

Multiparity, perinatal morbidity and mortality

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Summary

Introduction: Multiparity as a medical and social problem has been drawing the attention of gynecologists in many countries, especially those with a tendency towards hyper populations, and simultaneously of clinicians in developed countries who want to examine and prevent all causes of perinatal morbidity and mortality. **Aim of work:** The aim of our research was to examine the influence of multiparity (delivery of six or more children) on perinatal morbidity and mortality. **Methods:** The study included all women who delivered a child at the Gynecological Clinic of the Faculty of Medicine in Pristina during 1992 and 1993 (a total of 12,532). The limit for grand multiparity was set at delivery of six or more children. The analysis included only those factors which possibly affected the vitality of a newborn. **Results:** Analysis of the national structure showed that multiparity is characteristic of women of Albanian nationality: it is in reverse proportion to the level of education, the number of live births at the clinic is different from the number of live births in the general population, the percent age of hypotrophic children as well as children with lower body mass is much higher in multiparity, whereas parity and cesarean section very rarely have negative effects on the body mass of newborns. The Apgar score of newborns is irrepressibly falling depending on the number of deliveries. Respiratory system disturbances, damage of the central nervous system, congenital anomalies incompatible with life as well as mother and infant mortality are all highly relevant for statistics. **Conclusion:** From a medical point of view, multiparity represents an increased risk both for newborns and mothers. Perinatal morbidity and mortality have increased and the high risk for a woman during pregnancy, delivery and puerperium has been simultaneously rising until the pregnant woman's life is highly endangered.

Key words: Multiparity; Perinatal morbidity and mortality; Prevention.

Introduction

Multiparity as a medical and social problem has been drawing the attention of gynecologists in many countries, especially those with a tendency towards hyper populations, and simultaneously of clinicians in developed countries who want to examine all causes of perinatal morbidity and mortality to try to prevent them.

The moment of conception is not only a biological phenomenon of reproduction but also a corresponding obligation of both parents towards their future offspring, and of the social community as well. The family as the basic society cell is conferring a new member to society and simultaneously imposing on that same society corresponding obligations which should synchronously turn out on two levels: family and social. If, by concurrence of unpleasant events, it comes to insufficient care for raising, education or taking into the social community one human being, regardless of whether family or society contributes to it, a whole range of problems will appear: economic, emotional and ethical.

At any rate, the effect of other factors in the process of human reproduction should be emphasized: the general cultural level of the population, socioeconomic status of an individual and society, impact of religion, historical, ethnical, political and other aspects.

Medical workers point out whether and to which degree uncontrolled reproduction could be harmful, in the first place for woman's health, and for increased perinatal morbidity and mortality of newborns. The latter is of crucial importance because today there is a generally accepted opinion that it is not only important for a woman to deliver a healthy baby but to secure a good life quality for the child. Otherwise, a newborn in endangered health at birth, and more and more as time passes, becomes a problem for the family and society in the medical, social, ethical and emotional sense.

The aim of our research was to examine the influence of multiparity (delivery of six or more children) on perinatal morbidity and mortality, as well as on possible complications and consequences which multiparous mothers incur.

Taking into account the fact that Kosovo and Metohija have the highest population growth not only in Serbia but also in Europe and the fact that this area is multinational: Serbs, Montenegrins, Albanians, Gypsies, Turks, etc., we wanted to find out to what extent multiparity, delivery of more than six children, affects these demographic changes. At the same time we tried to discover the correlation between multiparity and certain population groups considering nationality, religion, socioeconomic status and educational level of our examinees.

Perinatal morbidity and mortality in Kosovo and Metohija is high, so we tried to find a possible correlation between this pathology of newborns and multiparity. In establishing all parameters of our study we were only guided by medical reasons, using adequate statistical data processing.

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Material and Method

The study included all women who delivered a child at the Gynecological Clinic of the Faculty of Medicine in Pristina during 1992 and 1993 (a total of 12,532). The limit for grand multiparity was set at six or more children. Analysis included only those factors that possibly affected the end of pregnancy and newborn vitality. According to the results of physical and gynecological examinations, pregnant women were classified within each notional whole into an adequate number of gradations: according to Apgar score, complications, etc. In statistical data processing the bifactorial analysis of variable quotients was used in addition to standard statistical indexes (ANOVA, N.A. Plohiniski).

In the analyses of multiparity, as a consequential form of risk factors, we sorted out all pregnant women who had not had concomitant deliveries previously (rhesus incompatibility, pregnancy toxicosis, metabolic diseases, endocrine system diseases) and other diseases incompatible with pregnancy.

Results

Analysis of the national structure has shown that peculiarity of the generative potential in this part of the country has been repeating and that multiparity is characteristic of women of Albanian nationality. This deference is highly relevant (Figure 1).

It should be noted that there is a reverse proportion between multiparity and level of education – the higher level of education, the smaller the number of previous deliveries (Figure 2).

Considering the data from Figure 3 an important fact can be derived – there is a statistically relevant difference in number of live births depending on parity at the clinic, which is well-balanced compared to the number of live births in the general population of the province. There is a relevant decrease if the number of previous deliveries was higher. The consequence of this difference is particularly important because it points to the fact that it is necessary to insist on delivery under expert supervision, which is a basic precondition to decrease perinatal mortality and morbidity.

It has been found that the majority of children was within the limits of normotrophism, but when number of deliveries increased there was a tendency toward delivering hypotrophic children. This difference was highly statistically relevant among children who are born as the seventh or higher child of their mother. According to percentages, this pathological state of pregnancy is increasing together with the number of EPH-gestosis (eclampsia, preeclampsia), but this increase is uneven, although obvious.

Studying the body mass of newborns from the clinic and those born by cesarean section it has been concluded that both parity and cesarean section highly affect the body mass of newborn children in a negative sense.

Analysis of variant quotients (ANOVA) has shown that parity statistically highly affected Apgar score ($p = 0.001$).

The dynamism of changes in Apgar score shows its irrepressible fall depending on number of deliveries: from a relatively good one of over 6 it falls down to 3 or 4.

Analysis of variant quotients has shown that the impact of the factor “number of deliveries or parity” highly affected the body mass which decreased when multiparity was high.

Respiratory disturbances have been divided into two groups: disturbances of pulmonary ventilation and crisis of apnea and cyanosis. They have been conditionally marked with difficulty coefficients: 1 (apnea, cyanosis) and 0 (ventilation disturbances) (Figure 4).

A comparison of the proportion between parities showed the differences which are also statistically highly relevant (Figure 5).

The relative frequency of congenital anomalies compatible with life increased simultaneously with the number of previous deliveries (Figure 6).

In Figure 7 the anomalies include hydrocephalus and anencephalus, serious inborn heart defects meningomielocoele, polycystic kidneys, atresia of the intestines and gastroschisis.

Criteria and evaluations are the same as in previous cases, relative frequency (%) showed that high parity correlates with high risk of congenital malformations incompatible with life.

Figure 8 gives a parallel analysis of the death rate of newborns and mothers depending on parity. It is interesting that the death rate of mothers and children repeats the same form (same function), but with different parameters: children are less susceptible to the parity of their mothers than mothers themselves.

The biological aspect of this phenomenon is even more interesting: mothers are obviously more endangered by multiparity than children who are protected by the biological necessity of maintaining our genus.

Discussion

Grand multiparity has almost disappeared in Western countries where intensive family planning has been implemented, but it still exists in other countries, e.g., in Israel, due to a heterogeneous population [1].

The researches of multiparity done by Russian authors Zakirov and Kenzaev [2] at the Department of Gynaecology at Medical Institute in Sarmakant are very important. The authors have underlined that the idea of multiparity of women who have a large number of births has not been completely explained because there are different criteria. In concordance with our results these authors also found that an average number of multiparous women were from the country (61%), whereas 39% were from the cities.

Research done in California [3] showed interesting observations that multiparity, besides other things, is in a certain sense a stress for women. According to our conception of life and parental responsibility for the offspring, this could be explained by a critical sense of emancipated personalities who are aware of their personal and social responsibility for bringing up and educating their offspring.

Kjer [4] did not find any differences in the morbidity of multiparous mothers, except that they had a larger num-

National structure of childbearing women

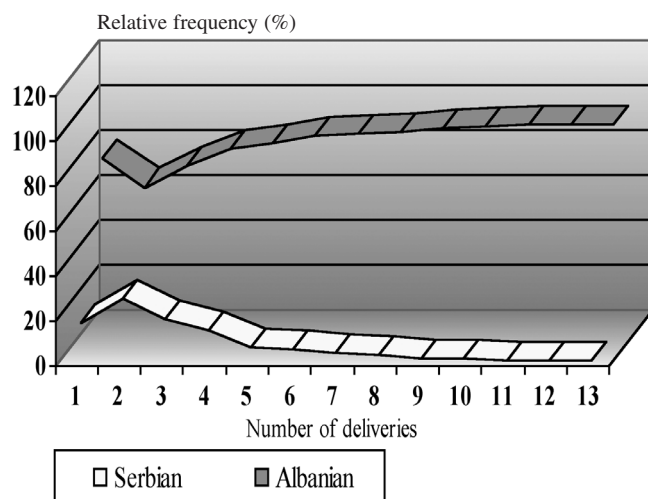


Fig. 1

Figure 1. — Analysis of the national structure showing that the peculiarity of generative potential in this part of the country has been repeating and that multiparity is characteristic of women of Albanian nationality.

Level of education

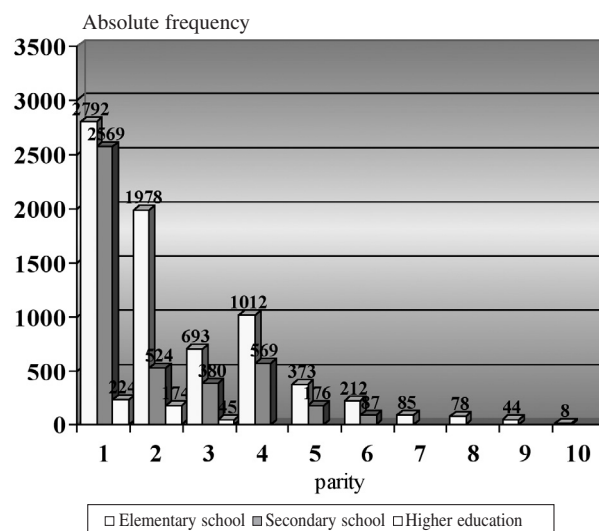


Fig. 2

Figure 2. — The graph indicates a reverse proportion between multiparity and level of education – the higher the level of education is, the smaller the number of previous deliveries.

Number of live births depending on parity for 1992/1993

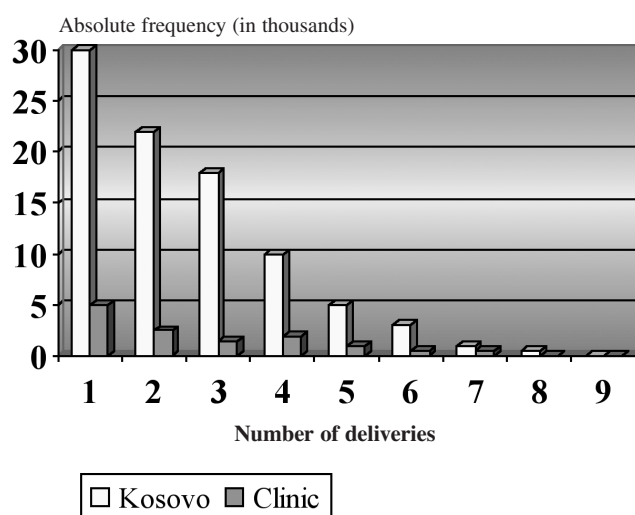


Fig. 3

Figure 3. — The difference in distribution of frequency according to parity between the general population and the clinic is highly relevant ($p < 0.01$).

ber of premature births if they gave birth to more than six children.

Tanbo and Bungum [5] examined antenatal complications, their treatment, complications during delivery, puerperium, perinatal mortality and morbidity and found that premature birth, abnormal presentation and position of placentae are the most important complications. Perinatal mortality was very high (23.3%), whereas perinatal mortality did not exist in the control group. Perinatal

Respiratory system disturbances

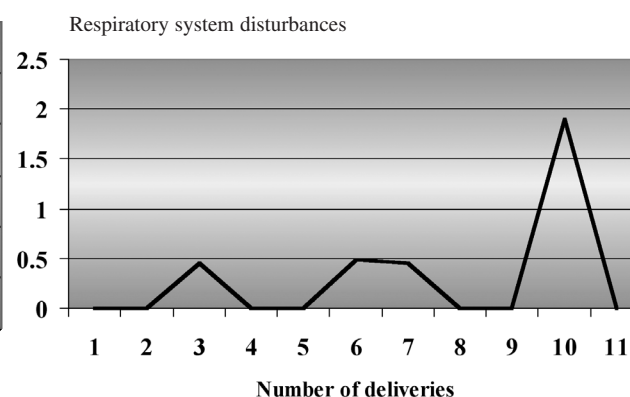


Fig. 4

Figure 4. — Number of deliveries: 1 - apnea-cyanosis; 0 - ventilation (the difference is statistically relevant).

morbidity was increased in the same way. These results are compatible with our data.

Kafkas and Taner [6] established the fact that patients who had a given birth to more than five children, which was similar to our criterion for multiparity, had maternal mortality of 7.3% and fetal mortality of 82.9%.

Gunther and his collaborators also carried out notable researches. They found that children of multiparous mothers statistically had a lower risk of congenital hip disloca-

CNS: Cerebral signs (1), intracran hemorrhagia (2), convulsion crises (3) and nerve paralyses (4)

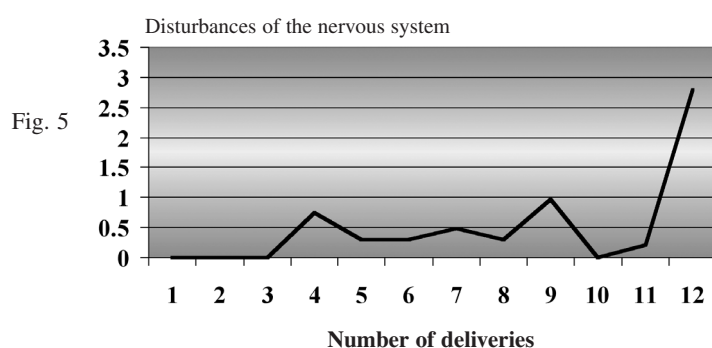


Figure 5. — Comparison of the proportion between parities shows the differences which are also statistically highly relevant.

Congenital malformations compatible with life

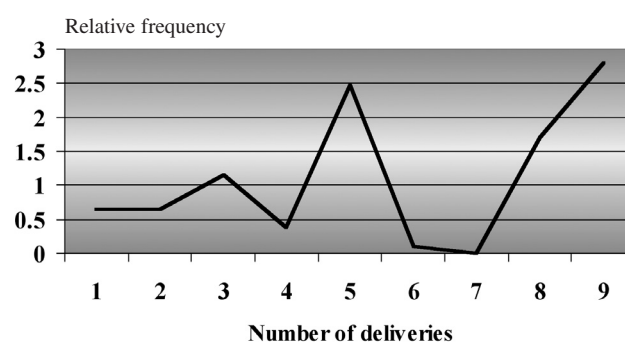


Figure 6. — Relative frequency of congenital anomalies compatible with life increases simultaneously with the number of previous deliveries.

Congenital malformations incompatible with life

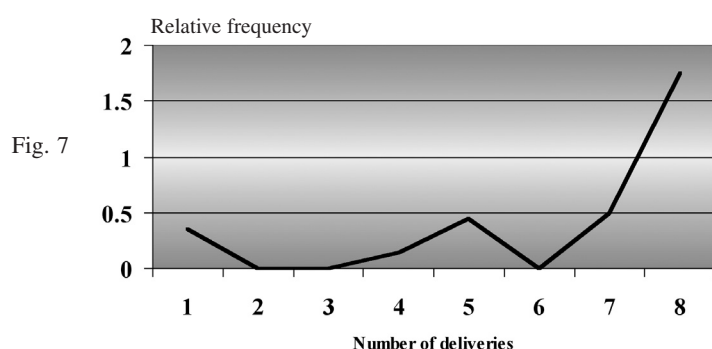


Figure 7. — Criteria and evaluations are the same as in previous cases. Relative frequency (%) shows that high parity correlates with high risk of congenital malformations incompatible with life.

Curve of mortality of mothers and newborns depending on parity

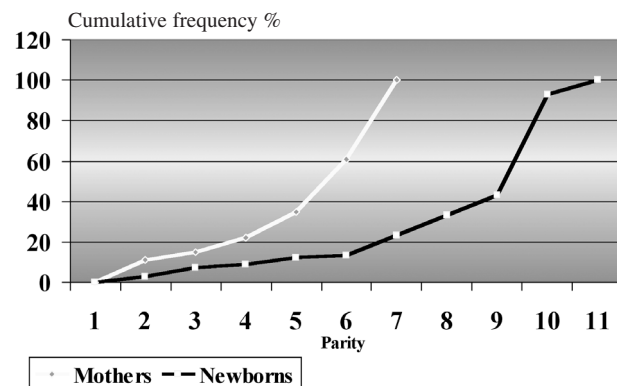


Figure 8. — Gives a parallel analysis of the death rate of newborns and mothers depending on parity. Half-parity of death rate: mothers = 5.7; Children = 9.5; $p < 0.001$.

tions compared to children of women with a smaller number of deliveries. Statistical indicators of our results do not correspond with Gunther *et al*'s results because we statistically confirmed a higher frequency of malformations, both compatible and incompatible with life.

Conclusion

On the basis of our research of multiparous women who delivered at the Gynecological Clinic of the Faculty of Medicine in Pristina during 1992 and 1993 the following conclusions can be drawn: giving birth to six or more children was the upper limit for grand multiparity. There is no concordance in the literature in the estimation of grand multiparity and authors mostly accept giving birth to six to eight children as grand multiparity.

Grand multiparity is particularly characteristic of

women of Albanian nationality. It is noticeable that there is a reverse proportion between multiparity and level of education – the higher the level of education is, the smaller the number of previous deliveries.

The number of indications for cesarean section increases with multiparity.

Both parity and cesarean section highly affect Apgar scores of a newborn in the sense of its decrease and both parity and cesarean section highly affect the body mass of newborns negatively.

A large number of hysterectomies during delivery (75) has been noted, especially after cesarean section, complete rupture of the placenta, apoplexy of the uterus and placenta, placenta abruption and placenta accrete, as well as disseminated intravascular coagulopathy. The higher the parity is, the larger the number of hysterectomies.

Children of multiparous mothers more frequently have respiratory system disturbances, which explains the rela-

tively high mortality of such newborns. Central nervous system injuries are also increased.

The relative frequency of congenital anomalies compatible with life rises simultaneously with number of deliveries. Grand multiparity is connected with high risk of congenital anomalies life threatening. The death rate of child-bearing women significantly rises with parity.

Reviewing all our data we want to point out that grand multiparity, giving birth to six or more children, represents from a medical point of view, a higher level of danger both for newborns and pregnant women. Perinatal morbidity and mortality have been increasing and the high risk for a woman during pregnancy, delivery and puerperium simultaneously rises until the pregnant woman's life is highly endangered.

These facts, verified and proven by most up-to-date statistical methods, should be taken into account by the family and society as well as other factors that could influence people's behavior in the domain of reproduction from educational to religious institutions.

References

- [1] Fuchs K., Peretz A.B., Marcovici R., Paldi E., Timor-Tritsh I.: "The 'grand multipara' - is it a problem? A review of 5,785 cases". *Int. J. Gynecol. Obstet.*, 1985, 23, 321.
- [2] Zakirov Z.I., Kenžaev O.Š.: "Tečenie i ishod beremennosti i rodov u mnogorožavših ženštin". *Akuš. Ginek. Moskva*, 1984, 25, 31.
- [3] Affonso D.D., Mayberry J., Sheptak S.: "Multiparity and stressful events". *J. Perinatol.*, 1988, 8, 12.
- [4] Kjer J.J.: "Grand multipara". *Zentralbl Gynakol.*, 1989, 111, 1503.
- [5] Tanbo G.T., Bungum L.: "The grand multipara-maternal and neonatal complications". *Acta Obstet. Gynecol. Scand.*, 1987, 66, 53.
- [6] Kafkas S., Taner Ce.: "Ruptured uterus". *Int. J. Gynaecol Obstet.*, 1991, 34, 41.
- [7] Gunther A., Smith S.J., Maynard P.V., Beaver M.W., Chilvers C.E.: "A case-control study of congenital hip dislocation". *Public Health*, 1993, 107, 9.

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