

ORIGINAL

Professional development process on metabolic syndrome in pregnancy aimed at specialists in Family Medicine

Proceso de superación profesional sobre síndrome metabólico en la gestación dirigido especialistas en Medicina Familiar

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ABSTRACT

Introduction: solving the health problems affecting the population is a starting point for the design of professional development.

Objective: to develop a strategy for professional development on metabolic syndrome in pregnancy that will enable the efficient performance of family medicine specialists (FMS) certified or not in prenatal care at the “Hermanos Cruz” teaching polyclinic in Pinar del Río.

Development: the research is based on the Dialectical Materialist approach which allowed for a deeper knowledge of the process and its interrelations in the historical social conditions of postgraduate education in Family Medicine, revealing its main contradictions, selecting, justifying and integrating theoretical, empirical and statistical methods, as well as addressing postulates of parameterization theory, in order to apply them in an integrated and consistent manner to the research. From an ethical point of view, this research respected the ethical principles set out in the Declaration of Helsinki.

Conclusions: the contextualized strategy fulfills the aims of achieving efficient performance in the management of maternal and child indicators and the constant improvement in the postgraduate training of specialists in Family Medicine at the Hermanos Cruz teaching polyclinic in Pinar del Río.

Keywords: Strategy; Professional Development; Metabolic Syndrome.

RESUMEN

Introducción: la solución de los problemas de salud que afectan a la población constituye un punto de partida para el diseño de la superación profesional

Objetivo: elaborar una estrategia de superación profesional sobre síndrome metabólico en la gestación que permita un desempeño eficiente de los especialistas en Medicina Familiar (MF) certificados o no en atención prenatal del policlínico docente “Hermanos Cruz” de Pinar del Río.

Desarrollo: la investigación se sustenta en el enfoque Dialéctico Materialista que permitió profundizar en el conocimiento del proceso y sus interrelaciones en las condiciones históricas sociales de la educación de

postgrado en el especialista en Medicina Familiar , revelar sus principales contradicciones, seleccionar, fundamentar e integrar los métodos teóricos, empíricos y estadísticos, además de atender postulados de la teoría de parametrización, para aplicarlos de manera integrada y consecuentemente a la investigación. Desde el punto de vista ético esta investigación respetó los fundamentos de la ética que aparecen en la Declaración de Helsinki.

Conclusiones: en la estrategia contextualizada, se concretan los propósitos de lograr un desempeño eficiente en el manejo de los indicadores maternos infantil y la superación constante en el posgrado de los especialistas en Medicina Familiar del policlínico docente Hermanos Cruz de Pinar del Río.

Palabras clave: Estrategia; Superación Profesional; Síndrome Metabólico.

INTRODUCTION

The solution to the health problems affecting the population is a starting point for professional development design. This process enables the continuous updating, expansion, and improvement of the knowledge, fundamental skills, and specialized skills of professionals working at the Primary Health Care (PHC) level.^(1,2,3,4,5,6,7)

Metabolic syndrome (MS) is a risk factor for multiple cardiovascular and metabolic diseases. The pathogenesis of MS is complex and involves genetic and environmental factors, which influence adipose tissue and innate immunity.^(4,5,6)

Recognition of this syndrome during pregnancy could help identify a subgroup of women who not only may develop complications during pregnancy but also potentially have an increased risk of metabolic and cardiovascular conditions throughout their lives.⁽⁸⁾

Pregnant women with MS are at increased risk of morbidity and mortality from cardiovascular disease and type 2 diabetes mellitus. If this syndrome is detected early, significant changes can be made in the medical management of the pregnancy from the outset to prevent associated maternal and fetal complications. It would thus contribute as a useful diagnostic tool for all pregnant women attending prenatal check-ups and even preconception consultations for routine diagnosis and recommending treatment.^(8,9,10,11,12,13)

In Cuba, where PHC is a priority, a system of continuous professional development guarantees the quality of health service. From this perspective, improving primary health care is often identified with training and development.⁽⁷⁾

In this context, raising the quality of comprehensive training for health professionals in PHC is a challenge that redefines professional development in priority areas for this level of care, such as the recognition of metabolic syndrome during pregnancy.

The research aims to develop a strategy for professional development on metabolic syndrome in pregnancy that allows for the efficient performance of Family Medicine specialists (FM), whether or not they are certified in prenatal care, at the “Hermanos Cruz” teaching polyclinic in Pinar del Río.

DEVELOPMENT

The research is based on the dialectical materialist approach, which allowed for a deeper understanding of the process and its interrelationships in the historical and social conditions of postgraduate education in FM, revealing its main contradictions, selecting, substantiating, and integrating theoretical, empirical, and statistical methods, as well as addressing postulates of parameterization theory, to apply them in an integrated and consistent manner to the research.

The experts' criteria were used to assess the feasibility of the scientific results obtained and for the information processing using the statistical package SPSS, which is supported by triangulation as a technique that allows it to be contrasted and interpreted.

The triangulation technique: a methodological one was used to determine the coincidences and discrepancies in the information obtained through the instruments applied.

This research respected the ethical principles set out in the Declaration of Helsinki.

Structure of the professional development strategy on metabolic syndrome in pregnancy.

The proposed contextualized strategy adheres to the criteria of Maribel Sandino⁽⁷⁾ and Hidalgo Mederos R⁽¹⁴⁾ and consists of four stages:

1- Diagnosis-awareness stage

Objectives:

1. To socialize the Strategy for Professional Improvement on MS in pregnancy with the authorities and groups of teachers.
2. To design the procedure for diagnosing the professional problems detected.

3. To analyze the results of the instruments that make it possible to identify the problems and potentialities in the professional performance of the specialist in FM on MS, used as a research sample.

The actions in this stage include:

1. Application of a questionnaire on metabolic syndrome in pregnancy to measure the level of knowledge on the subject of improvement proposed in the basic or teaching group meetings for the socialization of the research.
2. Development of a workshop to assess the awareness and commitment of family medicine specialists to working with pregnant women at high obstetric risk through group discussion of topics such as the prevention of MS in pregnancy, its diagnosis in pregnancy detection, the identification of metabolic risk factors, and the articulation of MS content with the pillars of treatment established by the protocols of action.

2- Planning Stage

Specific objectives:

1. Select the forms of improvement to be used in the contextualized professional improvement strategy for FM specialists.
2. Didactically design the forms of improvement determined.
3. Develop evaluation instruments to monitor the contextualized professional improvement strategy.

This stage is related to the curricular design of the proposed professional development programs. Part of it is aimed at guiding them through the alternatives available to them: workshops, training, and coaching. All of them respond to the needs and potential revealed in the entry questionnaire.

The updated bibliography is displayed in a folder on the teaching and center computer departments' computers.

In this planning stage, the following actions are carried out:

1. Identify the content to be incorporated into the permanent and continuous training process.
2. Selection of the forms of improvement of the contextualized Professional Improvement Strategy.
3. Didactic structuring of the programs of the selected organizational forms.
4. Design a systematic evaluation system for each form of organization of the permanent and continuous training process for FM specialists.

General considerations for the selection of contents to be addressed in each proposed form of improvement

Normal pregnancy is accompanied by physiological changes, including increased blood volume and cardiac output, a tendency to hypercoagulability, and insulin resistance after the 20th week. However, these can interact with emerging risk factors to trigger health problems during pregnancy related to endocrine and immunological phenomena, with increased oxidative stress, endothelial dysfunction, and abnormalities in autonomic regulation.^(9,10,11,12,13)

Currently, attention has focused on high body mass index (BMI), metabolic syndrome (MS), abnormal increase in insulin levels, and insulin resistance as strong predictors of cardiovascular risk in pregnant women.^(8,13)

The definition of MS varies according to different international consensus; so far, four groups have proposed diagnostic criteria: the World Health Organization (WHO), the European Group for Insulin Resistance (EGIR), the National Cholesterol Education Program Adult Treatment Panel III (NCEP ATP) and the International Diabetes Federation (IDF), as well as some suggestions included by the American Heart Association/National Heart Lung and Blood Institute (AHA/ NHLBI) and the International Diabetes Federation (IDF).^(8,13)

The IDF and NCEP ATP consensus statements are the most widely used, requiring at least 3 of the following five criteria in women: Central obesity (abdominal circumference > 88 cm), elevated triglycerides (> 150 mg/dL [1,7 mmol/L]), low HDLc (< 50 mg/dL [1,29 mmol/L]), high blood pressure (> 130/85 mmHg) and basal hyperglycemia (> 110 mg/dL [5,6 mmol/L]).^(8,14,15,16,17,18)

3- Implementation stage

Objective: to implement the professional development strategy contextualized according to the selected forms of organization that allow an efficient performance of the family doctor in the transformation of the reality of the maternal and child indicators of the health area of the "Hermanos Cruz" teaching polyclinic in Pinar del Río.

The following actions are identified:

1. The implementation of strategic actions in the teaching setting.
2. Work by groups of teachers to deliver programs in the selected organizational forms.
3. Presentation of postgraduate programs to the scientific council of the polyclinic and the Faculty

of Medical Sciences.

4. Implementation of selected forms of organization of the improvement process.

4- Evaluation stage

Objective: to evaluate the results of applying the professional development strategy on metabolic syndrome in pregnancy.

The following actions are identified:

1. Determination of the indicators to be measured in all evaluative activity in the contextualized Professional Development Strategy.
2. Planning of the different evaluation instruments (oral and theoretical-practical) to measure the changes in the FM specialist's professional performance and the process of executing the contextualized professional improvement strategy.
3. Apply the evaluation instruments to assess professional performance and the viability of the contextualized improvement strategy.
4. Systematic evaluation of the development of the proposed actions.
5. Evaluation of the improvement in the professional performance of the FM specialist and the process of implementing the contextualized Professional Improvement Strategy.
6. Application of a final theoretical and practical evaluation instrument to FM specialists once the strategy is implemented.



Figure 1. Modeling of the Professional Improvement Strategy for metabolic syndrome in pregnancy

CONCLUSIONS

In the contextualized strategy, the aims of achieving efficient performance in managing maternal and child indicators and the constant improvement in the postgraduate training of specialists in Family Medicine at the Hermanos Cruz Teaching Polyclinic in Pinar del Río are specified. The application of the expert criterion method for the theoretical evaluation of the contextualized strategy demonstrated the feasibility of this proposal. It confirmed that it is a novel product applicable to the polyclinic.

BIBLIOGRAPHICAL REFERENCES

1. Ulloa Alfonso A. Superación profesional en la atención primaria de salud [Tesis Doctoral]. La Habana: Editorial Universitaria; 2017[citada 31/1/2023]. Disponible en: <https://tesis.reduniv.edu.cu/fetch.php?data=1684&type=pdf&id=1689&db=1>
2. Sánchez Rodríguez Y, Herrera Miranda G L, Páez Bejerano L R, García Seruto M, Carmona Domínguez D.

Regularidades del proceso de superación profesional. Educ Med Super [Internet]. 2018 Jun [citado 2023 Ago 13]; 32(2). Disponible en: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0864-21412018000200015&lng=es

3. Vázquez Fernández ME, Sanz Almazán M, García Sanz S, Berciano Villalibre C, Alfaro González M, del Río López A. Intervención educativa en atención primaria para reducir y mejorar la adecuación de las consultas pediátricas. Rev. Esp. Salud Publica [Internet]. 2019 [citado 2023 Nov 29]; 93: e201901003. Disponible en: http://scielo.isciii.es/scielo.php?script=sci_arttext&pid=S1135-57272019000100074&lng=es. Epub 07-Sep-2020.

4. Marin Muñoz MA. Determining the cost-benefit ratio of financial advice in the implementation of sustainable practices in the cultivation of turmeric long. Environmental Research and Ecotoxicity. 2022; 1:13. <https://doi.org/10.56294/ere202213>

5. Shi Y, Zou Y, Shen Z, Xiong Y, Zhang W, Liu C, Chen S. Trace Elements, PPARs, and Metabolic Syndrome. International Journal of Molecular Sciences. 2020; 21(7):2612. DOI: <https://doi.org/10.3390/ijms21072612>

6. Chait A, den Hartigh LJ. Adipose Tissue Distribution, Inflammation and Its Metabolic Consequences, Including Diabetes and Cardiovascular Disease. Front Cardiovasc Med. 2020 Feb 25;7:22. DOI: <https://doi.org/10.3389/fcvm.2020.00022>

7. Calla Fuentes MFZ. Adaptive Architecture: Architectural Projects in Peru's Diverse Climates. Land and Architecture. 2022; 1:10. <https://doi.org/10.56294/la202210>

8. Gorostide M, Gijón-Conde T, de la Sierra A, Rodilla E, Rubio E, Vinyoles E. Guía práctica sobre el diagnóstico y tratamiento de la hipertensión arterial en España, 2022. Sociedad Española de Hipertensión-Liga Española para la Lucha contra la Hipertensión Arterial (SEH-LELHA). Hipertensión y riesgo cardiovascular. 2022; 39(1): 174-194. DOI: <https://doi.org/10.1016/j.hipert.2022.09.002>

9. Prakash A, Khusru Akhtar A. A hybrid environmental multi-objective optimization algorithm for eco-friendly vehicle routing in smart cities. Land and Architecture. 2025; 4:151. <https://doi.org/10.56294/la2025151>

10. Sandrino Sánchez M, Hernández Rodríguez IM, Pérez Martín MM, Ordoñez Álvarez LY, Valdés Rocubert LE, Hernández Bravo BC. Estrategia de superación profesional sobre fibrilación auricular contextualizada en la Atención Primaria de Salud Rev Ciencias Médicas [Internet]. 2021 [citado 2023 Ago 13] 25(5): e5157. Disponible en: <http://revcmpinar.sld.cu/index.php/publicaciones/article/view/5157>

11. Yépez MC, Zeppenfel ME, Colón JA, Zimmer E. Síndrome metabólico durante el embarazo: Complicaciones materno-fetales. Rev Obstet Ginecol Venez [Internet]. 2011 Jun. [citado 2023 Ago 13]; 71(2):77-87. Disponible en: http://VE.scielo.org/scielo.php?script=sci_arttext&pid=S0048-77322011000200002&lng=es

12. Suárez González JA, Gutiérrez Machado M. Caracterización del riesgo cardiometabólico en mujeres de edad mediana con antecedentes de preeclampsia en la última década. CorSalud [Internet]. 2019 [citado 6 Ene 2023]; 11(1):30-6. Disponible en: <http://www.revcorsalud.sld.cu/index.php/cors/article/view/407>

13. Almirón Cuentas JA, Bernedo-Moreira DH. Bioclimatic Design in Modern Architecture: Towards a Greener, More Resilient Future. Environmental Research and Ecotoxicity. 2024; 3:103. <https://doi.org/10.56294/ere2024103>

14. López-Fuenzalida A, Illanes Aguilar L, Rodríguez Canales C, Contreras-Briceño F, Durán-Agüero S, Herrera-Valenzuela T, et al. Riesgo cardiometabólico y variación en el contenido graso/adiposo según el índice de masa corporal en niños de seis a nueve años. Nutr Hosp. [Internet] 2019 [citado 2023 Ago 13]; 36(2):379-86. [DOI]

15. Valdés G. Preeclampsia y enfermedad cardiovascular: un enfoque integral para detectar las fases subclínicas de complicaciones obstétricas y cardiovaskulares. Rev Chil Cardiol. 2019 [Internet]. [citado 2023 Ago 13]; 38(2):132-45. [DOI]

16. Pilatasig Pérez, L. F., Rojas Sánchez, G. F., Posso Legarreta, H., & Cuamacás Enríquez, J. M. (2021). Cambios metabólicos en embarazadas con y sin obesidad o sobrepeso en el Centro de Salud N° 4 de Chimbacalle. RECI-MUNDO [Internet]. 2021 [citado 2023 Ago 13], 5(Especial 1), 52-64. Disponible en: <https://doi.org/10.56294/mw2025226>

doi.org/10.26820/recimundo/5.(esp.1).nov.2021.52-64

17. Villarreal-Pérez, R.-E., Olarte-Rueda, G..., & Quintero-Trujillo, M.-M. . Efecto de una intervención educativa sobre la técnica de autoadministración de insulina para prevenir lipohipertrofias. Revista Colombiana De Enfermería (2022). [citado 2023 Ago 13],, 21(2), e043. Recuperado a partir de <https://revistas.unbosque.edu.co/index.php/RCE/article/view/3739>

18. Hidalgo Mederos R, Valcárcel Izquierdo N, Menéndez González M, Arenas Gutiérrez R, Rabí Benavides RM, Álvarez Márquez R. Estrategia de Superación Profesional sobre cocientes enzimáticos como medio diagnóstico del daño hepático. Revista Cubana de Tecnología de la Salud [Internet]. 2019 [citado 10/2/2024]; 10(2): [aprox. 12 p.]. Disponible en: <http://www.revtecnologia.sld.cu/index.php/tec/article/view/1467>

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The authors declare that there are no conflicts of interest.

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