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SOCIO-BEHAVIORAL BARRIERS AND OPPORTUNITIES IN LEVERAGING PATRONAGE NURSE SERVICES AND PLAY-BASED LEARNING FOR OPTIMAL EARLY CHILDHOOD DEVELOPMENT

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(Original scientific paper)

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Abstract

This mixed-methods study in North Macedonia explored barriers to patronage service uptake among parents and pregnant women, aiming to enhance demand and support playful learning for optimal early childhood development. Utilizing face-to-face interviews with a multistage stratified sample of 1,100 respondents (pregnant women and parents of children aged 0–5) across urban (61%) and rural (39%) areas, and six focus groups, the research examined needs, expectations, and experiences related to patronage services. The sample, stratified by region, ethnicity, and settlement type, comprised 92% female and 8% male respondents, with 55% aged 25–34 and 13% aged 18–24. Findings reveal high awareness of patronage nurses' roles (90%), but lower knowledge among younger respondents (30%), Roma (30%), rural residents (58%), and socially disadvantaged groups (70%), particularly regarding access points and services without health insurance. Respondents primarily consult gynecologists (70%) and family (54.4%) for newborn care, with minimal reliance on social media (<3%). Qualitative data highlight trust in pediatricians (91%) and family, especially among ethnic Albanians and Roma, but note patronage nurses rarely address parental mental health, positive parenting, or playful learning (10% coverage). Systemic barriers, including low awareness, misconceptions about service coordination, and inadequate coverage during pregnancy, disproportionately affect vulnerable groups, limiting demand. These barriers hinder guidance on playful learning, critical for cognitive and socio-emotional development. Recommendations include multilingual campaigns, centralized access platforms, clarified coordination protocols, targeted outreach for vulnerable populations, and integrating playful learning education into nurse training to address time-constrained parents' needs. Enhancing patronage services can boost uptake, reduce developmental risks, and align with Sustainable Development Goal 3, fostering equitable child development outcomes.

Key words: *Patronage nurse, home visiting services, maternal and child health, playful learning, health equity, primary health care*

Introduction

The WHO Nurturing Care for Early Childhood Development - a framework for helping children survive and thrive to transform health and human potential (WHO, 2018) states that "investing in early childhood development (ECD) is good for everyone – governments, businesses, communities, parents and caregivers, and most of all, babies and young children". And investing in ECD is cost effective: for every $1 spent on early childhood development interventions, the return on investment can be as high as $13 (ibid). Early childhood development is also key to upholding the right of every child to survive and thrive. The period from pregnancy to the age of 3 years is the most critical period since the growth and the development of the brain is fastest in this period compared to the entire life course of the individual.

A stable caregiving environment supports children's health and nutritional needs, mitigates exposure to adverse experiences, and facilitates early learning through emotionally attuned, responsive interactions (Shonkoff et al., 2012). These interactions enhance neural development, strengthen attachment security, and build foundational cognitive and socio-emotional skills (Ainsworth et al., 1978; NICHD Early Child Care Research Network, 2006). Home visitation programs, such as those delivered by patronage nurses,

play a pivotal role in this ecosystem (Olds et al. 2007). These professionals address not only maternal and infant health but also broader social determinants of health, including socioeconomic stressors and family dynamics, thereby amplifying the impact of early interventions (Avellar & Supplee, 2013).

The consequences of insufficient investment in ECD are profound, with significant long-term economic, social, and health implications (Heckman, 2006; Shonkoff et al., 2012). Neuroscientific and developmental research establishes that the period from birth to age five is a critical window for brain development, characterized by rapid synaptogenesis and neural plasticity (Black et al., 2017). Inadequate access to quality education, nutrition, healthcare, and nurturing environments during this phase can impair cognitive, socio-emotional, and physical development, leading to irreversible deficits (Grantham-McGregor et al., 2007). Economically, these deficits manifest as reduced lifetime earnings, diminished workforce productivity, and increased healthcare and social welfare expenditures (Heckman, 2006; World Bank, 2018). Societally, they contribute to entrenched inequities and lost human potential (Grantham-McGregor et al., 2007; World Bank, 2018).

Quantitatively, the World Bank estimates that 250 million children under five in low- and middle-income countries are at risk of failing to achieve their developmental potential, resulting in economic losses of up to 26% of GDP in affected regions due to stunted growth and compromised human capital (World Bank, 2018). Similarly, UNICEF projects that neglecting ECD could lead to a global economic output loss of $3.7 trillion by 2030 (UNICEF, 2016). These data underscore the urgent need for evidence-based interventions to mitigate the multifaceted costs of inaction.

Playful learning in childhood is particularly important because it engages children's natural curiosity, making education enjoyable and effective (Yogman et al., 2018). It fosters creativity, problem-solving, and critical thinking by allowing kids to explore concepts through hands-on, interactive experiences (Hirsh-Pasek et al., 2009; Pyle et al., 2017). This approach builds social-emotional skills like collaboration and resilience, as children learn to navigate challenges in a safe, fun environment (Pyle et al., 2017; Zosh et al., 2018). Research shows playful learning enhances memory retention and motivation, leading to deeper understanding and long-term academic success (Hirsh-Pasek et al., 2009). It also supports physical development and reduces stress, creating a holistic foundation for lifelong learning (Whitebread et al., 2012; Zosh et al., 2018).

However, modern life presents significant challenges for parents in engaging with their children, highlighting the critical role of patronage nurses in shifting this paradigm (Olds et al., 2007; Avellar & Supplee, 2013). Time constraints due to demanding work schedules, household responsibilities, and other commitments can substantially limit opportunities for interactive and playful learning between parents and children (Milkie et al., 2015; Wright et al., 2023). The scarcity of parental time often diminishes the frequency and quality of these interactions, potentially compromising developmental outcomes and increasing stress levels for both parents and children (Shonkoff & Fisher, 2013).

Methods

The main objective of the study is to comprehensively explore the needs, barriers, expectations, and experiences of end users—parents, caregivers, families, and communities—regarding patronage services in North Macedonia, with a strategic focus on identifying and addressing the underlying factors contributing to low demand form parents. By employing a mixed-methods approach, the study sought to generate actionable insights to enhance service uptake and support playful learning for optimal early childhood development.

The research utilized a robust mixed-methods design, combining quantitative and qualitative approaches to ensure a comprehensive understanding of the target population's perspectives. Face-to-face interviews were conducted with a multistage stratified sample of 1,100 respondents from the target population, including pregnant women and parents of children aged 0–5 years. The sample was proportionally distributed across urban and rural households in eight statistical regions of North Macedonia, stratified based on State Statistical Office (SSO) data on live births over the past five years, accounting for region, settlement type, municipality, and parental ethnicity to ensure representativeness.

Additionally, six focus group discussions were conducted to explore in-depth perspectives and contextual nuances. These groups engaged specific segments of the target population—pregnant women, parents of newborns, and parents of children aged 0–5 years—facilitating a detailed examination of attitudes, barriers, and opportunities related to patronage services and their role in early childhood development.

The data was not subjected to statistical significance testing due to the exploratory nature of the study. This approach was intentionally chosen to facilitate the formulation of informed recommendations for policy and decision-making.

Results

The gender distribution of respondents was 8% male and 92% female, reflecting the primary

caregiving roles within the target population. The age distribution includes 13% respondents aged 18–24 years, 55% aged 25–34 years, 30% aged 35–44 years and only 2% aged 45 years and older.61% of the respondents are residents of urban areas, while 39% are residents of rural areas. This demographic profile ensures a robust representation of the primary caregivers most likely to engage with patronage services, enabling targeted insights into their needs and experiences.

Nine out of 10 respondents had knowledge of the expected visit and the role of patronage nurses. However, there is lower awareness about the patronage services among younger respondents (only 30% knew and expected the visit), people from Roma community (30%), people with lower socio-economic status (70% are not aware of access points) and people from rural areas (58%). Similar results were reported for the question whether they know that a patronage nurse can visit them even when they don't have health insurance (64% young, 28% Roma, 75% from socially-disadvantaged groups and 62% residing in rural areas.

Data also shows that respondents consult different sources for help and support when it comes to different activities related to pregnancy and taking care of the newborn baby. The respondents mostly ask their gynecologists and pediatricians when it comes to pregnancy (70%) and exercises for psychomotor development of the newborn baby/infant (54.4%). When it comes to bathing the newborn baby, they consult their family in most of the cases (54.4%), while 38.6% consult their family or friends for helping and supporting breastfeeding. Social media are chosen by less than 3% of the respondents as the first choice for help and support.

The findings from the quantitative research are robustly supported by the qualitative study, particularly regarding issues and dilemmas related to the baby's development and health. Pregnant women and mothers overwhelmingly trust pediatricians and specialists (91%). Additionally, trust in older family members plays a significant role in the care and development of newborns, with experienced family members being especially influential among ethnic Albanians and Roma.

The majority of respondents identified infant care as the most beneficial aspect of patronage services. Specifically, 20% of respondents indicated that advice on feeding and exercises for psychomotor development would be most beneficial. Additionally, 16.4% of respondents highlighted the importance of breastfeeding support, while 14.1% emphasized the need for assistance with bathing the newborn.

Pregnant women consistently expressed a need for comprehensive information regarding psychophysical changes during pregnancy, fetal development across trimesters, and maternal body and skin care. Proper nutrition, breast preparation for breastfeeding, and encouragement for childbirth were also identified as critical areas of support. Furthermore, respondents underscored the importance of guidance on proper breathing techniques and essential items to bring to the hospital.

The most striking finding is that patronage nurses seldom provided information on essential topics such as planning for subsequent pregnancies, care for children at risk or with developmental difficulties, parental depression and stress, positive parenting methods, and the importance of joint activities with the child. Specifically, only 10% of respondents reported receiving such information. Furthermore, approximately 50% of parents visited at home and 60% of parents contacted by phone by patronage nurses never inquired about these issues. Focus group discussions corroborated these findings, highlighting that mothers perceive patronage nurses to primarily focus on infant care and training mothers in newborn care. First-time mothers particularly emphasized the need for education and advice on maternal psycho-physical health, including postnatal depression. Pregnant women expressed a strong need for psychological preparation for childbirth.

Discussion

The study findings highlight systemic and structural barriers to the effective delivery of patronage services, as well as behavioral barriers that cause low demand by parents and caregivers. Low awareness and accessibility disproportionately affect vulnerable populations, exacerbating health inequities. The high satisfaction among service recipients underscores the potential of patronage nurses to meet maternal and child health needs when services are accessible. However, inadequate coverage, particularly during

pregnancy, and the lack of focus on maternal health and family planning limit the impact of these services. These insights underscore the necessity for a more holistic approach in patronage services, addressing both the physical and psychological well-being of mothers and children.

In turn, all these barriers have their implications for demand and playful learning that can ensure optimal child development. Reliance on informal information, misconceptions about service coordination, and insufficient awareness of access points directly undermine the demand, although there is ample scientific evidence on their critical role in educating parents and caregivers about playful learning to enhance cognitive, socio-emotional, and physical development in children aged 0–5 (Shonkoff et al., 2012; Yogman et al., 2018). However, if parents are unaware of how to access these services or misunderstand their availability, they miss opportunities to receive guidance on integrating play-based activities into daily routines. This is particularly concerning for vulnerable groups (e.g., young parents, ethnic minorities, rural residents, and socially disadvantaged families), who may already face resource constraints that limit developmental support for their children.

Our data also suggests intersectional vulnerabilities. For example, younger ethnic Albanian parents in rural areas may face compounded barriers due to age, ethnicity, and geography, further reducing their likelihood of engaging with patronage services. Similarly, the high proportion of female respondents (92%) in the study indicates that women are the primary caregivers seeking health information, yet their lack of knowledge about patronage services suggests that gender-specific outreach may be insufficient.

The data from the qualitative survey highlight significant behavioral barriers undermining the demand for patronage services among parents, caregivers, and communities in North Macedonia. These barriers can be grouped as informational gaps, systemic misunderstandings, and accessibility challenges and particularly affect specific demographic groups, i.e., younger individuals, ethnic minorities, rural residents, and socially vulnerable populations. The findings are analyzed within the context of behavioral barriers to service uptake, with implications for enhancing engagement and promoting playful learning for early childhood development.

Limited and Informal Information Sources. The reliance on family members, registered doctors, pediatricians, and friends as primary sources of information about patronage nurses indicates a lack of formalized, accessible communication channels. This informal network is particularly pronounced among younger respondents, ethnic Albanians and rural residents, suggesting that these groups may have less exposure to official health system outreach. From a behavioral perspective, this dependency on personal networks can lead to inconsistent or incomplete information, reducing trust in and awareness of patronage services. For instance, if family members or friends lack accurate knowledge about the scope or benefits of patronage services, potential users may undervalue or overlook these resources. This barrier is compounded by the absence of proactive, system-driven communication strategies to educate communities about the role of patronage nurses in supporting child development through playful learning.

Misconceptions About Service Coordination. Qualitative findings reveal widespread confusion about how patronage nurse visits are initiated. Many participants incorrectly assume that patronage nurses are “systematically informed” about newborn deliveries, while others believe that registered gynecologists or maternity hospitals are responsible for notifying the patronage service with contact details. These misconceptions reflect a critical behavioral barrier: a lack of clarity about the service delivery process. This uncertainty can deter engagement, as potential users may not take proactive steps to seek services, assuming the system will automatically connect them. Such assumptions are particularly problematic for first-time parents or those unfamiliar with healthcare navigation, limiting demand and hindering access to guidance on early childhood development practices like playful learning.

Insufficient Awareness of Access Points. The data indicate a significant knowledge gap regarding how to contact patronage services, with 46.2% of respondents unaware of how to reach these services and 53.8% having some knowledge. This near-even split suggests that awareness is inconsistent across the population, and even more alarmingly, suggesting that specific groups face pronounced barriers.

This lack of awareness constitutes a significant behavioral barrier, as it prevents potential users from initiating contact with patronage services. The qualitative research reinforces this, noting that participants in larger municipalities also struggle to identify contact procedures, suggesting that the issue is not solely rural but systemic. Without clear, accessible information, demand for patronage services remains low, particularly among groups who could benefit most from support in fostering playful learning environments.

Several strategic recommendations to address barriers stemming from the study data are formulated:

- Strengthen formal communication channels: Develop targeted, multilingual campaigns (e.g., via SMS, social media, or community health centers) to educate parents about patronage services, emphasizing their role in playful learning. Tailor outreach to younger parents, ethnic minorities, and rural communities, leveraging trusted figures like pediatricians and gynecologists to disseminate accurate information.
- Clarify service coordination processes: Implement clear protocols for maternity hospitals and gynecologists to proactively connect new parents with patronage services, including providing contact details and scheduling initial visits. Publicize these processes through prenatal classes and hospital discharge materials to avoid misconceptions.
- Enhance accessibility awareness: Create a centralized, user-friendly platform (e.g., a hotline, website, or mobile app) for contacting patronage services, with information available in multiple languages and formats. Partner with community leaders and local organizations to reach rural and vulnerable populations.
- Targeted Interventions for Vulnerable Groups: Design specific outreach programs for under-24 parents, ethnic Turks and Roma, and socially vulnerable families, using culturally relevant materials and community-based facilitators to build trust and awareness.
- Integrate playful learning education into undergraduate studies for nurses: Train patronage nurses to deliver concise, practical guidance on playful learning during home visits, addressing time constraints of busy parents and emphasizing low-resource activities with no toys or with items parents already have at home (e.g., storytelling, role play, cooking together etc.) to maximize developmental impact.

Conclusion

Investing in early childhood development is far cheaper than addressing the consequences of inaction. For instance, high-quality preschool programs cost $5,000-$10,000 per child annually but can save $30,000-$100,000 per child in future social and economic costs. Delaying or avoiding these investments compounds the problem, as interventions become less effective and more expensive with age.

Patronage nurse services hold significant potential to improve maternal and child health outcomes and most importantly optimal child development, yet their impact is limited by systemic barriers, low awareness, and inadequate coverage. Addressing these challenges through policy reforms, resource allocation, and targeted interventions can enhance service accessibility, quality, and equity. By strengthening patronage services and fostering intersectoral collaboration, the health system in North Macedonia can better support families with newborns and young children, particularly in underserved communities.

Our survey data also underscore several behavioral barriers—informal information reliance, misconceptions about service coordination, and low awareness of access points, significantly suppressing demand for patronage services in North Macedonia. These barriers disproportionately affect younger parents, ethnic minorities, rural residents, and socially vulnerable groups, limiting their access to critical support for early childhood development.

By addressing these issues through targeted communication, clarified processes, and enhanced accessibility, stakeholders can increase service uptake, empowering families to leverage patronage nurses' expertise in fostering playful learning environments. This, in turn, can mitigate developmental risks and promote long-term economic and social benefits, aligning with global goals like the Sustainable Development Goal 3 (WHO, 2016, UNICEF, 2020).

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