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### ABSTRACT

#### **Prevalence, Knowledge, Attitude and Management of Diabetic Gastroparesis-Related Symptoms- among Type 2 Diabetes Mellitus Patients in the West Bank: A Preliminary Cross-Sectional Study**

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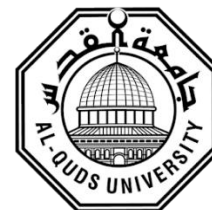
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**Background:** Diabetic Gastroparesis (DGP) is a serious well-known complication, yet with limited studies on its prevalence and management. This study is the first in Palestine aimed to determine the prevalence of DGP, its associated symptoms and possible risk factors.

**Methods:** A preliminary cross sectional study was conducted from February 2020 to June 2021. Simple random sampling was used to select Palestinian adults ( $\geq 18$  years old) with diabetes mellitus type 2; participants were from seven MoH hospitals (with a bed capacity  $>100$ ). We used KoboToolBox, a web-based tool to collect data on: demographic variables, diabetes, smoking status, DGP related questions, and the Gastroparesis Cardinal Symptom Index (GCSI). Face to face interviews were conducted with an informed verbal consent obtained from participants. A total GCSI score  $\geq 1.9$  was set as having DGP symptoms. Possible risk factors were determined by regression analysis. SPSS version 22 was used to conduct the analysis. Approval was obtained from the Al-Quds University Research Ethics Committee.

**Findings:** A total of 1500 participants were included in the analysis; 54% (810) were females. Their mean age was 61.12 years (SD 10.83). Mean diabetes duration was 12.35 years (SD 8.81). Prevalence of clinical symptoms of DGP among type 2 patients was 21%(315). The clinical symptoms of DGP were significantly associated with diabetes duration ( $p= 0.031$ ) and HbA1c



( $p=0.001$ ). We did a descriptive analysis of participants with GCSI score  $\geq 1.9$  (315) which revealed that 60% (189) of patients visited the doctor at least once complaining of DGP symptoms, but only 1.9 % (6) were diagnosed. We found that stomach fullness, nausea, and early satiety were the most common (95.6%, 91.8% and 91.2% respectively). The most initial and bothersome symptoms were nausea and bloating. There was a significant relationship between the GCSI score and fluid intake ( $p=0.013$ ), but no association with smoking ( $p=0.18$ ). Based on the logistic regression model, the presence of at least one cardinal symptom was more likely among obese females with longer disease duration and poor glycemic control.

**Interpretations:** Up to our knowledge, This is the first study in Palestine to tackle gastroparesis and assess its prevalence which found to be high in relation to actual percentage of diagnosed patients. Underdiagnosis of DGP isn't merely because of the unavailability of the standard diagnostic methods, as overlooking of gastrointestinal complaints in diabetic patients plays a major role. It's rationale to adopt a step-wise approach using GCSI for screening before moving to more advanced diagnostic methods. Two major limitations we encountered were: (1) the unforeseen pandemic, limiting our accessibility, which stretched the data collection period, and (2) the inexistence of the Arabic version of GCSI; we addressed this by generating a validated Arabic version, using the Clinical Outcome Assessment (COA) guideline provided by Mapi Research Trust. This study results is the first step for further research needed to deepen the understanding of DGP in the Palestinian healthcare context.

**Research Keywords:** Diabetic Gastroparesis (DGP), diabetes mellitus type 2, Gastroparesis Cardinal Symptom Index (GCSI).