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SHORT RESEARCH COMMUNICATION | COVID MCH RESEARCH AGENDA

Using Nominal Group Technique to Elucidate a COVID-19 Research Agenda for Maternal and Child Health (MCH) Populations

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ABSTRACT

As the global impact of the COVID-19 pandemic continues to evolve, robust data describing its effect on maternal and child health (MCH) remains limited. The aim of this study was to elucidate an agenda for COVID-19 research with particular focus on its impact within MCH populations. This was achieved using the Nominal Group Technique through which researchers identified and ranked 12 research topics across various disciplines relating to MCH in the setting of COVID-19. Proposed research topics included vaccine development, genomics, and artificial intelligence among others. The proposed research priorities could serve as a template for a vigorous COVID-19 research agenda by the NIH and other national funding agencies in the US.

Key words: • COVID-19 • Coronavirus • Pandemics • Maternal and child health • MCH • Big data • Artificial intelligence

1. Introduction

As an emerging infectious disease with major global impact, COVID-19 has resulted in unprecedented morbidity and mortality outcomes worldwide. Studies on the nature, scope, and dynamics of the disease, including pathophysiology, mode of transmission, clinical presentation, and epidemiological characterizations, are continuously published from around the world.[1] However, the majority of current COVID-19 related research focuses primarily on the general population risk groups, and comparatively, too few COVID-19 related research studies have been dedicated to the maternal and child health (MCH) population, a highly vulnerable group. There is a paucity of evidence-based and rigorously conducted published research in the MCH population. We sought to define a robust and high-impact research agenda to address the dearth of information for MCH in the era of the COVID-19 pandemic using Nominal

Group Technique (NGT) technique as previously described by Gallagher et al.[2]

2. Methods

NGT is a structured procedure for generating ideas that are then discussed and ranked by encouraging participation in a group setting.[2] Our group of interest was comprised of five individuals with over 50 years of combined clinical and research expertise in public health, health equity, statistical analysis, obstetrics and gynecology, and maternal and child health. After a discussion on the current literature on COVD-19 and MCH, each member contributed ideas to develop a list of potential research agenda items. Once the list was established, the ideas were assigned a score by each member of the group based on the perceived importance weights. The scores ranged on a scale of 1 - 10 with 1 being of least importance and 10 corresponding with utmost importance. We then calculated a composite score for each topic and ranked them in order of descending magnitude from highest to least as a measure of their presumed significance as part of an MCH research agenda.

3. Results

Based on NGT, the team came up with an initial list of 12 ideas that would contribute to an overall research agenda based on contemporary COVID-19 issues. Figure 1 illustrates these ideas and their respective composite scores. "Impact of social determinants of health on maternal and child health outcomes" scored the highest with a composite score of 50 out of a maximum score of 50. In contrast, the lowest scoring research agenda idea was "Modelling studies for the theoretical risk on MCH" with a composite score of 31. All other proposed ideas had scores ranging between 35.5 and 48.5.

4. Discussion and Global Health Implications

We recognize the gravitas of the COVID-19 pandemic and find it imperative that data focused on MCH be added to the existing literature. The research agenda presented here represent a multidisciplinary approach to maternal and child health that is key to enhanced understanding of the COVID-19 pandemic. By evaluating the social determinants of health, health disparities, and psychosocial effects of the pandemic, there is hope to develop interventions that address and improve social and economic facets of healthcare. Vaccine development, clinical trials, microbiome studies, and data gathered in genomics and epigenomic studies will add to the ever-evolving realm of precision medicine in which it is imperative to include pregnant women, a population historically excluded in research studies.[3]

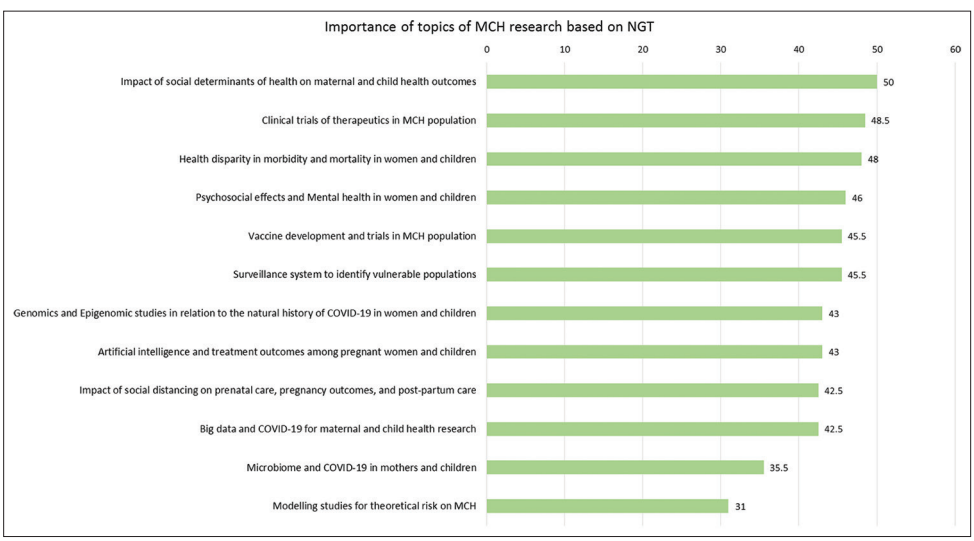

Figure 1: Importance of topics of MCH research based on NGT (Maximum score = 50)

Finally, the use of artificial intelligence, Big Data, and modeling studies that have previously been useful in predicting outcomes in a variety of settings [4] may be extended to MCH such that potential outcomes can be anticipated and addressed proactively. A number of federal agencies such as the Centers for Disease Control and Prevention (CDC), National Institutes of Health (NIH), Health Resources and Services Administration (HRSA), and Agency for Healthcare Research and Quality (AHRQ) could serve as catalysts to promote studies in matters of public health, of which COVID-19 is no exception. With departments committed to vaccine development, mental health, Medicaid funding, and developments in the delivery of healthcare, among others, these agencies have been instrumental in progress made in addressing past disease outbreaks and can continue to do so as we march toward overcoming COVID-19 pandemic.

Compliance with Ethical Standards

Conflicts of Interest: *The authors have no conflict of interest to report.* ***Financial Disclosure:*** *The authors have no financial disclosures to report.* ***Funding/ Support:*** *The publication of this article was partially supported by the Global Health and Education Projects, Inc. (GHEP) through the Emerging Scholars Grant Program (ESGP). The information, contents, and conclusions are those of the authors' and should not be construed as the official position or policy of, nor should any endorsements be inferred by ESGP or GHEP.* ***Ethics Approval:*** *None required.*

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Key Messages

- Maternal and child health (MCH) populations are a vulnerable group often excluded from robust research studies.
- There is a paucity of COVID-19 research related to and focused on MCH populations
- Social determinants of health, inclusive clinical trials, and the role of health disparities may serve as some of the most relevant correlates in relation to MCH and COVID-19.
- Nominal Group Technique is an effective method for developing a multifactorial research agenda.