

SPECIMEN FORMAT FOR THESES OF MONTH

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Department : Food Service Management and Dietetics

Branch/ Area: : Home Science

Sub Subject Heading: : Food Service Management and Dietetics

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Title of the thesis : Development and Optimisation of a Sustainable Standard Operating Protocol for Medical Nutrition Therapy to Improve Maternal and Foetal Outcomes among Gestational Diabetes Mellitus Women

(i) In Roman Script -

(ii) In roman Script -

Nomenclature of Degree: : Doctor of Philosophy in Food Service Management and Dietetics

Month & Year of Enrolment: : July, 2018

Month & Year of Registration: : July, 2018

Month & Year of Submission: : May, 2024

Month & Year of Award : January, 2025

Name of Supervisor : Dr. S. Uma Mageshwari

Designation of Supervisor : Professor

Centre/department/school in which research was conducted : Department of Food Service Management and Dietetics

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Abstract within 300 words: Gestational Diabetes Mellitus (GDM) is emerging as a global health concern posing risks for adverse maternal and foetal outcomes. The objective of this study was to identify the lacunae in the current practices and protocols in GDM, develop a sustainable standard operating protocol for Medical Nutrition Therapy (MNT) in GDM and evaluate its impact on maternal and foetal outcomes. Two hundred healthcare professionals (HCPs) comprising doctors, dietitians and allied healthcare professionals and 160 pregnant women were purposively selected based on inclusion and exclusion criteria. Background information, perception of GDM, current medical and MNT practices for GDM were collected. The results showed variations among HCPs in their perception and existing practices for GDM. In Phase 2, development, optimisation and validation of a SSOP was done. In Phase 3, a mobile application was developed for the SSOP. In Phase 4, the SSOP implementation was done in 364 pregnant women purposively recruited based on inclusion and exclusion criteria. Participants underwent GDM risk screening and were identified as GDM high risk, average risk and low risk women. Women who expressed willingness to participate constituted the experimental group and others the control group. The SSOP based MNT was carried out in the experimental group while the control group followed existing MNT practices until delivery. Phase 4 demonstrated significant reduction in GDM from 33.7 percent in experimental group compared to 50.7 percent in control group. Experimental group achieved adequate gestational weight gain by 43.8 percent than 32.2 percent in control group. Adverse maternal and foetal outcomes were significantly lower in experimental group with 10.2 percent and 30.3 percent respectively in contrast to 18.9 percent and 50 percent in control group. The SSOP based MNT can be a very robust tool not only for better MNT practice but also for prevention of GDM.

i) Major objectives:

- (i) Develop and optimise a Sustainable Standard Operating Protocol (SSOP) for Medical Nutrition Therapy (MNT) for GDM management
- (ii) Evaluate the maternal and foetal outcomes on implementation of the SSOP among selected pregnant women

ii) Hypothesis:

Null Hypothesis (H₀)

- ❖ There is no significant difference in the maternal and foetal outcomes with a protocol-based MNT compared to the existing MNT practices for GDM in the selected hospital.

Alternate Hypothesis (H1)

- ❖ There is a significant difference in the maternal and foetal outcomes with a protocol-based MNT compared to the existing MNT practices for GDM in the selected hospital.

iii) Methodology:

Phase 1 - A sample of 200 healthcare professionals (HCPs) comprising doctors, dietitians and other allied healthcare professionals and 160 pregnant women (106 GDM women and 54 Non-GDM women) were purposively selected based on specific inclusion and exclusion criteria. HCPs provided details such as background information, perception of GDM, views on protocols, preventive measures, as well as current medical treatment and MNT practices for GDM management. Meanwhile, pregnant women contributed details on their background, medical treatment received, MNT service received. In Phase 2, the development, optimisation and validation of a SSOP was done by implementing on a sample of ten pregnant women. In Phase 3, a mobile application was developed to facilitate the implementation of the SSOP based MNT among HCPs thereby simplifying its integration. In Phase 4, the SSOP implementation was done with 364 pregnant women purposively recruited based on a predefined inclusion and exclusion criteria. At first antenatal visit the participants underwent GDM risk screening and were identified as GDM high risk, average risk and low risk women. Women who expressed willingness to participate throughout their gestational period constituted the experimental group, while the remaining participants formed the control group. The SSOP based MNT implementation was carried out until delivery for all participants in the experimental group while the control group adhered to the existing MNT practices until delivery.

iv) Findings:

The results of Phase 1 revealed notable variations among HCPs in their perception of GDM revealing the existence of potential differences in the management of GDM among the HCPs themselves.. Furthermore, differences were observed in the current medical treatment and MNT practices for GDM in hospitals compared to the national guidelines. In Phase 2, the developed App achieved acceptable validity and found to be optimum for use. In Phase 3, the mobile app achieved high acceptable in terms of its usability. In Phase 4, all participants underwent GDM risk screening and were identified as GDM high risk, average risk and low risk women. There was significant reduction in the occurrence of GDM, with rates dropping to 33.7 percent in experimental group compared to 50.7 percent in control group. Also, 43.8 percent in experimental group achieved

adequate gestational weight gain compared to 32.2 in control group and the mean post prandial blood glucose levels were more effectively controlled with 106.77 ± 15.10 mg/dl in experimental group compared to 114.96 ± 20.60 mg/dl in control group. Lastly, adverse maternal and foetal outcomes were greatly reduced in experimental group with rates of 10.2 percent and 30.3 percent respectively in contrast to 18.9 percent and 50 percent in the control group. Perineal tear was observed in 15.1 percent in control group compared to 8.4 percent in the experimental group. Neonatal hyperbilirubinemia and hypernatraemia were significantly higher with 17.2 percent and 10.2 percent in the new borns of pregnant women in control group compared to 10.1 percent and 2.8 percent in new borns of pregnant women in the experimental group respectively.

Examiners

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