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The Critical Role of Prenatal Care: Promoting Optimal Health for Expectant Mothers and Their Infants in the Modern Era

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Abstract:

During pregnancy and the delivery process, prenatal care is an extremely important factor in guaranteeing the mother's and the child's overall health and well-being. The primary purpose of this investigation was to analyze previous research on prenatal care from a variety of viewpoints, which was done through a literature review. Receiving routine prenatal care can assist in the diagnosis and treatment of any potential issues that may manifest themselves throughout pregnancy. Some examples of these complications include gestational diabetes, hypertension, and premature labor. In addition to this, it has the potential to offer vital information and support for the adoption of good habits such as maintaining a balanced diet, engaging in physical activity, and staying away from hazardous substances. In addition, research has shown that having appropriate prenatal care can enhance the results for both the mother and the fetus. Pregnant women who receive prenatal care, for instance, have a reduced risk of giving birth prematurely, having babies with a low birth weight, and experiencing pregnancy-related problems such as preeclampsia. Prenatal care can also serve to improve the health of the baby after it is born. This can be accomplished in a number of ways, including lowering the risk of infant mortality and fostering healthy growth and development. Prenatal care is crucial to safeguarding both the mother's and the unborn child's health and well-being when taken as a whole. Regular prenatal care can help identify and address any potential problems and improve the health of both the mother and the unborn child.

INTRODUCTION

A woman receives prenatal care in the form of medical attention before, during, and after her pregnancy. Prenatal care is also referred to as obstetric care. In addition to the mother's health, the fetus's health and the family's overall health and well-being are prioritized through a series of clinical appointments and supplementary services. The goal of the program is to reduce the risk of complications during pregnancy and deliver a healthy baby. This method is comprised of a number of critical components, some of which include the promotion of health, early and continuous risk assessment, medical and psychosocial intervention, and follow-up care. Medical risks, pharmaceutical use, family history and genetic risks, psychological variables, nutritional and behavioral hazards, laboratory testing, and the reproductive history of the woman or couple are all part of a risk assessment. The easing of troublesome pregnancy symptoms, the promotion of healthy food, the reduction of environmental exposures, the encouragement of family planning, and the promotion of breastfeeding are some of the many topics that go under the umbrella term "health promotion." A wide range of medical and behavioral treatments are employed in order to mitigate the identified risks to one's physical and mental health. In a perfect world, prenatal care would begin prior to the pregnancy (this stage is referred to as preconception care), continue following the birth of the baby (this stage is referred to as postpartum care), and continue between pregnancies (this stage is referred to as internatal care). This would be done as part of an integrated longitudinal and contextual strategy to promote women's reproductive health throughout their lives, not only during pregnancy. The plan's objective is to improve maternal and infant health outcomes (Lu and Lu, 2008).

The rate of maternal illness and death in the United States has been alarmingly rising in recent years. When compared to women of other races and ethnicities, those of African descent who are not of Hispanic origin have the highest likelihood of experiencing these results. This is especially true for women of African descent who are not of Hispanic origin. In addition, the likelihood of black women postponing prenatal care or receiving insufficient treatment throughout their pregnancies is higher than it is for white women. Prenatal care has been shown to improve mother outcomes, although more study is needed to confirm this. Prenatal care has the potential to engage high-risk populations and to have an effect on perinatal outcomes (Gadson *et al.,* 2017).

Preeclampsia is a maternal outcome that is particularly significant to present-day maternal health disparities (Peahl and Howell, 2021), and it was initially supported at the turn of the last century to address low infant birth weight. As a result of research suggesting a connection between prenatal care, neonatal birth weight, and infant mortality, the United States made significant investments in prenatal care in the 1980s (Williams, 1915).

In developing nations, only around 65% of pregnant women receive any kind of prenatal care (UNICEF, 2022). In the United States of America, Australia, and Europe, there are preventive programs that govern prenatal care that are legally enforceable (Bernloehr *et al.,* 2005; NICE, 2008; Australian Health Ministers' Advisory Council, 2012; Backe *et al.,* 2014; American Academy of Pediatrics, 2017; Homer *et al.,* 2018). These preventative measures are designed to make it feasible for pregnant women to obtain the appropriate medical treatment and to identify at an early stage of pregnancy who are at risk for difficulties. It is suggested that pregnant women who are otherwise healthy and who live in Germany receive ten to twelve preventive medical checkups over the course of their pregnancies (Lange *et al.,* 2023).

When one looks at the screening programs that are provided in other countries, it is easy to see that individuals in other nations have a variety of different ideas regarding the appropriate amount of prenatal checks that should be performed (Heringa and Huisjes, 1988). The findings of a study that analyzed nine different nations in Europe found that pregnant women receive, on average, eight preventative visits during their time in the third trimester of their pregnancy. The American College of Obstetricians and

Gynecologists in the United States of America recommended that the typical amount of examinations be fourteen (American Academy of Pediatrics, 2017). The World Health Organization (WHO) presented a new antenatal care model (ANC model) in the year 2016, which specified that a minimum of eight prenatal care visits should be deemed to be the standard across the entire world (WHO, 2018). Ever since the maternity guidelines were introduced in Germany for the very first time, there has been a marked decrease in the overall rate of maternal and perinatal morbidity and mortality in that country. Prior to the establishment of the maternity guidelines in 1968, the rate of perinatal mortality in Germany was 28 per 1,000 live births [BIB]. The rate, on the other hand, was only 5.5 per 1,000 live births in the year 2006 (Bundesinstitut für, 2022). According to research published by the World Health Organization (WHO), increased access to prenatal care has been associated with lower rates of maternal and perinatal death as well as improved birth outcomes around the globe (Dowswell *et al.,* 2015; WHO, 2016). One of these is the decline in the percentage of newborns who have low birth weight, growth retardation, or are underweight (Kuhnt and Vollmer, 2017).

Early Pregnancy Confirmation

Prenatal care starts early and includes performing pregnancy tests through which if a woman is pregnant, prenatal care plans are started, and otherwise, if not pregnant, another effort of prenatal care is set up (Macnaughton *et al.,* 2021). Prenatal care refers to the medical attention that is offered to a pregnant woman before the delivery of her child (Peahl *et al.,* 2023). Prenatal care consists of a series of doctor's visits and other services meant to improve the health of the mother, the developing baby, and the family unit as a whole (Lu and Lu, 2008). The purpose of these programs is to enhance maternal and family well-being. Health education, early and ongoing risk assessment, medical and psychosocial intervention, and continued support are all essential parts of this approach. Medical risks, pharmaceutical use, family history and genetic risks, psychological variables, nutritional and behavioral hazards, laboratory testing, and the reproductive history of the woman or couple are all part of a risk assessment. The easing of uncomfortable pregnancy symptoms, the promotion of good nutrition, the reduction of environmental exposures, the promotion of family planning, and the encouragement of breastfeeding are some of the numerous activities that are included in the broad category of "health promotion" (Jones *et al.,* 2023).

Regular Check-ups

Prenatal diagnosis or prenatal screening refers to the process of examining a fetus or embryo for the presence of an illness or abnormality prior to the individual's birth. It is essential to make it clear that the words "prenatal diagnosis" and "prenatal screening" relate to two distinct types of checks performed during pregnancy. Obstetricians and midwives are able to monitor the mother's health as well as the development of the fetus while the mother is carrying the baby by conducting a series of routine exams (Beldon and Crozier, 2005).

The following are typically covered in the course of physical examinations:

- A collection of the medical records and information pertaining to the mother.
- Examining the mother's size and determining her body mass index in addition to taking her blood pressure
- During the pelvic exam, the doctor will monitor the fetal heart rate using a Doppler.
- Tests on the mother's blood and urine were also performed.
- Discussion with the individual providing care (Jarvis, 2023).

Clinical practice guidelines developed by the Canadian Society of Obstetricians and Gynecologists and the Canadian College of Medical Genetics (SOGC-CCMG) encourage prenatal screening for common fetal aneuploidies. These guidelines propose that the option of prenatal screening be made available

to all pregnant women in Canada. This should be done through some sort of process that includes pre-test counseling that is educated (Audibert *et al.,* 2017). It is strongly suggested that a pregnant woman give some thought to undergoing this aneuploidy test at a relatively early stage in her pregnancy. As a consequence of this, prenatal genetic screening is often something that patients first address with their prenatal care practitioner before moving on to other prenatal care options. This category may include obstetricians, midwives, primary care physicians, and other medical professionals who provide primary obstetrical care (Krstić and Običan, 2020; Morgan *et al.,* 2014).

According to information provided by the World Health Organization (WHO), 810 women every day lose their lives in some parts of the world as a result of difficulties linked with pregnancy and childbirth (WHO, 2022). In particular, for low- and middle-income countries (LMICs), policymakers are worried about maternal morbidity, neonatal mortality, and stillbirths in addition to maternal mortality (Tasneem and Ozdal, 2023). In order to achieve Sustainable Development Goal 3, which aims to reduce maternal mortality to a rate of 70 per 1,000 live births and neonatal mortality to a rate of 12 per 1,000 by the year 2030, low-resource countries like Pakistan face a significant challenge. This target calls for member countries to reduce their rates to 12 per 1,000 people by 2030. According to Afshan et al. (2019), Pakistan has a high maternal mortality ratio (186 deaths per 100,000 live births) compared to other LMICs.

Prenatal care in Jordan

Health services for mothers and children in Jordan primarily consist of prenatal, birth, and postnatal care, as well as vaccines and treatment for common childhood ailments. The accessibility of these services is another major component that must be considered. During the entirety of their pregnancies, women who are pregnant should take appropriate levels of iron and folic acid supplements in addition to getting two shots of the tetanus toxoid vaccine. This is strongly recommended. This has the potential to either prevent or treat anemia that may manifest itself during the course of the pregnancy. In Jordan, prenatal care, also known as antenatal care, consists not only of routine checks of blood pressure but also of tests meant to identify any potential complications that may occur during pregnancy. In addition, pregnant women are strongly encouraged to submit themselves to routine blood and urine examinations so that they can be screened for any potential problems that may occur (Alyahya *et al.,* 2019).

It is also recommended that they have prenatal checkups on a monthly basis up until the 28th week of pregnancy, then every other week until the 36th week, and finally every week until the 40th week, for a total of 12–13 visits. It is realistic to assume that the vast majority of pregnant women who give birth in Jordan do so under the supervision of a seasoned medical expert who is able to provide intranatal care. This bodes well for the future of healthcare in the country. Similar to prenatal care, postnatal care consists of a postnatal visit just after delivery, one before you leave the hospital, and another two days later. This is in addition to a postnatal checkup after two days have passed. On the other hand, a smaller percentage of customers make use of the second service (Alyahya *et al.,* 2019).

Just like with prenatal care, it's important to have a checkup after giving birth, before you leave the hospital, and again two days later. However, fewer people make use of the latter service. The Jordanian Ministry of Health (MoH) recommends a full vaccination program [i.e. a vaccination against tuberculosis (Bacille Calmette Guerin)-, three doses of the DPT (diphtheria, pertussis, and tetanus), and polio vaccines, and measles-mumps-rubella (MMR) by the age of 12 months. When a child registers at a Maternal and Child Health Centre (MCHC) (DOS, 2023a, b), they receive a health card listing their height, weight, and immunizations since birth.

While data on PNC coverage is scarcer, it appears to be on par with ANC coverage in Jordan, where 79 percent of pregnant women receive at least seven ANC visits (DOS, 2023b).

About 83% of Jordanian women use PNCs within 48 hours of giving birth, according to a national survey (DOS, 2023b). However, a high incidence of maternity and pediatric healthcare utilization does not always indicate high-quality care.

According to statistics (Amarin *et al.,* 2010; Batieha *et al.,* 2016; Khader *et al.,* 2018), Jordan has a maternal mortality rate of 19 per 100,000 live births, a neonatal mortality rate of 15, and a mortality rate of 10.6 for infants born at or after 24 weeks of gestation. Khader et al. (2018) found that with proper treatment, 33.3% of stillbirths in Jordan might be avoided and that about 35% of them could be avoided totally. Obstetricians and midwives in Jordan provide women with prenatal and postnatal treatment in a range of healthcare facilities. In primary care settings and maternity facilities across Jordan, midwives provide a wide range of services, including prenatal care, labour and delivery, newborn care, breastfeeding support, and immunizations (JNC, 2023) for mothers and their young. Health policies typically favor hospital births and frown upon home births. Although 99.7% of Jordanian women give birth in an institution with the support of qualified birth attendants, the vast majority of women (96%) choose to receive ANC from a physician, whereas only 3% of women request ANC from a midwife or nurse (Department of Statistics, 2013). There are many challenges to nursing and midwifery in Jordan. Some of these difficulties include traditional nursing practice that does not reflect holistic care, poor nursing practice, inadequate consideration of primary health care services, a high staff turnover rate, and, most significantly, a serious lack of midwives (Alyahya *et al.,* 2019).

CONCLUSION

Prenatal care is vital for promoting the health and well-being of both the mother and the baby, as demonstrated by research conducted throughout pregnancy. Expectant moms need to receive prenatal care in order to maintain their own health and the health of their babies during their pregnancies. It consists of multiple visits throughout the pregnancy, up to a maximum of 12 visits to medical facilities. Pregnant women need to have access to prenatal care to protect not only their health but also the health of their unborn children at an early stage. Through this research, we demonstrated that there is a potential for lowering the mortality rate of both pregnant women and babies.

CONFLICT OF INTEREST

Authors hereby declare that they have no conflict of interest.

REFERENCES

Afshan, K., Narjis, G., Qayyum, M., 2019. Risk factors and causes of stillbirths among pregnant women in Pakistan. Afr. Health Sci., 19: 1507–1516.

Alyahya, M.S., Khader, Y.S., Batieha, A., Asad, M., 2019. The quality of maternal-fetal and newborn care services in Jordan: a qualitative focus group study. BMC Health. Serv. Res., 19: 1-6.

Amarin, Z., Khader, Y., Okour, A., Jaddou, H., Al-Qutob, R., 2010. National maternal mortality ratio for Jordan, 2007–2008. Int. J. Gynaecol. Obstet., 111(2): 152–6.

American Academy of Pediatrics. 2017. American College of Obstetricians and Gynecologist. Guidelines for Perinatal Care, 8th ed.; AAP: Elk Grove Village, IL, USA; American College of Obstetricians and Gynecologists: Washington, DC, USA.

Audibert, F.D., De Bie, I., Johnson, J.A., Okun, N., Wilson, R.D., Armour, C., Chitayat, D., Kim, R., 2017. No. 348-Joint SOGC-CCMG guideline: update on prenatal screening for fetal aneuploidy, fetal anomalies, and adverse pregnancy outcomes. J. Obstet. Gynaecol. Can., 39(9): 805-17.

Australian Health Ministers' Advisory Council. 2012. Clinical Practice Guidelines:

Antenatal Care–Module I; Department of Health and Ageing: Canberra, Australia.

Backe, B., Pay, A.S., Klovning, A., Sand, S., Antenatal Care. 2014. Available online: http://www.nfog.org/files/guidelines/1%20NGF%20Obst%20Antenatal%20care%20Backe.pdf.

Batieha, A.M., Khader, Y.S., Berdzuli, N., Chua-Oon, C., Badran, E.F., Al-sheyab, N.A., et al. 2016. Level, causes and risk factors of neonatal mortality, in Jordan: results of a National Prospective Study. Matern. Child Health J., 20(5): 1061–71.

Beldon, A., Crozier, S., 2005. Health promotion in pregnancy: the role of the midwife. J. R. Soc. Promot. Health., 125(5): 216-20.

Bernloehr, A., Smith, P., Vydelingum, V., 2005. Antenatal care in the European Union: A survey on guidelines in all 25 member states of the Community. Eur. J. Obstet. Gynecol. Reprod. Biol., 122: 22–32.

Bundesinstitut für Bevölkerungsforschung (BiB). Perinatale Sterblichkeit (1955–2019). Available online: https://www.bib.bund.de/Permalink.html?id=10262816 (accessed on 1 July 2022).

Department of Statistics (DOS, 2023a), Macro International Inc. Jordan Population and Family and Health Survey 2007. Calverton, Maryland, USA: Department of Statistics and Macro International Inc. 2008. Accessed June 2023.

Department of Statistics (DOS, 2023b), ICF. Jordan Population and Family and Health Survey 2017–18. In. Amman, Jordan, and Rockville, Maryland, USA. 2019. Accessed June 2023.

Department of Statistics 2013. ICF International: Jordan population and family health survey. In. Calverton, Maryland, USA: https://dhsprogram.com/pubs/pdf/fr282/fr282.pdf.

Dowswell, T., Carroli, G., Duley, L., Gates, S., Gülmezoglu, A.M., Khan-Neelofur, D., Piaggio, G., 2015. Alternative versus standard packages of antenatal care for low-risk pregnancy. Cochrane Database Syst. Rev., CD000934.

Gadson, A., Akpovi, E., Mehta, P.K., 2017. Exploring the social determinants of racial/ethnic disparities in prenatal care utilization and maternal outcome. Semin. Perinatol., 41(5): 308–317.

Heringa, M., Huisjes, H.J., 1988. Prenatal screening: Current policy in EC countries. Eur. J. Obstet. Gynecol. Reprod. Biol., 28: 7–52.

Homer, C.S., Oats, J., Middleton, P., Ramson, J., Diplock, S., 2018. Updated clinical practice guidelines on pregnancy care. Med. J. Aust., 209: 409–412.

Jarvis, C., 2023. Physical Examination and Health Assessment-Canadian E-Book: Physical Examination and Health Assessment-Canadian E-Book. Elsevier Health Sciences.

JNC, 2023. The Jordanian nursing council. National Nursing and midwifery research priorities 2016-2020. 2016. http://www.jnc.gov.jo/. Accessed 10 June 2023.

Jones, T.H., Crump, W.J., Foster, S.M., Mullins, S.M., Farris, A.N., 2023. Group Prenatal Care vs. Traditional Prenatal Care: A Parity-Matched Comparison of Perinatal Outcomes in a Rural Community. Matern. Child Health J., 27: 575–581.

Khader, Y.S., Batieha, A., Khader, A., Hamadneh, S., 2018. Stillbirths in Jordan: rate, causes, and preventability. J. Matern. Fetal Neonatal. Med., 1–8. https://doi.org/10.1080/14767058.2018.1517326.

Krstić, N., Običan, S.G., 2020. Current landscape of prenatal genetic screening and testing. Birth Defects Res., 112(4): 321-331.

Kuhnt, J., Vollmer, S., 2017. Antenatal care services and its implications for vital and health outcomes of children: Evidence from 193 surveys in 69 low-income and middle-income countries. BMJ Open., 7: e017122.

Lange, A.E., Mahlo-Nguyen, J., Pierdant, G., Allenberg, H., Heckmann, M., Ittermann, T., 2023. Antenatal Care and Health Behavior of Pregnant Women-An Evaluation of the Survey of Neonates in

Pomerania. Children (Basel, Switzerland), 10(4): 678.

Lu, M.C., Lu, J.S., 2008. Prenatal care. Encyclopedia of Infant and Early Childhood Development. Haith MM, Benson JB (ed): Academic Press, Cambridge, MA; 591-604.

Macnaughton, H., Nothnagle, M., Early, J., 2021. Mifepristone and Misoprostol for Early Pregnancy Loss and Medication Abortion. Am. Fam. Physician., 103(8): 473–480.

Morgan, L., Carson, G., Gagnon, A., Blake, J., 2014. Collaborative practice among obstetricians, family physicians and midwives. CMAJ. 186(17): 1279-80.

National Institute for Health and Care Excellence (NICE). 2008. Antenatal care for uncomplicated pregnancies. In Clinical Guidelines; National Institute for Health and Care Excellence (NICE): London, UK.

Peahl, A.F., Howell, J.D., 2021. The evolution of prenatal care delivery guidelines in the United States. Am. J. Obstet. Gynecol., 224(4): 339–347.

Peahl, A.F., Turrentine, M., Srinivas, S., King, T., Zahn, C.M., 2023. Routine Prenatal Care. Obstet. Gynecol. Clin. North. Am., 50(3): 439-455.

Tasneem, S., Ozdal, M.A., 2023. Pregnant Women's Perceptions of the Quality of Antenatal Care in a Public Hospital in Punjab, Pakistan during COVID-19: A Cross-Sectional Study. Healthcare, 11: 996.

UNICEF. 2022. Information on Maternal Mortality. Cause of Death: Pregnancy and Childbirth. Available online: www.unicef.de (accessed on 1 July 2022).

WHO. Maternal Health. Health Topics; Maternal Health. 2022. Available online: https://www.who.int/health-topics/maternalhealth#tab=tab_1 (accessed on 15 May 2022).

Williams, J.W., 1915. The limitations and possibilities of prenatal care: based on the study of 705 fetal deaths occurring in 10,000 consecutive admissions to the Obstetrical Department of the Johns Hopkins Hospital. J. Am. Med. Assoc. JAMA., 64(2): 95-101.

World Health Organization (WHO). 2016. WHO Recommendations on Antenatal Care for a Positive Pregnancy Experience; WHO: Geneva, Switzerland.

World Health Organization (WHO). 2018. WHO Recommendations on Antenatal Care for a Positive Pregnancy Experience: Summary; Licence: Cc BY-NC-SA 3.0 IGO; WHO: Geneva, Switzerland.