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KOMPARATIVNA ANALIZA TRUDNOĆA ADOLESCENTKINJA ZAVRŠENIH POROĐAJEM U ZAJEČARSKOM PORODILIŠTU 2007. I 2025. GODINE

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ORDINACIJA „HARMONY, ZAJEČAR, SRBIJA

Sažetak: Uvod: Adolescencija (*lat. Adolescere* znači „postati zreo, sazreti“) traje od 10 do 19 god. prema određenju Svetske zdravstvene organizacije. Adolescentna trudnoća predstavlja značajan medicinski i socijalni izazov. Cilj rada je da uporedi epidemiološke parametre i perinatalne ishode u zaječarskom porodilištu u razmaku od 18 godina, preciznije analiza i poređenje učestalosti i ishoda porođaja kod adolescentkinja u Zaječaru i da pokaže učestalost porođaja adolescentnih trudnica, telesnu težinu novorođenčadi, način završavanja porođaja i zaposlenost adolescentnih majki 2007. god. u odnosu na 2025. god. u Zaječaru. METODE: retrospektivna analiza porođajnog protokola i istorija bolesti porođenih žena u Ginekološko-Akušerskom (GA) odeljenju Zdravstvenog centra (ZC) Zaječar i statistička analiza podataka. Rezultati rada nam govore da se broj porođaja skoro prepolovio od 2007. do 2025. godine sa 555 na 298 dok se broj adolescentnih porodilja takođe smanjio sa 46 (8,29%) 2007. godine na 11 (3,69%) 2025. godine što je statistički značajno ($\chi^2=4.72$; $p=0.029$). Najveći broj novorođenčadi naših adolescentkinja 2007. god. je eutrofično 39 (84,78%) sa srednjom telesnom masom 2850 grama \pm 410, dok su 2025. godine sva novorođenčad eutrofična, sa telesnom masom 3100grama \pm 350g, ali bez statistički značajne razlike ($t=1.41$, $p=0.16$). U oba vremenska perioda, porođaji su uglavnom bili vaginalni, mada je učestalost carskog reza veća u 2025, ali bez statističke značajnosti ($\chi^2=1.56$; $p=0.21$). Adolescentkinje su pretežno nezaposlene i pre i sada. Zaključak. Komparativnom analizom se zaključuje se da je učešće adolescentnih porođaja od 2007 bilo 8,28% u komparaciji sa 2025 godinom 3,69% statistički značajno smanjeno ($\chi^2=4.72$; $p=0.029$). Nije dokazana statistički značajna razlika u porođajnoj težini ($t=1.41$; $p=0.16$). Učestalost carskog reza je veća u 2025, ali bez statističke značajnosti ($\chi^2=1.56$; $p=0.21$). U oba vremenska perioda, 2007. i 2025. godine adolescentkinje su nezaposlene i ekonomski zavisne. Jedan od velikih zadataka koji stoje pred ginekolozima-akušerima je identifikovati adolescente u riziku i prevenirati ponašanje koje dovodi do neočekivane trudnoće. Neophodan je dalji rad na primarnoj prevenciji u lokalnim sredinama istočne Srbije.

Ključne reči: adolescentska trudnoća, porođaj, vaginalni porođaj, carski rez, eutrofično novorođenče, porođajna masa, reproduktivno zdravlje

Uvod

Adolescencija (*lat. Adolescere* znači „postati zreo, sazreti“) kakvu danas znamo rezultat je fizičkog, fiziološkog i psihološkog razvoja kao i socijalnih i kulturnih uslova sredine. Traje od 10 do 19 godine prema određenju Svetske zdravstvene organizacije iz 1980. godine (1). Sve ranija fizička zrelost, praćena ranim seksualnim iskustvom i nekorišćenje kontraceptivnih sredstava dovode do slučajne, neplanirane i neželjene trudnoće (2). Za bezbedno materinstvo pored fizičke sposobnosti, koju imaju starije adolescentkinje, neophodna je i emocionalna stabilnost, zrelost i iskustvo (3).

Trudnoće adolescentkinja su globalni problem javnog zdravlja. Od 2019. god.

adolescentkinje uzrasta 15-19 god. u zemljama sa niskim i srednjim prihodima imale su procenjenih 21 milion trudnoća svake god. što je rezultiralo sa 12 miliona porođaja, dok se 55% neželjenih trudnoća završava sa pobačajima, koji su često nebezbedni. Majke adolescentkinje suočavaju se sa većim rizikom od eklampsije, puerperalnog endometritisa i sistemskih infekcija nego žene uzrasta 20-24 god. a bebe adolescentnih majki suočavaju se sa većim rizikom od male porođajne težine, prevremenog porođaja i teškog neonatalnog stanja. Podaci o porođajima među devojkicama uzrasta 10-14 god. postaju sve dostupniji. Globalno, stopa rađanja kod devojkica uzrasta 10-14 god. u 2023. god. procenjena je na 1,5 na 1000 žena, sa višim stopama u podsaharskoj Africi i Latinskoj Americi i Karibima. Sprečavanje trudnoće među

COMPARATIVE ANALYSIS OF ADOLESCENT PREGNANCIES COMPLETED BY DELIVERY AT THE ZAJEČAR MATERNITY HOSPITAL IN 2007 AND 2025

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ORDINANCE "HARMONY, ZAJEČAR, SERBIA

Summary: Introduction: Adolescence (from the Latin *adolescere*, meaning “to become mature, to grow up”) lasts from 10 to 19 years according to the definition of the World Health Organization. Adolescent pregnancy represents a significant medical and social challenge. The aim of this study was to compare epidemiological parameters and perinatal outcomes at the maternity ward in Zaječar over an 18-year period, specifically to analyze and compare the frequency and outcomes of deliveries among adolescent girls in Zaječar, and to present the incidence of adolescent births, newborn birth weight, mode of delivery, and employment status of adolescent mothers in 2007 compared to 2025 in Zaječar. **METHODS:** A retrospective analysis of delivery records and medical histories of women who gave birth at the Gynecology and Obstetrics Department of the Health Center Zaječar, along with statistical data analysis. **RESULTS:** The results show that the total number of deliveries almost halved from 2007 to 2025, from 555 to 298. The number of adolescent mothers also decreased from 46 (8.29%) in 2007 to 11 (3.69%) in 2025, which is statistically significant ($\chi^2 = 4.72$; $p = 0.029$). The majority of newborns of adolescent mothers in 2007 were eutrophic, 39 (84.78%), with a mean birth weight of $2850 \text{ g} \pm 410$, while in 2025 all newborns were eutrophic with a mean birth weight of $3100 \text{ g} \pm 350 \text{ g}$, but without a statistically significant difference ($t = 1.41$; $p = 0.16$). In both observed periods, deliveries were predominantly vaginal, although the frequency of cesarean sections was higher in 2025, without statistical significance ($\chi^2 = 1.56$; $p = 0.21$). Adolescent mothers were predominantly unemployed in both periods. **CONCLUSION:** Comparative analysis shows that the proportion of adolescent deliveries significantly decreased from 8.28% in 2007 to 3.69% in 2025 ($\chi^2 = 4.72$; $p = 0.029$). No statistically significant difference was found in birth weight ($t = 1.41$; $p = 0.16$). The frequency of cesarean sections was higher in 2025, but without statistical significance ($\chi^2 = 1.56$; $p = 0.21$). In both 2007 and 2025, adolescent mothers were unemployed and economically dependent. One of the major tasks for obstetricians and gynecologists is to identify adolescents at risk and prevent behaviors leading to unintended pregnancy. Further work on primary prevention in local communities of eastern Serbia is necessary.

Keywords: adolescent pregnancy, childbirth, vaginal delivery, caesarean section, eutrophic newborn, birth weight, reproductive health

Introduction Adolescence (from the Latin *adolescere*, meaning “to become mature, to grow up”), as we understand it today, is the result of physical, physiological, and psychological development, as well as the social and cultural conditions of the environment. According to the definition of the World Health Organization from 1980, it lasts from 10 to 19 years (1). Earlier physical maturation, accompanied by early sexual experience and non-use of contraceptive methods, leads to accidental, unplanned, and unwanted pregnancy (2). For safe motherhood, in addition to physical capability, which older adolescents possess, emotional stability, maturity, and experience are also necessary (3). Adolescent pregnancies are a global public

health issue. Since 2019, adolescent girls aged 15–19 years in low- and middle-income countries have had an estimated 21 million pregnancies annually, resulting in 12 million births, while 55% of unintended pregnancies end in abortion, which is often unsafe. Adolescent mothers face a higher risk of eclampsia, puerperal endometritis, and systemic infections compared to women aged 20–24 years, while infants of adolescent mothers face a higher risk of low birth weight, preterm birth, and severe neonatal conditions. Data on births among girls aged 10–14 years are becoming increasingly available. Globally, the birth rate among girls aged 10–14 years in 2023 was estimated at 1.5 per 1,000 women, with higher rates in sub-Saharan Africa and Latin America

adolescentima i smrtnosti i morbiditeta povezanih sa trudnoćom su temeljni za postizanje pozitivnih zdravstvenih ishoda tokom celog životnog veka i imperativ za postizanje ciljeva održivog razvoja u vezi sa zdravljem majki i novorođenčadi. (4,5,6). **Cilj rada: Analiza i poređenje učestalosti i ishoda porođaja kod adolescentkinja u Zaječaru u dva vremenska perioda odnosno da** pokaže učestalost porođaja adolescentnih trudnica, telesnu masu novorođenčadi, način završavanja porođaja i zaposlenost adolescentnih majki 2007. god. verzus 2025. godina. u Zaječaru.

ISPITANICE I METODE

Istraživanje je dizajnirano kao komparativna, retrospektivna studija. Podaci su prikupljeni iz porođajnog protokola porodilišta istorija bolesti

porođenih žena u GA odeljenju ZC Zaječar 2007. i 2025. godinu. Analizirani su: ukupan broj porođaja, starost majke, način završetka porođaja i telesna masa novorođenčeta. Statistička obrada urađena je u programu SPSS, primenom Hi-kvadrat testa za atributivne kategoričke varijable i Studentovog t-testa za nezavisne uzorke. Retrospektivnom analizom porođajnog protokola i istorija bolesti porođenih žena u GA odeljenju ZC Zaječar ustanovili smo da je u 2007. god. od 555 porodilja, 46 bilo adolescentnog uzrasta od 14 do 19 god. dok je u 2025. god. od 298 porodilja, samo 11 bilo tog uzrasta.

REZULTATI

Tabela 1: Učestalost i paritet porođenih žena u GA odeljenju u ZC Zaječar u 2007. god.

Paritet God. života	Paritet							Ukupno
	I	II	III	IV	V	VI	VII	
14 -19 god. Adolescentkinje	40	6	/	/	/	/	/	46
20 - 34 god. Optimalan period rađanja	233	175	26	12	2	2	/	450
35 - 45 god. Starije porodilje	15	20	13	9	1	/	1	59
Svega	288	201	39	21	3	2	1	555

U 2007. god. u GA odeljenju ZC Zaječar, ukupno je bilo 555 porođaja. Najveći broj žena, njih 450 (81,08%), porođalo se između 20 i 34 god. tj. u optimalnom životnom dobu. Dominiraju prvorođke 288 (51,89%) i drugorođke 201 (36,22%). Starijih porodilja ima

59 (10,63%), uglavnom drugorođke 20 (33,89%). Najstarija prvorođka je imala 42 god. a najstarije porođene žene su imale 45 god. (četvrto i sedmorotka). U adolescentnom uzrastu bilo je 46 (8,29%) porodilja.

Tabela 2: Učestalost i paritet porođenih žena u GA odeljenju u ZC Zaječar u 2025. god.

Paritet Godine života	Paritet								Ukupno
	I	II	III	IV	V	VI	VII	VIII	
14 -19 god. Adolescentkinje	10	1	/	/	/	/	/	/	11
20 - 34 god. Optimalan period rađanja	112	77	21	5	5	/	2	1	223
35 - 46 god. Starije porodilje	16	25	13	6	2	1	1	/	64
Svega	138	103	34	11	7	1	3	1	298

and the Caribbean. Preventing pregnancy among adolescents, as well as pregnancy-related mortality and morbidity, is fundamental for achieving positive lifelong health outcomes and is imperative for meeting sustainable development goals related to maternal and newborn health (4–6). Aim of the study: To analyze and compare the frequency and outcomes of deliveries among adolescent girls in Zaječar across two time periods, specifically to present the incidence of adolescent births, newborn birth weight, mode of delivery, and employment status of adolescent mothers in 2007 versus 2025 in Zaječar.

Participants and Methods

The study was designed as a comparative retrospective study. Data were collected from delivery records and medical histories of women

who gave birth at the Gynecology and Obstetrics Department of the Health Center Zaječar in 2007 and 2025. The following parameters were analyzed: total number of deliveries, maternal age, mode of delivery, and newborn birth weight. Statistical analysis was performed using SPSS software, applying the chi-square (χ^2) test for categorical variables and Student's t-test for independent samples. A retrospective review of delivery records and medical histories in the Gynecology and Obstetrics Department of the Health Center Zaječar showed that in 2007, out of 555 women who gave birth, 46 were adolescents aged 14–19 years, while in 2025, out of 298 women who gave birth, only 11 belonged to this age group..

RESULTS

Table 1: Frequency and parity of women who gave birth in the GA department in ZC Zaječar in 2007.

God. života	Paritet							Ukupno
	I	II	III	IV	V	VI	VII	
14 -19 god. Adolescentkinje	40	6	/	/	/	/	/	46
20 - 34 god. Optimalan period rađanja	233	175	26	12	2	2	/	450
35 - 45 god. Starije porodilje	15	20	13	9	1	/	1	59
Svega	288	201	39	21	3	2	1	555

In 2007, a total of 555 deliveries were recorded at the Gynecology and Obstetrics Department of the Health Center Zaječar. The majority of women, 450 (81.08%), were aged between 20 and 34 years, i.e., in the optimal reproductive age. Primiparous women predominated with 288 (51.89%), followed by secundiparous women with 201 (36.22%).

There were 59 (10.63%) older parturients, mostly secundiparous (20; 33.89%). The oldest primiparous woman was 42 years old, while the oldest women who gave birth were 45 years old (fourth- and seventh-time mothers). In the adolescent age group, there were 46 (8.29%) parturients..

U 2025. god. u GA odeljenju ZC Zaječar, ukupno je bilo 298 porođaja. Najveći broj žena, njih 223 (74,83%), porođalo se između 20 i 34 god. tj. u optimalnom životnom dobu. Dominiraju prvoročke 138 (46,31%) i

drugoročke 103 (34,56%). Starijih porođilja ima 64 (21,48%), uglavnom drugoročki 25 (39,06%). Najstarija prvoročka je imala 44 god. a najstarija porođena žena je imala 46 god. (trećeročka). U adolescentnom uzrastu je 11 (3,69%) porođilja.

Tabela 3: Starost i paritet adolescentnih porođilja u GA odeljenju ZC Zaječar u 2007. g.

God. života Paritet	14	15	16	17	18	19	Ukupno
I	1	3	2	8	6	20	40
II	/	/	/	1	2	3	6
Σ	1	3	2	9	8	23	46

U 2007. god. adolescentnih porođilja je bilo 46 (8,28%). Najmlađa je imala 14 god. Najviše je bilo devetnaestogodišnjakinja 23

(50%). Prvi put se porođalo 40, a 6 je bilo drugoročki.

Tabela 4: Starost i paritet adolescentnih porođilja u GA odeljenju ZC Zaječar u 2025. g.

God. života Paritet	14	15	16	17	18	19	ukupno
I	/	/	/	1	4	5	10
II	/	/	/	/	1	/	1

U 2025. god. adolescentnih porođilja je 11 (3,69%). Najmlađa ima 17 god. Prvi put se porođalo 10, a samo jedna je drugoročka sa 18 god.

Broj porođaja se skoro prepolovio od 2007. do 2025. god. sa 555 na 298 dok se broj adolescentnih porođilja takođe smanjio sa 46 (8,29%) 2007. god. na 11 (3,69%) 2025. god, što je statistički značajno ($\chi^2=4.72$; $p=0.029$).

Tabela 5: Prikaz telesne mase novorođenčadi adolescentnih majki porođenih u GA odeljenju ZC Zaječar u 2007. god.

God. života Telesna težina	14	15	16	17	18	19	Ukupno
1000 - 1499 gr	/	/	1	1	/	/	2
1500 - 2499 gr	1	1	/	1	/	2	5
2500 - 3999 gr	/	2	1	7	8	21	39
≥ 4000 gr	/	/	/	/	/	/	/
Σвсга	1	3	2	9	8	23	46

Table 2: Frequency and parity of women giving birth in the GA department in ZC Zaječar in 2025.

Paritet \ Godine života	I	II	III	IV	V	VI	VII	VIII	Ukupno
14 -19 god. Adolescentkinje	10	1	/	/	/	/	/	/	11
20 - 34 god. Optimalan period rađanja	112	77	21	5	5	/	2	1	223
35 - 46 god. Starije porodilje	16	25	13	6	2	1	1	/	64
Svega	138	103	34	11	7	1	3	1	298

In 2025, a total of 298 deliveries were recorded at the Gynecology and Obstetrics Department of the Health Center Zaječar. The majority of women, 223 (74.83%), were aged between 20 and 34 years, i.e., in the optimal reproductive age. Primiparous women predominated with 138 (46.31%), followed by

secundiparous women with 103 (34.56%). There were 64 (21.48%) older parturients, mostly secundiparous women (25; 39.06%). The oldest primiparous woman was 44 years old, while the oldest woman who gave birth was 46 years old (a third-time mother). In the adolescent age group, there were 11 (3.69%) parturients..

Table 3: Age and parity of adolescent mothers in the GA department of ZC Zaječar in 2007..

God. života \ Paritet	14	15	16	17	18	19	Ukupno
I	1	3	2	8	6	20	40
II	/	/	/	1	2	3	6
Σ	1	3	2	9	8	23	46

In 2007, there were 46 adolescent parturients (8.28%). The youngest was 14 years old. The majority were 19-year-olds, 23 (50%).

Forty women were primiparous, while 6 were secundiparous..

Table 4: Age and parity of adolescent mothers in the GA department of ZC Zaječar in 2025.

God. života \ Paritet	14	15	16	17	18	19	ukupno
I	/	/	/	1	4	5	10
II	/	/	/	/	1	/	1

In 2025, there were 11 adolescent parturients (3.69%). The youngest was 17 years old. Ten were primiparous, while only one was secundiparous, aged 18. The total number of deliveries almost halved from 2007 to 2025,

from 555 to 298, while the number of adolescent parturients also decreased from 46 (8.29%) in 2007 to 11 (3.69%) in 2025, which is statistically significant ($\chi^2 = 4.72$; $p = 0.029$).

Novorođenčad prema telesnoj masi, delimo na onu koja su: normalne mase (2500 - 3999 grama.), niske porođajne mase (1500 - 2499 grama), vrlo niske porođajne mase (1000 - 1499 grama), i makrosomna (preko 4000 grama). (5). Porođajna masa deteta je pokazatelj ne samo zdravlja majke i njene uhranjenosti, već i prognostički faktor novorođenčeta za preživljavanje, rast, zdrav život i psihosocijalni razvoj.

Na našem uzorku iz 2007. god. 39 (84,78%) novorođene dece je eutrofično, mase od 2500 do 3999 grama. Niske porođajne mase

je 5 (10,87%) novorođenčadi, a vrlo niske porođajne mase 2 (4,35%). U 2025. god. svih 11 novorođenčadi je bilo eutrofično. Najveći broj novorođenčadi naših adolescentkinja 2007. god. je eutrofično 39 (84,78%) sa srednjom telesnom masom 2850grama \pm 410, dok su 2025. god. sva novorođenčad eutrofična, sa telesnom masom 3100grama \pm 350g, ali bez statistički značajne razlike ($t = 1.41$, $p = 0.16$). Naš uzorak je previše mali da bi se dokazalo važeće mišljenje u zvaničnoj literaturi da su novorođenčad adolescentkinja niske porođajne mase.

Tabela 6: Način završetka porođaja kod adolescentnih trudnica u GA odeljenju ZC Zaječar u 2007. god.

GODINE ŽIVOTA/ /NAČIN POROĐAJA	14	15	16	17	18	19	Ukupno
Vaginalni porođaj	1	2	1	9	4	20	37
Carski rez	/	1	1	/	4	3	9
Svega	1	3	2	9	8	23	46

U 2007. god. vaginalnim putem se porođalo 37 adolescentkinja (80,43%) dok je kod 9 adolescentkinja (19,57%) urađen carski

rez. U kontrolnoj grupi starijih od 19 godina procenat carskih rezova je veći, 170 je imalo carski rez (30,63%).

Tabela 7: Način završetka porođaja kod adolescentnih trudnica u GA odeljenju ZC Zaječar u 2025. god.

God. života	17	18	19	Ukupno
Način porođaja				
Vag. porođaj	1	3	3	7
Carski rez	/	2	2	4
Svega	1	5	5	11

U 2025. god. vaginalnim putem se porođalo 7 (63,64%) adolescentkinja dok je kod 4 (36,36%) urađen carski rez. U kontrolnoj grupi, procenat carskih rezova je veći 53,02%. Od 11 novorođenčadi 7 je devojčica i 4 dečaka. U

oba vremenska perioda, porođaji su uglavnom bili vaginalni, mada je učestalost carskog reza veća u 2025, ali bez statističke značajnosti ($\chi^2 = 1.56$; $p = 0.21$).

Table 5: Presentation of the body weight of newborns of adolescent mothers born in the GA department of ZC Zaječar in 2007

God. života Telesna težina	14	15	16	17	18	19	Ukupno
1000 - 1499 gr	/	/	1	1	/	/	2
1500 - 2499 gr	1	1	/	1	/	2	5
2500 - 3999 gr	/	2	1	7	8	21	39
≥ 4000 gr	/	/	/	/	/	/	/
Свeра	1	3	2	9	8	23	46

Newborns by birth weight are classified as follows: normal weight (2500–3999 g), low birth weight (1500–2499 g), very low birth weight (1000–1499 g), and macrosomic (>4000 g) (5). Birth weight is an indicator not only of the mother's health and nutritional status, but also a prognostic factor for the newborn's survival, growth, long-term health, and psychosocial development. In our 2007 sample, 39 (84.78%) newborns were eutrophic, with a birth weight ranging from 2500 to 3999 g. Low birth weight was recorded in 5 (10.87%) newborns, while 2

(4.35%) had very low birth weight. In 2025, all 11 newborns were eutrophic. The majority of newborns of adolescent mothers in 2007 were eutrophic (39; 84.78%), with a mean birth weight of 2850 g ± 410, while in 2025 all newborns were eutrophic, with a mean birth weight of 3100 g ± 350 g, with no statistically significant difference ($t = 1.41$; $p = 0.16$). Our sample is too small to confirm the widely accepted findings in the literature that newborns of adolescent mothers are more frequently of low birth weight.

Table 6: Method of childbirth in adolescent pregnant women in the GA department of ZC Zaječar in 2007.

GODINE ŽIVOTA/ /NAČIN POROĐAJA	14	15	16	17	18	19	Ukupno
Vaginalni porođaj	1	2	1	9	4	20	37
Сарски рез	/	1	1	/	4	3	9
Свeга	1	3	2	9	8	23	46

In 2007, 37 adolescent mothers (80.43%) delivered vaginally, while 9 adolescents (19.57%) underwent cesarean

section. In the control group of women older than 19 years, the rate of cesarean delivery was higher, with 170 cases (30.63%).

Table 7: Method of childbirth among adolescent pregnant women in the GA department of ZC Zaječar in 2025.

God. života Način porođaja	17	18	19	Ukupno
Vag. porođaj	1	3	3	7

Tabela 8: Uporedni pregled kategorije osiguranja i zaposlenosti kod adolescentkinja i kontrolne grupe ostalih porođenih žena u GA odeljenju ZC Zaječar u 2007. god.

Ispitanice	Adolescentkinje	Kontrolna grupa	Ukupno
Vid osiguranja			
Nezaposleno lice	26	150	176
Radnik	2	182	184
Član porodice radnika	13	121	134
Član porodice penzionera	/	2	2
Poljoprivredni proizvođač	3	30	33
Samostalna delatnost	/	14	14
Izbeglice	/	5	5
Privatno lice	2	5	7
Ukupno	46	509	555

Najveći broj adolescentkinja je nezaposleno ili izdržavano lice, dok je u kontrolnoj grupi broj zaposlenih znatno veći. Trudnoća i porođaj adolescentkinja znatno smanjuje mogućnost njihovog obrazovanja i završetka školovanja a posledično i mogućnost da se zaposle. Sve ovo doprinosi njihovom nižem socijalno-ekonomskom statusu, a samim tim i nižem standardu. Ovo, kao i neželjena trudnoća, utiče na adolescentkinje da, češće nego žene u kontrolnoj grupi, ostave svoju novorođenčad u porodilištu. U 2025. god. od 11 porođenih trudnica adolescentnog uzrasta, jedna je bila još uvek učenica, 6 je bilo na zavodu za zapošljavanje i 4 su bile osigurane preko članova porodice.

DISKUSIJA

Rezultati ukazuju na značajan trend smanjenja adolescentnih porođaja u Zaječaru, što se može pripisati boljoj edukaciji i dostupnosti kontracepcije, u skladu sa globalnim trendovima i podacima World Health Organization [4]. Od 1999. do 2003. god. u GA odeljenju ZC Zaječar procenat carskih rezova kod adolescentkinja je 13,54% što je manje od našeg procenta u 2007. god. (3)

Ipak, veća stopa carskih rezova u 2025. godini, slično nalazima Tomića et al. [8], odražava savremene trendove u medicini i defanzivno akušerstvo kod mladih prvorođki. Veća telesna masa beba u novijem uzorku sugeriše bolji kvalitet prenatalne nege i ishrane trudnica u poređenju sa periodom od pre dve decenije [5,6].

U regionalnim studijama (Kosovska Mitrovica, Zemun) takođe se beleži pad učestalosti, ali varijabilnost u zavisnosti od socio-ekonomskih uslova. U Kosovskoj Mitrovici, za 10 godina od 2000. god. do 2009. god. bilo je 6.335 porođaja i 396 (6.2%) adolescentnih porodilja životne dobi od 12 do 19 god. (7).

U Zemunu od januara 2016. god. do decembra 2022. god. bilo je 124 porodilja adolescentnog uzrasta, tj 1% u odnosu na ukupan broj porođaja. (8)

Socio-ekonomski faktori ostaju ključni – adolescentkinje su uglavnom nezaposlene i ekonomski zavisne.

Iako je uočen trend veće telesne mase novorođenčadi, razlika nije statistički značajna, što je posledica malog uzorka. Prema podacima Instituta za javno zdravlje Srbije „Dr Milan Jovanović Batut“ [9], uočavaju se značajne promene u reproduktivnim trendovima u Srbiji u periodu od 2007. do 2023/2024. godine. Naime, u periodu od 2007. do 2023/2024: je smanjen ukupan broj porođaja za 14,70% ali ne tako drastično kao u Zaječaru od 2007. do 2025. god. za 46,31%. Ali broj adolescentnih porođaja je u celoj Srbiji od 2007 do 2024 smanjen od 6,5% na 3,8%, na oko polovine ili 51,1%, dok je smanjenje značajno veća za oko 3/4 ili 76,1% u Zaječaru. U podacima Batuta je takođe smanjena mrtvorodenost (opšta) ali rizici u adolescentnim trudnoćama i dalje ostaju veći a niska porođajna masa i dalje češća kod mladih majki [9] (Tabela 9).

Carski rez	/	2	2	4
Svega	1	5	5	11

In 2025, 7 adolescent mothers (63.64%) delivered vaginally, while 4 (36.36%) underwent cesarean section. In the control group, the rate of cesarean delivery was higher, at 53.02%. Of the 11 newborns, 7 were female

and 4 were male. In both observed time periods, deliveries were predominantly vaginal, although the frequency of cesarean section was higher in 2025, without statistical significance ($\chi^2 = 1.56$; $p = 0.21$).

Table 8: Comparative overview of the category of insurance and employment among adolescent girls and the control group of other women who gave birth in the GA department of ZC Zaječar in 2007.

Vid osiguranja	Ispitanice	Adolescentkinje	Kontrolna grupa	Ukupno
Nezaposleno lice		26	150	176
Radnik		2	182	184
Član porodice radnika		13	121	134
Član porodice penzionera		/	2	2
Poljoprivredni proizvođač		3	30	33
Samostalna delatnost		/	14	14
Izbeglice		/	5	5
Privatno lice		2	5	7
Ukupno		46	509	555

The majority of adolescent mothers are unemployed or dependents, while in the control group the number of employed women is significantly higher. Adolescent pregnancy and childbirth significantly reduce the possibility of continuing education and completing schooling, and consequently limit employment opportunities. All of this contributes to their lower socio-economic status and, therefore, lower standard of living. This, as well as unintended pregnancy, leads adolescent mothers more often than women in the control group to leave their newborns in the maternity ward. In 2025, out of 11 adolescent mothers, one was still a student, 6 were registered with the employment agency, and 4 were insured through family members.

DISCUSSION

The results indicate a significant trend of decreasing adolescent births in Zaječar, which may be attributed to better education and improved access to contraception, in line with global trends and World Health Organization data [4]. From 1999 to 2003 at the Gynecology and Obstetrics Department of the Health Center

Zaječar, the cesarean section rate among adolescents was 13.54%, which is lower than our rate in 2007 (3). However, the higher cesarean section rate in 2025, similar to findings by Tomić et al. [8], reflects modern medical trends and defensive obstetrics in younger primiparous women. The higher birth weight of newborns in the more recent sample suggests better quality prenatal care and nutrition of pregnant women compared to the period two decades earlier [5,6]. Regional studies (Kosovska Mitrovica, Zemun) also show a decline in adolescent births, although with variability depending on socio-economic conditions. In Kosovska Mitrovica, over a 10-year period from 2000 to 2009, there were 6,335 deliveries and 396 (6.2%) adolescent mothers aged 12–19 years (7). In Zemun, from January 2016 to December 2022, there were 124 adolescent mothers, representing 1% of total deliveries (8). Socio-economic factors remain crucial—adolescent mothers are predominantly unemployed and economically dependent. Although an increasing trend in newborn birth weight was observed, the difference was not statistically significant due to the small sample

Tabela 9. Analiza adolescentnih trudnoća i perinatalnih ishoda u celoj Srbiji (2007–2024)[9]

Pokazatelj	2007	2023	2024*
Ukupan broj porođaja	~68.000	~60.000	~58.000
Adolescentni porođaji	~4.500	~2.500	~2.300
Učešće (%)	~6.5%	~4%	~3.8%
Mrtvorodenost (na 1000)	~6–7	~4–5	~4
Niska porođajna težina(%)	~7–8%	~6–7%	~6–7%

(Niska porođajna težina <2500 g) *2024 – preliminarni podaci

Prema izveštaju i analizi UNICEFA iz 2023 [10] globalne stope rađanja kod adolescenata smanjene su za više od 40% od 2000. godine, pri čemu je kod starosne grupe od 15–19 godina stopa pala na 39 rođenja na 1.000 devojaka, Ipak značajne nejednakosti u ovim stopama i dalje postoje, posebno u podsaharskoj Africi. Iako je napredak uočljiv, rano rađanje ostaje visoko među ranjivim grupama, često uslovljeno dečjim brakovima i ograničenim pristupom kontracepciji. Ključni trendovi i podaci iz analize za 2023. godinu ukazuju na regionalne razlike: Podsaharska Afrika ima najvišu stopu rađanja kod adolescenata (93 rođenja na 1.000 devojaka uzrasta 15–19 godina), dok Zapadna Evropa i Severna Amerika beleže najniže stope.

Pad stopa po uzrastu od od 2000. godine kod devojaka uzrasta 10–14 godina smanjena je za približno 70%. a od 15 do 19 godina za 40%. Oko 76% prvih porođaja kod devojaka mlađih od 18 godina dešava se u braku, što često nosi veći rizik od nasilja i zdravstvenih komplikacija. Kada se uzmu u obzir socioekonomski faktori onda je adolescentna trudnoća češća kod devojaka sa nižim nivoom obrazovanja i lošijim ekonomskim statusom. Zbog malog uzorka adolescentkinja u GA ZC Zaječar ne može da se sudi o riziku od mrtvorodenja, prema izveštaju o zdravstvenim ishodima [11] utvrđeno je da novorođenčad adolescentnih majki imaju za 50% veći rizik od mrtvorodenja, smrti u prvoj nedelji života i

težem morbiditetu u poređenju sa decom majki u dvadesetim godinama.

Uprkos poboljšanjima i smanjenju adolescentnog rađanja, ako se trenutni trendovi nastave, značajne nejednakosti povezane sa ekonomskim statusom u adolescentnom rađanju će opstati, prema podacima studije iz 2023. godine za Latinsku Ameriku i Karibe [10].

ZAKLJUČAK

2025. godine je značajno smanjen ukupni broj porođaja u porodilištu Zaječar u odnosu na 2007. a posebno je smanjen broj porođaja u adolescentnom uzrastu na samo 11 (3,69%). Komparativnom analizom zaključuje se da je učešće adolescentnih porođaja od 2007 (46 porodilja -8,28%). u komparaciji sa 2025. godinom (11 porodilja-3,69%) statistički značajno smanjeno ($\chi^2=4.72$; $p=0.029$). Nije dokazana statistički značajna razlika u porođajnoj telesnoj masi ($t=1.41$; $p=0.16$). Povećana stopa carskih rezova ukazuje na promenu u akušerskom pristupu. Učestalost carskog reza je veća u 2025, ali bez statističke značajnosti ($\chi^2=1.56$; $p=0.21$). U oba vremenska perioda, 2007. i 2025. godine adolescentkinje su nezaposlene i ekonomski zavisne. Jedan od velikih zadataka koji stoje pred ginekolozima-akušerima je identifikovati adolescente u riziku i prevenirati ponašanje koje dovodi do neočekivane trudnoće.

size. According to data from the Institute of Public Health of Serbia “Dr Milan Jovanović Batut” [9], significant changes in reproductive trends in Serbia were observed between 2007 and 2023/2024. Specifically, the total number of births decreased by 14.70%, which is less pronounced than in Zaječar, where a 46.31% decrease was observed between 2007 and 2025.

However, adolescent births in Serbia decreased from 6.5% to 3.8% (a reduction of about 51.1%), while the reduction in Zaječar was more pronounced at approximately 76.1%. The Batut data also show a decrease in stillbirths (overall), while risks in adolescent pregnancies remain higher and low birth weight is still more common among young mothers [9] (Table 9).

Table 9. Analysis of adolescent pregnancies and perinatal outcomes in all of Serbia (2007–2024)[9]

Pokazatelj	2007	2023	2024*
Ukupan broj porođaja	~68.000	~60.000	~58.000
Adolescentni porođaji	~4.500	~2.500	~2.300
Učešće (%)	~6.5%	~4%	~3.8%
Mrtvorodenost (na 1000)	~6-7	~4-5	~4
Niska porođajna težina(%)	~7-8%	~6-7%	~6-7%

(Low birth weight <2500 g) *2024 - preliminary data

According to the UNICEF report and analysis from 2023 [10], global adolescent birth rates have decreased by more than 40% since 2000, with the rate among the 15–19 age group falling to 39 births per 1,000 girls. However, significant inequalities in these rates still exist, particularly in sub-Saharan Africa. Although progress is evident, early childbearing remains highly prevalent among vulnerable groups, often driven by child marriage and limited access to contraception. Key trends and data from the 2023 analysis indicate regional disparities: sub-Saharan Africa has the highest adolescent birth rate (93 births per 1,000 girls aged 15–19), while Western Europe and North America report the lowest rates. The decline by age group since 2000 shows that among girls aged 10–14 years, birth rates have decreased by approximately 70%, while among those aged 15–19 years the decrease is about 40%. Around 76% of first births among girls under 18 occur within marriage, which is often associated with a higher risk of violence and health complications. When socioeconomic factors are considered, adolescent pregnancy is more common among girls with lower educational attainment and poorer economic status. Due to the small sample of adolescents in the Gynecology and Obstetrics Department of the Health Center Zaječar, it is not possible to assess the risk of stillbirth; however, according to a report on health outcomes [11], newborns of adolescent mothers

have a 50% higher risk of stillbirth, neonatal death in the first week of life, and severe morbidity compared to children of mothers in their twenties. Despite improvements and a reduction in adolescent births, if current trends continue, significant inequalities related to socioeconomic status in adolescent childbearing will persist, according to a 2023 study for Latin America and the Caribbean [10].

CONCLUSION

In 2025, there was a significant reduction in the total number of deliveries at the Zaječar maternity ward compared to 2007, with a particularly pronounced decrease in adolescent births to only 11 cases (3.69%). Comparative analysis shows that the proportion of adolescent deliveries significantly decreased from 2007 (46 parturients – 8.28%) to 2025 (11 parturients – 3.69%) ($\chi^2 = 4.72$; $p = 0.029$). No statistically significant difference was found in birth weight ($t = 1.41$; $p = 0.16$). The increased rate of cesarean sections indicates a change in obstetric practice. Although the frequency of cesarean delivery was higher in 2025, this difference was not statistically significant ($\chi^2 = 1.56$; $p = 0.21$). In both 2007 and 2025, adolescent mothers were unemployed and economically dependent. One of the key tasks for obstetricians and gynecologists is to identify adolescents at risk and prevent behaviors leading to unintended pregnancy

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