
ما مدى ممارستك نشاطات رياضية عالية الشدة؟ - المشي بسرعة عالية والركض ورفع أشياء ثقيلة - ركوب دراجة بسرعة والسباحة عالية السرعة - الرقص السريع						

5) ما نوع الرياضة التي كنت تمارسيها **خلال فترة الجائحة؟**

السؤال	مطلقًا	أقل من ١/٢ ساعة/اليوم	من ١/٢ ساعة إلى حوالي ساعة واحدة/اليوم	من ساعة إلى حوالي ساعتين/اليوم	من 2 إلى حوالي ٣ ساعات/اليوم	٣ ساعات أو أكثر/اليوم
ما مدى ممارستك لنشاطات رياضية قليلة الشدة؟ - المشي ببطء واعمال المنزل اليومية كالكنس ونشر الغسيل وجلي الصحون - إلباس أطفالك وغسلهم وإطعامهم وأنت جالسة، للّعب مع الأطفال وأنت جالسة أو واقفة - الجلوس للقراءة، للتّحدّث إلى أحدهم أو للاتصال						
ما مدى ممارستك نشاطات رياضية متوسطة الشدة؟ - المشي بسرعة متوسطة وممارسة رياضه منزليه بجهد متوسط والسباحة متوسطة السرعة وبعض الاعمال المنزلية التي تتطلب مجهود متوسط كتنظيف الشبابيك ومسح الارض، -إلباس أطفالك وغسلهم وإطعامهم وأنت واقفة - اللّعب مع الأطفال وأنت تمشين أو تركضين						
ما مدى ممارستك نشاطات رياضية عالية الشدة؟ - المشي بسرعة عالية والركض ورفع أشياء ثقيلة - ركوب دراجة بسرعة والسباحة عالية السرعة - الرقص السريع						

6) استخدام الاجهزة الالكترونية والجلوس للقراءة

السؤال	قبل الحمل	قبل الجائحة	خلال الجائحة
ساعات استخدام الهاتف الذكي يوميا	مطلقا	مطلقا	مطلقا
	اقل من ساعة	اقل من ساعة	اقل من ساعة
	من 1-2 ساعة	من 1-2 ساعة	من 1-2 ساعة
	من 3-5 ساعات	من 3-5 ساعات	من 3-5 ساعات
	أكثر من 5 ساعات	أكثر من 5 ساعات	أكثر من 5 ساعات
ساعات استخدام الكمبيوتر والأجهزة الالكترونية الاخرى يوميا	مطلقا	مطلقا	مطلقا
	اقل من ساعة	اقل من ساعة	اقل من ساعة
	من 1-2 ساعة	من 1-2 ساعة	من 1-2 ساعة
	من 3-5 ساعات	من 3-5 ساعات	من 3-5 ساعات
	أكثر من 5 ساعات	أكثر من 5 ساعات	أكثر من 5 ساعات
ساعات الجلوس على التلفاز يوميا	مطلقا	مطلقا	مطلقا
	اقل من ساعة	اقل من ساعة	اقل من ساعة
	من 1-2 ساعة	من 1-2 ساعة	من 1-2 ساعة
	من 3-5 ساعات	من 3-5 ساعات	من 3-5 ساعات
	أكثر من 5 ساعات	أكثر من 5 ساعات	أكثر من 5 ساعات
ساعات الجلوس للقراءة يوميا	مطلقا	مطلقا	مطلقا
	اقل من ساعة	اقل من ساعة	اقل من ساعة
	من 1-2 ساعة	من 1-2 ساعة	من 1-2 ساعة
	من 3-5 ساعات	من 3-5 ساعات	من 3-5 ساعات
	أكثر من 5 ساعات	أكثر من 5 ساعات	أكثر من 5 ساعات

7) ما هي أكثر الاطعمة التي تتناولينها خلال الجلوس على هذه الاجهزة؟ (يمكنك اختيار أكثر من طعام).

- لا أتناول الطعام ابدا
- الخضروات والفاكهة
- الحليب بأنواعه واللبن والشنينة
- وجبات خفيفة صحية (ترمس وفشار وبليلة وذرة)
- الحلويات العربية والغربية
- الموالح والشبس

- المكسرات
- العصائر غير الطبيعية والمشروبات الغازية
- القهوة والشاي والنسكافية وبدائله
- البطاطس المقلية والوجبات السريعة
- الشكولاتة بأنواعها
- اخرى

القسم 6: الحالة النفسية خلال الجائحة:

1) **كم عدد ساعات نومك يوميا (عادة) قبل الجائحة؟** ☐

2) **كم عدد ساعات نومك يوميا (عادة) خلال الجائحة؟** ☐

3) **هل شعرت بالأرق واضطراب في النوم وتقطعه على الاقل 3 مرات بالأسبوع خلال الجائحة؟**

- نعم
- لا

4) **هل انتابك الشعور بالتوتر خلال الجائحة؟**

- نعم
- لا

5) **إذا انتابك الشعور بالتوتر خلال الجائحة، فما هو سبب هذا الشعور؟ (يمكن الاجابة بأكثر من اختيار)**

- المشاكل الأسرية (مع الأهل، الزوج، وغيرها)
- مشاكل مالية
- المشاكل الاجتماعية (مع الأصدقاء، زملاء العمل، وغيرها)
- الضغوطات النفسية (عدم الرضا عن الشكل أو الوزن)
- ضغوطات العمل
- ظروف الحياة الحالية وانتشار المرض
- لا أعلم

6) **ما هي الطريقة التي تتبعيها للتغلب على التوتر؟ (يمكن الاجابة بأكثر من اختيار)**

- الامتناع عن تناول الطعام
- البقاء وحيدة والانعزال عن الناس

- اقوم بالتدخين (السجائر أو الشيشة)
- اتحدث مع الأصدقاء، الأقارب أو الأهل
- النوم
- الخروج من المنزل، أو الخروج مع الأصدقاء
- ممارسة الرياضة
- تناول الطعام أو المشروبات
- لا شيء مما ذكر
- اخرى

7) ماهي الاطعمة التي تكثري من تناولها خلال فترات القلق والتوتر اثناء جائحة كورونا؟ (يمكن الاجابة بأكثر من اختيار)

- الشكولاته بانواعها
- الحلويات (مثل الكيك والبروني والدونات والوافل والكريب والبوظة والكيك)
- الحلويات العربية (الكنافة والمعمول وغيرها)
- مشروبات الطاقة والمنبهات كالشاي والقهوة
- المشروبات الغازية
- الوجبات السريعة (شاورما، برغر، بيتزا)
- البطاطا المقلية
- وجبات خفيفة صحية (كالفوشار والذرة والترمس والحمص)
- الشيبس، البسكويت والموالح والمكسرات المملحة
- الخضروات وسلطة الخضروات
- الفواكه، الفواكه المجففة، سلطة الفواكه
- لا أتوجه لتناول الطعام
- أخرى
- نعم
- لا

شكرا للمشاركة ونتمنى لكم اوقاتا سعيدة

Annex 4

The effect of the Corona pandemic on the psychological, nutritional and lifestyle conditions of pregnant women in some Arab countries – CoronaPregna Survey

Welcome to the regional survey to see the effect of the Corona pandemic on nutritional status, lifestyle, depression and anxiety among pregnant women in some Arab countries-Corona Pregna Survey. Thank you for your interest and welcome to this survey.

*** What is the study?**

The survey revolves around determining changes in nutritional status, lifestyle, depression and anxiety among pregnant women in some Arab countries before and during the emerging pandemic of the Corona virus.

*** Who can participate?**

It is expected that 1,000 pregnant or pregnant women during the pandemic period will participate in this study.

***What is expected from you?**

After getting your acceptance, the questionnaire will start. The entire questionnaire will assess the situation before and during the emerging Corona Virus pandemic. It is important to know in advance that most questions are always repeated. The questionnaire is somehow long. We estimate it takes about 25 minutes to complete.

*** What are your rights and responsibilities?**

-Your participation is completely voluntary and anonymous.

-We will not request personal data and your IP address will not be stored.

-You have the right to refuse to participate.

-You can stop at any time, even after granting permission you do not have to give a reason to stop.

-Stopping your participation will not lead to any negatives.

-If you started but finished before completing the questionnaire, you agree that we use the responses that you provided until that time. Your data can be reused at a later stage for other research purposes by our research group, possibly in cooperation with local colleagues (two regions).

Thank you in advance for completing our survey.

Section 1: Personal information

1) Are you currently pregnant? Or you were pregnant during the pandemic period?

- Yes
- 2. No

2) The country of residence:

3) The area in which you live

- City
- Village/Suburb
- Desert

4) Nationality

5) Age

6) Education Qualification:

- Illiterate
- Less than High school diploma
- High school diploma
- Diploma
- Bachelor's degree
- Master
- PhD

7) Work

- I work
- I don't work
- I used to work
- I didn't work

8) Was the family's monthly income affected during the pandemic?

- Decreased

- Increased
- It was not affected

9) Have you or any of your household been diagnosed with coronavirus (Covid-19)? You can choose more than one answer:

- No
- Yes, I was diagnosed
- Yes, my husband was diagnosed
- Yes, my child / children has been diagnosed
- Yes, my husband / parents has been diagnosed
- Yes, brother / sister was diagnosed
- Yes, the uncle / aunt / uncle / aunt was diagnosed
- Yes, the housemaid was diagnosed
- Yes, the driver has been diagnosed
- Yes: other, please specify

10) Are you currently pregnant?

- Yes
- I was pregnant and gave birth during a pandemic.

Section 2: The mother's health in the current pregnancy

1) Do you suffer from any health problems? (More than one choice can be chosen)

- I don't have any health problems
- Diabetes
- Gestational diabetes
- High blood pressure
- Gestational hypertension
- Heart and arterial diseases
- Liver disease
- High cholesterol
- High triglycerides
- Thyroid disorders
- Respiratory problems
- Food allergy
- Identify others

3) What was your weight before pregnancy (kg)?

4) What's your current weight (kg)?

5) What's your height (cm)?

6) Was your weight monitored during pregnancy by the health professional?

- Yes
- No

7) Was the monitoring of your weight during pregnancy carried out routinely by the specialist supervising your pregnancy?

- Yes
- No

8) How many times have you been weighed during your pregnancy until now by the specialist supervising your pregnancy?

9) In which month of pregnancy are you now?

10) Expected date of birth:

10) In what kind of health facility do you monitor your pregnancy?

- Governmental health facility
- A private health facility

11) Is the health facility where you are following your pregnancy close to your place of residence?

- Yes
- No

12) Do you usually encounter any difficulties accessing your health care facility to follow your pregnancy during the pandemic period?

- Never
- Rarely
- Mostly
- Always

13)in your opinion, what difficulties did you encounter in gaining access to your health care facility during the pandemic? (You can choose more than one reason)

- I didn't have any difficulty reaching my health care facility
- Precautionary procedures
- Cancellation of my follow-up appointments by the health facility
- Closing the health facility due to the transformation of the health facility to a quarantine hospital
- Because of my fear of infection with Corona virus
- Others, please specify

Section 3: Pregnant health during the pandemic and the birth outcomes

1) Did you suffer from any health problems during your pregnancy? (More than one choice can be chosen)

- I don't have any health problems
- Diabetes
- Gestational diabetes
- High blood pressure
- Gestational hypertension
- Heart and arterial diseases
- Liver disease
- High cholesterol
- High triglycerides
- Thyroid disorders
- Respiratory problems
- Food allergy
- Identify others

2) In what kind of health facility did you monitor your pregnancy?

- Governmental health facility
- A private health facility

3) Was the health facility where you followed up your pregnancy close to your place of residence?

- Yes
- No

4) Did you encounter any difficulties accessing your health care facility to follow your pregnancy during the pandemic period?

- Never
- Rarely
- Mostly
- Always

5) In your view, what were the difficulties that you encountered in gaining access to your health care facility during the pandemic? (You can choose more than one reason)

- I had no difficulties
- Precautionary procedures
- Cancellation of my follow-up appointments by the health facility
- Closing the health facility due to the transformation of the health facility to a quarantine hospital
- Because of my fear of infection with Corona virus
- Others, please specify

6) What was your weight before pregnancy (kg)?

7) How much weight did you gain during the entire pregnancy (kg)?

8) What's your current weight (kg)?

9) What's your height (cm)?

10) What was the weight of the child at birth?

11) What was the height of the child at birth?

Section - 4: Smoking Habits

This section is for pregnant women

1) In the three months prior to your pregnancy, how many cigarettes did you smoke on the normal day? (Note that the cigarette pack contains 20 cigarettes). More than 40 cigarettes From 20-40 cigarettes Less than 10 cigarettes I haven't smoked	2) Since you became pregnant, how many cigarettes do you smoke on a regular day? (Note that the cigarette pack contains 20 cigarettes). More than 40 cigarettes From 20-40 cigarettes Less than 10 cigarettes I haven't smoked
3) During the three months preceding pregnancy, how often have you used e-cigarettes, or any other electronic nicotine products?	4) Since you became pregnant, how often have you used e-cigarettes, or any other nicotine products?
More than once a day Once a day 2-6 times a week Once a week or less did not use electronic cigarettes or other electronic nicotine products at the time	More than once a day Once a day 2-6 times a week Once a week or less • I did not use electronic cigarettes or other electronic nicotine products at the time
5) During the three months preceding pregnancy, how often have you used the hookah / hookah?	6) Since you became pregnant, how often have you used a hookah / shisha?
More than once a day Once a day 2-6 times a week Once a week or less did not use hookah / shisha at the time	More than once a day Once a day 2-6 times a week Once a week or less did not use hookah / shisha at the time

7) During the period of the new Corona pandemic (Covid-19), was your smoking pattern affected:

- No was not affected
- Yes, it was affected and increased by _____ cigarettes per day
- Yes, it was affected and decreased by _____ cigarettes per day

This section is for postpartum women

1) Please choose one of the phrases below that best describes your smoking now

- I don't smoke at all
- Smoke every now and then, but not every day
- Smoke every day, but less than what you were when you were pregnant
- I smoke every day and the same time I was pregnant
- I smoke every day, and I tend to smoke more now than I was pregnant

2) Did you smoke at all in the week before your baby was born?

• Yes
• No
• I do not remember

3) Have you ever smoked since the birth of your child?
• Yes
• No

4) During the course of the new Corona pandemic (Covid-19), was your smoking pattern affected:
• No was not affected
• Yes, it was affected and increased by _____ cigarettes per day
• Yes, it was affected and decreased by _____ cigarettes per day

Section - 5: Nutritional Status of Pregnant Women

1) Have you made any changes to your regular diet (before pregnancy) specifically for this pregnancy?
- Yes (if the answer is yes, answer the following question)
- No

2) When did you first start making changes to your diet due to pregnancy? (Choose only one option)
- Once I started planning to my pregnancy
- Once I found out I was pregnant
- During pregnancy
- After being diagnosed with other complications of pregnancy
- Other ,please specify_____

3) This change occurred during:
- first three months
- between 3-6 months
- between 6-9 months

Pre-pandemic nutritional habits:

1) How many main meals (breakfast-lunch-dinner) do you eat per day?
- One meal per day
- Two meals a day
- Three meals a day

Post-pandemic nutritional habits:

1. How many main meals (breakfast - lunch - dinner) have you eaten per day?

- One meal per day
- Two meals a day
- Three meals a day

2. Did the corona pandemic affect your food pattern?

- Yes
- No

3. Has the Corona-pandemic affected your eating times throughout the day?

- Yes
- No

4. How did the corona pandemic affect the amount of food you eat per day?

- The amount of food I eat has increased
- I have less food
- not affected

5. Which of the following statements describe changes in your nutritional pattern due to the pandemic of corona? (You can answer more than one choice)

- It does not apply to any of these statements
- The quality of the food I eat has changed worse
- Going to cheaper foods
- Reducing the number of meals because there is not enough food
- Reducing the amount of food eaten due to insufficient food
- Go to easy-to-prepare foods such as sandwiches, French fries,,, etc
- Go to foods that do not require much food when preparing them
- Reducing the intake of vegetables, fruits, meat and dairy products due to lack of financial means

6. Have you increased your consumption of healthy foods and foods with high nutritional value after the pandemic?

- Yes
- No

7. Why did you increase your intake of healthy foods and foods with high nutritional value after the pandemic?

- To be sure to maintain my health and strengthen my immune system
- I am afraid of getting sick
- I have no other choice because of the precautionary measure
- I have to quit for restaurants that serve fast food right now

● other, please specify

8. Which of the following statements do you think it best describes your diet during the Corona pandemic?
●I ate a balanced diet rich in fruits and vegetables, whole grains, and legumes
● I ate an unhealthy diet rich in fats, sugars, sweets and processed meats
● I followed a popular diet that is popular among social interactors
● others, please specify

6) The rate of eating different food groups before and after the pandemic:
Think about the foods you have eaten since you became pregnant.

1. In column 1, please record the estimated number of meals you eat from each food group as an example of a weekly average **during your pregnancy**
2. In column 2, please record the estimated number of meals you eat from each food group as an example of a weekly average **during the pandemic.**

Complete one square per row:
- For the foods you eat most often, complete the box "Daily"
- For foods that you don't normally eat every day, complete the "per week" box.
- Consider all foods eaten, including ingredients added to recipes, eaten in mixed meals, restaurants, or takeaway.
(Examples of one meal are listed in each food group in the middle column.)

Food Group	**Examples of 1 serve**	**Column 1 :Estimated number of serves before the pandemic(fill one box only)**	**Column 2 :Estimated number of serves during the pandemic(fill one box only)**
Bread, cereal, rice, pasta, noodles	• 2 slices of bread • 1 medium bread roll or flat bread • 1 cup porridge, 1 1/3 cup breakfast cereal flakes or ½ cup muesli • 2 crumpets, small English muffins or plain scones • 1 cup cooked rice, pasta, noodles, other grains	____ per day OR ____ per week	____per day OR ____per week
Vegetables	• ½ cup raw or cooked carrots or pumpkin or cruciferous (e.g. broccoli, cauliflower or cabbage) vegetables • 1 cup green leafy vegetables or salad vegetables (raw) • 1 small-medium tomato • 1 small or ½ a	____ per day OR ____ per week	____ per day OR ____ per week

	medium potato or other starchy vegetable e.g. sweet potato, sweet corn or cassava.		
Legumes in all kinds	• A cup of cooked or canned beans, peas, lentils, chickpeas, beans, or lupine •6 pieces of falafel	____ per day OR ____ per week	____ per day OR ____ per week
Fruits	• 1 medium piece (e.g. apple, banana) • 2 small pieces (e.g. apricots, kiwi fruit) • 1 cup diced pieces/canned fruit • ½ cup juice • Dried fruit (e.g. 4 dried apricot halves, 1.5 tablespoons sultanas)	____ per day OR ____ per week	____ per day OR ____ per week
Milk and milk products	1 cup of milk (250 ml) • ½ cup of condensed milk • 2 slices of white cheese the size of a matchbox • 1/4 cup (2 tablespoons) brick • 1 cup of milk (200 g) • 1 cup Custard (250 ml) • 1 cup of soy milk, rice or other cereal drinks fortified with calcium	____ per day OR ____ per week	____ per day OR ____ per week
Meat, fish, poultry, eggs, nuts	• 65 g of cooked meat (beef, veal, meat) •½ cup of minced meat (3 small kofta) or 2 cubes of red meat • 65 g of cooked poultry (such as medium chicken breast) • 65 of cooked fish or a small fish tray • 2 eggs • 1/3cup nuts (such as peanuts and almonds) • ¼cup (such as sunflower and sesame)	____ per day OR ____ per week	____ per day OR ____ per week
Miscellaneous	• 2 Scoop (2 balls) regular ice cream (75 g) • 1 regular cake slice or donut • 2-3 sweet biscuits Small chocolate bar (25 g) • 2 tablespoons of cream	____ per day OR ____ per week	____ per day OR ____ per week

	• 1 teaspoon butter, margarine, oil • 1 can soft drink (375 ml) • 12 potato chips		

Section6: Lifestyle

-Physical Activity:

1) Have you been exercising before pregnancy?

- Yes
- No

2) Has your physical activity changed after pregnancy?

- Yes, it increased
- Yes, it decreased
- No
-

3) What is the reason for changing your physical activity after pregnancy?

- Because of pregnancy
- Because of the pandemic
- Because of pregnancy and pandemic
- Other

4) What kind of exercise did you practice **when you became pregnant and before the pandemic**?

The question	**Never**	**Less than ½ hour / day**	**From ½ hour to 1 hour / day**	**From 1 hour to 2 hours / day**	**From 2 hours to 3 hours / day**	**3 hours or more / day**
What is the extent of your practice of low intensity sports and activities? -Walk slowly and do daily chores, such as vacuuming, washing, and washing dishes. -Dress your children, bath them, and feed them while you are sitting, Play with children while you are sitting or standing. -Sit to read, to chat with someone or to call someone.						
What is the extent of your practice of the moderate-intensity sports and activities?						

- Walk at medium speed, do a home exercise with medium effort, and swim medium speed. - Some household chores that require medium effort, such as cleaning windows and wiping the floor. -Dress your children, bath them, and feed them while you are standing. -Play with children while you are walking or running.						
What is the extent of your practice of the high intensity sports and activities? -Walking at high speed, running, and lifting heavy objects. - Speed bike ride and high speed swimming. - Quick dance.						

5) What kind of sports did you practice **during the pandemic period**?

The question	**Never**	**Less than ½ hour / day**	**From ½ hour to 1 hour / day**	**From 1 hour to 2 hours / day**	**From 2 hours to 3 hours / day**	**3 hours or more / day**
What is the extent of your practice of low intensity sports and activities? -Walk slowly and do daily chores, such as vacuuming, washing, and washing dishes. -Dress your children, bath them, and feed them while you are sitting, Play with children while you are sitting or standing. -Sit to read, to chat with someone or to call someone.						
What is the extent of your practice of the moderate-intensity sports and activities? - Walk at medium speed, do a home exercise with medium effort, and swim medium speed. - Some household chores that require medium effort, such as cleaning windows and wiping the floor. -Dress your children, bath them, and feed them while you are standing. -Play with children while you are walking or running.						

What is the extent of your practice of the high intensity sports and activities? -Walking at high speed, running, and lifting heavy objects. - Speed bike ride and high speed swimming. - Quick dance.						

6) Use of electronic devices and sit for reading

The question	Before pregnancy	Before the pandemic	During the pandemic
Hours of using the cell phone (mobile) daily	Never Less than 1 hour From 1 to 2 hours From 3 to 5 hours More than 5 hours	Never Less than 1 hour From 1 to 2 hours From 3 to 5 hours More than 5 hours	Never Less than 1 hour From 1 to 2 hours From 3 to 5 hours More than 5 hours
Hours of using the computer and other electronic devices daily	Never Less than 1 hour From 1 to 2 hours From 3 to 5 hours More than 5 hours	Never Less than 1 hour From 1 to 2 hours From 3 to 5 hours More than 5 hours	Never Less than 1 hour From 1 to 2 hours From 3 to 5 hours More than 5 hours
Hours of watching television daily	Never Less than 1 hour From 1 to 2 hours From 3 to 5 hours More than 5 hours	Never Less than 1 hour From 1 to 2 hours From 3 to 5 hours More than 5 hours	Never Less than 1 hour From 1 to 2 hours From 3 to 5 hours More than 5 hours
Hours of sitting and reading daily	Never Less than 1 hour From 1 to 2 hours From 3 to 5 hours More than 5 hours	Never Less than 1 hour From 1 to 2 hours From 3 to 5 hours More than 5 hours	Never Less than 1 hour From 1 to 2 hours From 3 to 5 hours More than 5 hours

7) What are the most foods that you eat while sitting on these devices? (You can choose more than one food).

- I never eat food
- Vegetables and fruits
- All kinds of milk, yoghurt, and Eran milk
- Healthy snacks (lupine, popcorn and corn)
- Arabic and Western sweets
- Citrus, chips, and French fries
- Nuts
- Non natural juices and soft drinks
- Coffee, tea, Nescafé and its substitutes
- French fries and fast food
- All kinds of chocolate
- Other

Section7: Psychological situation during the pandemic

1) How many hours do you sleep a day (usually) before a pandemic?

2) How many hours do you sleep a day (usually) during the pandemic?

3) Did you feel sleeplessness, or have trouble sleeping, and cut sleep at least 3 times a week during the pandemic?

- Yes
- No

4) Have you been feeling stressed/tension during the pandemic?

- Yes
- No

5) If you experienced a feeling of stress/tension during the pandemic, what is the reason for this feeling? (More than one choice can be chosen)

- Family problems (with family, spouse, etc.)
- Financial problems
- Social problems (with friends, co-workers, etc.)

- Psychological stress (dissatisfaction with shape or weight)
- Work stress
- Current life conditions and disease prevalence
- I don't know

6) What is your method for overcoming stress? (More than one choice can be chosen)

- Refrain from eating
- Staying alone and isolated from people
- I smoke (cigarettes or shisha)
- Talk to friends, relatives or family
- Sleep
- Going out of the house, or going out with friends
- Doing sports
- Eat or drink
- None of the above
- Other

7) What foods do you eat most during periods of anxiety and stress during the Corona pandemic? (More than one choice can be chosen)

- All kinds of chocolate
- Sweets (like cakes, brownies, donuts, waffles, crepe, ice cream)
- Arabic sweets (Konafa, Mamoul and others)
- Energy drinks and stimulants such as tea and coffee
- Soft drinks
- Fast food (shawarma, burger, pizza)
- French fries
- Healthy snacks (such as popcorn, corn, lupine, chickpeas)
- Chips, biscuits, citrus and salted nuts
- Vegetables and vegetable salads
- Fruits, dried fruits, fruit salad
- I do not eat
- Other

Thank you for participating and we wish you good times!