

Trends in Caesarean section deliveries in Jordan from 1982 to 2017: retrospective analyses of annual hospital reports

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Abstract

Background: According to the World Health Organization, the ideal caesarean section rate is 10–15% but rates have increased worldwide over the past few decades. Data on caesarean section rates across all Jordanian health sectors over a long period, including recent data that could guide future healthcare policy and interventions, are currently unavailable.

Aims: To investigate caesarean sections trends and identify indications (medical and sociodemographic) associated with caesarean sections in Jordanian health sectors.

Methods: Medical records of 2.8 million births in Jordan in 1982–2017 were retrieved and analysed. CS trends were compared across health sectors (governmental, university, private, and military hospitals) and with trends in England, Lebanon and Islamic Republic of Iran. CS indications were established from retrospective data, based on 3799 CS births, in 2 hospitals (governmental and private).

Results: The CS rate in Jordan increased over the study period from 5.8 (± 1.9)% in 1982–1987 to 31.0 (± 0.7)% in 2015–2017. The caesarean sections rate in Jordan was initially lower (1983–2006) then became comparable (2007–2014) to that in England, but lower compared to that in Lebanon (2011–2016). In 2015–2017, caesarean sections rates in Jordanian health sectors were: 40.4 (± 2.6)% (university), 39.1 (± 1.8)% (private), 36.1 (± 0.2)% (military) and 27.4 (± 0.7)% (governmental). Previous CS (33.6%), abnormal presentation (20.3%), and patient request (16%) were the most common indications.

Conclusions: The CS rate in Jordan is on an alarming upward trend. Urgent action is needed to prevent further increase in CS rate, including provision of clear information, advice, and counselling to pregnant women, as well as strict adherence to high-quality medical guidelines.

Keywords: Caesarean section; Jordan; epidemiology; indications; trends

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Introduction

Caesarean section (CS) is a life-saving intervention if medically indicated. However, if performed without medical indication, it is associated with higher maternal and neonatal mortality and morbidity, such as maternal uterine rupture, abnormal placentation, and ectopic pregnancy, and neonatal altered immune development, increased likelihood of allergy, and atopy) (1). Children delivered by elective CS are at increased risk of hospitalization with paediatric infections, compared to their vaginally delivered counterparts (2). Indications for CS include cephalopelvic disproportion, chorioamnionitis, maternal pelvic deformity, malpresentation, uterine rupture, select multiple gestation, fetal distress, obstructed labour, and failed induction (3). Additional nonmedical reasons include maternal fear of vaginal delivery, and staff time constraints, fear of litigation, and potential financial gain in private hospitals. The ideal CS rate is 10–15% according to the World Health Organization (4).

In the Eastern Mediterranean region, Egypt had the highest reported CS rate in 2003 (26.2%) (5). Worldwide, rates have been increasing significantly over the years, signifying a global CS epidemic. Based on data from 169 countries (which included 98.4% of the worlds' births),

it was estimated that 29.7 million (21.1%) births occurred through CS in 2015. This is significantly higher than the rate of 12.1% reported in 2000 (6). The highest CS rate worldwide in 2015 was seen in the Dominican Republic (58.1%).

Table 1 shows studies reporting CS rates in the Eastern Mediterranean Region. The Lebanese Ministry of Public Health annual bulletins from 2011 to 2016 showed a steady CS delivery rate of around 46.6%. The Jordan Population and Family Health Survey (JPFHS) of 28 234 women showed that the CS delivery rate increased significantly from 18.2% in 2002 to 30.3% in 2012 (7). The 2017–2018 JPFHS report revealed that the CS rate for all births was 26%. This report also showed a higher CS rate among women aged 35–49 years (32%) compared to those aged < 20 years (17%), in private (30%) compared to public (25%) facilities, and among Jordanian (27%) compared to Syrian (22%) women or those of other nationalities (23%). Lastly, the CS rate was highest in Madaba (33%) and lowest in Aqaba (13%) (8). In Jordan University Hospital, Saleh reported a 6.9% increase in the CS rate from 1990 to 1999 (9). However, data on CS rates across all Jordanian health sectors over a long period, including recent data, are currently unavailable.

Table 1 Summary of relevant studies reporting on CS rates in the Mediterranean region

Study, date published	Study location	Study duration	No. of live births/ women studied	CS rate	Indications/associations	Compared to Jordan (P)
Zimmo et al., 2018 [16]	Gaza Strip, Palestine	January 2016 – April 2017	18 908	22.9%	Previous CS, multiple gestation, and preterm labour	–
Manyeh et al., 2018 [21]	Southern Ghana	2011 – 2013	4948	6.59%	Age of mother, educational level, parity, household socioeconomic status, district of residence, and level of education of household head	–
Lebanon, Ministry of Public Health, statistical bulletin, 2011–2016 [10]	Lebanon	2011–2016	569 627	46.1% in 2011, 47.6% in 2012, 46.5% in 2013, 45.6% in 2014, 46.7% in 2015 and 47.1% in 2016	–	< 0.001 (2011–2013) < 0.001 (2014–2016)
Khawaja and Al-Nsour, 2007 [22]	Jordan	1990, 1997 and 2002	16 296, 7335 and 7825	8.5%, 12.9% and 17.8%	Private hospitals, multiple births, child birth weight, old age at birth, and antenatal visits	0.189
Al Rifai, 2014 [7]	Jordan	2002, 2007 and 2012	3450, 6307 and 6365	18.2%, 20.1% and 30.3%	Based on data from Jordan Population and Family Health Survey	0.306
Carayol et al., 2008 [28]	Lebanon	November 1999 – May 2000	5231	Beirut–Mount Lebanon zone: 13.4%; elsewhere: 7.6%	Geographical differences in zones within Lebanon	–
Moni et al., 2007 [29]	Islamic Republic of Iran	1999–2003	30 924	40.4% overall (35.4% in 1999 and 42.3% in 2003)	Repeated CS and fetal distress with steady increase in elective CS	0.040
Elhag et al., 1994 [15]	Saudi Arabia	Not clear	1414	9.9%	Repeated CS, failure of progress, and fetal distress	–
Rafiei et al., 2018 [30]	Islamic Republic of Iran	1999–2016	197 514	48%	Maternal higher education, previous CS, and physician recommendation	–

CS = Caesarean section.

In this study, we investigated CS trends and identify indications (medical and sociodemographic) associated with CS deliveries in all health sectors in Jordan to guide future healthcare policy and interventions.

Methods

Study design

This was a cross-sectional study of 2 782 029 births in governmental, military, private and university hospitals in Jordan between 1982 and 2017. Temporal trends (4-year intervals) in CS rates were compared across health sectors in Jordan and compared to CS rates in England (Birth-ChoiceUK data) until 2014 (data from England unavailable after 2014). CS rates were also compared to those reported in Lebanon by the Ministry of Public Health from 2011 to 2016 (10).

Data collection

Data analysed represented all births in all governmental hospitals (1993–2017) and all military hospitals (1982–2017; except 1984, 1988, 1989 and 1991), based on official annual reports from respective organizations. The total numbers of births analysed for the governmental and military sector were 1 748 997 and 796 800, respectively (11,12). Data analysed for university and private hospitals represented a proportion of all births that occurred in these sectors over the study period. University hospitals were represented by the two largest centres: University of Jordan Hospital, Amman (2003–2017; 58 726 births) and King Abdullah University Hospital, Al-Ramtha (2004–2010; 13 198 births). The private sector was represented by four hospitals in Amman: Islamic Hospital (1993–2017; except 2003; 138 455 births), Ibn Al-Haytham Hospital (2008–2013; 5643 births), Speciality Hospital (2011–2014; 10 283 births), and Al-Amal Maternity Hospital (2015–2017; 9927 births). Data for university and private hospitals were based on official but unpublished records, acquired following the author’s request to these organisations. The CS rate in Jordan was established by quantifying the weighted average using all available health sector data.

The indications for CS were established from retrospective data, based on 3799 CS births in 2016, in Al-Bashir hospital (governmental; n = 2291) and Al-

Amal Maternity hospital (private; $n = 1508$), Amman. Data were acquired following the author's request to these organisations. The author was unable to retrieve the indications for CS from other institutions due to lack of data.

Ethical considerations

Research and ethical approval was granted from military hospitals (approval number 3/1, dated 11 May 2012). In governmental, university and private hospitals, institutional approval was granted to provide data but research and ethical review was waived due to the aggregated anonymised nature of the data.

Statistical analysis

Data were collated and quality checked using a predefined Excel sheet generated by the author. Student's t test was used to analyse the differences between CS rates in Jordan and England and among health sectors in Jordan. $P < 0.05$ was considered statistically significant.

Results

Trends in caesarean section rate in Jordan compared with England and Lebanon

Figure 1 compares the CS rates between Jordan and other countries. The CS rates in Jordan demonstrated an upward trend between 1983 and 2006: 6.0 (standard deviation 2.2)% in 1983–1986, 6.5 (1.1)% in 1987–1990, 7.1 (0.8)% in 1991–1994, 9.4 (0.7% in 1995–1998, 12.1 (1.0)% in 1999–2002 and 16.1 (2.0)% in 2003–2006. These rates were significantly lower than those in England during the same periods: 10.2 (0.3)% ($P = 0.010$), 11.0 (0.3)% ($P = 0.001$), 13.5 (1.1)% ($P \leq 0.001$), 16.8 (1.3)% ($P \leq 0.001$), 20.8 (1.3)% ($P \leq 0.001$) and 23.1 (1.0)% ($P \leq 0.001$), respectively. Between 2007–2010 and 2011–2014, the CS rates in Jordan [22.0 (2.3)% and 27.3 (1.5)%] increased to become compa-

rable with those in England [24.5 (0.2)% and 25.4 (0.6)%; $P = 0.067$ and 0.074 , respectively]. Since 2014, the CS rates in Jordan showed a steep rising trend (2015: 30.4%, 2016: 30.9%, 2017: 31.8%). No comparable data are available from England.

Between 2011 and 2016, CS rates in Lebanon were steady. Between 2011 and 2013, CS rates in Lebanon were significantly lower than in Jordan ($P \leq 0.001$): 46.1% (75 635 total births) in 2011, 47.6% in 2012 (77 924 births) and 46.5% in 2013 (87 648 births). During the following 3 years, the CS rate in Lebanon reached a plateau: 45.6% (104 671 total births), 46.7% (109 724 births) and 47.1% (114 025 births) in 2014, 2015 and 2016, respectively. Despite reaching a plateau, the CS rate in Lebanon remained significantly higher compared with that in Jordan. Nonetheless, with the current trend observed in Jordan and lack of data for previous years in Lebanon, it is impossible to predict when and if Jordan will reach the same levels as its neighbouring country.

Caesarean section trends across health sectors in Jordan

Table 2 shows the CS rates between 1982 and 2017 in all Jordanian health sectors.

According to the latest available data, the CS rate in 2015–2017 was 39.1 (1.8)% in private, 40.4 (2.6)% in university, 36.1 (0.2)% in military, and 27.4 (0.7)% in governmental hospitals. During 2013–2017, CS births were significantly higher in private versus governmental ($P < 0.001$), university versus governmental ($P < 0.001$), and university versus military ($P = 0.019$), but were similar in university and private hospitals ($P = 0.602$). Between 2004 and 2014, the highest upward trend was seen in private hospital (199.9% increase), followed by military (121.4% increase) and governmental (78.1% increase) hospitals, while the lowest increase was in university hospitals (22.1% increase).

Figure 1 Caesarean section rates in Jordan compared to England, Lebanon and other countries

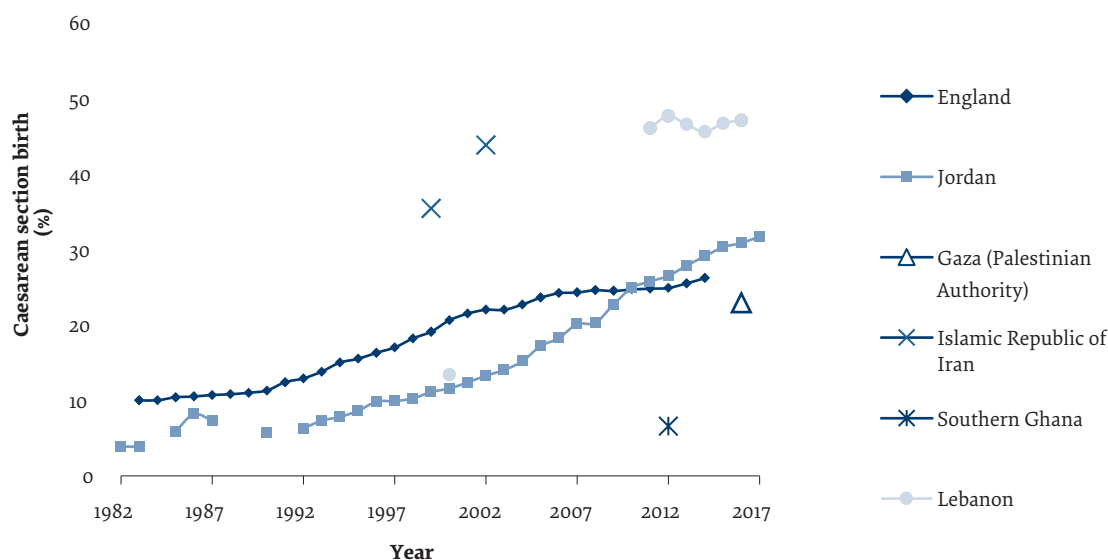


Table 2 CS rates overall in Jordan and according to Jordanian health sectors over the study period

Year	Jordan			University			Private			Military			Governmental		
	CS rate	No. of births/CS	No. of births/CS	CS rate	No. of births/CS	No. of births/CS	CS rate	No. of births/CS	No. of births/CS	CS rate	No. of births/CS	No. of births/CS	CS rate	No. of births/CS	No. of births/CS
1982–1987	5.8 (1.9)%	72 622/4338	72 622/4338	NA	NA	NA	NA	NA	5.8 (1.9)%	72 622/4338	72 622/4338	NA	NA	NA	NA
1988–1992	6.0 (0.4)%	37 641/2269	37 641/2269	NA	NA	NA	NA	NA	6.0 (0.4)%	37 641/2269	37 641/2269	NA	NA	NA	NA
1993–1997	8.7 (1.2)%	445 519/38 811	445 519/38 811	NA	NA	34 214/4425	13.2 (3.2)%	34 214/4425	7.5 (1.2)%	121 796 /9074	121 796 /9074	8.7 (1.0)%	289 509/25 312	289 509/25 312	8.7 (1.0)%
1998–2002	11.9 (1.2)%	484 129/56 843	484 129/56 843	NA	NA	35 096/4615	13.3 (1.5)%	35 096/4615	11.1 (1.4)%	115 093/12,798	115 093/12,798	11.8 (1.3)%	333 940/39 430	333 940/39 430	11.8 (1.3)%
2003–2005	15.4 (1.6)%	309 227/47 848	309 227/47 848	27.0 (3.4)%	10 241/3006	12 279/1872	15.3 (3.6)%	12 279/1872	15.5 (2.6)%	71 881/11 126	71 881/11 126	14.8 (1.1)%	214 826/31 844	214 826/31 844	14.8 (1.1)%
2006–2008	19.5 (1.1)%	343 976/67 316	343 976/67 316	34.2 (2.0)%	15 390/5294	17 670/3916	22.0 (2.2)%	17 670/3916	20.8 (1.5)%	82 438/17 308	82 438/17 308	17.8 (0.8)%	228 478/40 798	228 478/40 798	17.8 (0.8)%
2009–2011	24.4 (1.6)%	361 330/88 297	361 330/88 297	38.1 (2.3)%	18 141/6895	20 597/6078	28.9 (4.3)%	20 597/6078	26.3 (1.9)%	95 638/25 167	95 638/25 167	22.1 (1.3)%	226 954/50 157	226 954/50 157	22.1 (1.3)%
2012–2014	27.8 (1.3)%	358 443/99 632	358 443/99 632	38.0 (1.2)%	13 646/5178	23 112/8514	37.0 (1.4)%	23 112/8514	31.1 (3.1)%	95 275/29 656	95 275/29 656	24.8 (1.0)%	226 410/56 284	226 410/56 284	24.8 (1.0)%
2015–2017	31.0 (0.7)%	369 142/114 661	369 142/114 661	40.4 (2.6)%	14 506/5863	21 340/8333	39.1 (1.8)%	21 340/8333	36.1 (0.2)%	104 416/37 666	104 416/37 666	27.4 (0.7)%	228 880/62 799	228 880/62 799	27.4 (0.7)%
Total		2 782 029/520 015	2 782 029/520 015		71 924/26 236	164 308/37 753		164 308/37 753		796 800/149 402	796 800/149 402		1 748 997/306 624	1 748 997/306 624	

CS = Caesarean section; NA = not available.

Caesarean section indications

The most common CS indications were previous CS (33.6%, ≥ 2 previous CSs: 24%), abnormal presentation (20.3%) and patient request (16% in private hospitals only). The complete list of CS indications for Al-Bashir and Al-Amal Maternity hospitals is shown in Table 3.

Discussion

In this cross-sectional study of 2.8 million births in Jordan between 1982 and 2017 we showed an alarming increase in CS rate. We demonstrated that the CS rates were highest in university and private hospitals and lowest in military and governmental hospitals, and outlined the indications for CS in private and governmental hospitals. The JPFHS (data on 28 234 women from 2002, 2007 and 2012) showed that CS delivery was 2.29 and 2.31 times higher in university compared with private and governmental hospitals (7). Our study represents the most complete effort to date (longest timeline, most recent data, and largest population) to study CS trends in Jordanian health sectors and could guide future healthcare policy and intervention. The latest delivery data for Jordan come from the 2017–2018 JPFHS report that showed that the CS rate for all births was 26%. The CS rate in Jordan in oImprovements in healthcare in Jordan over the study period could partially explain why CS rates were initially significantly lower than in England in 1983–2006 and then comparable in 2007–2014. Based on our findings, the high CS rate in Jordan is partially explained by previous CS, breech deliveries being no longer vaginally delivered, and patient request (the latter in private hospitals only). We also found that fetal distress is a common CS indication in Jordan. This could be due to the widespread use of fetal monitoring, which is not routinely backed by scalp pH in most Jordanian hospitals. Several studies have previously shown the potential for decreasing CS rates by fetal scalp sampling protocols (13). Additional

Table 3 Comparison between Caesarean section indications in public and private hospitals

Indication	Hospital	
	Al-Bashir (government), n = 2291	Al-Amal Maternity (private), n = 1508
Previous CS	34% (779)	39% (588)
Abnormal presentation	20% (458)	15% (226)
Patient request	0% (0)	16% (241)
Precious baby	5% (115)	0% (0)
Failure to progress	13% (298)	11% (166)
Fetal distress	12% (275)	8% (121)
Antepartum haemorrhage	6% (137)	1% (15)
Pre-eclamptic toxemia	6% (137)	4% (60)
Multiple gestation	4% (92)	6% (91)

CS = Caesarean section.

potential CS causes not addressed in our study include fear of litigation, staff time constraints, and increasing learning opportunities in university hospitals and potential financial gain in university and private hospitals. Researchers have reported a direct relationship between increasing CS rate and the healthcare reimbursement system, indicating that obstetricians and gynaecologists have significant financial motivation to perform CS deliveries without medical necessity (14). However, this requires further investigation.

Table 1 shows the top CS indications in published studies reporting on CS rates in the Eastern Mediterranean Region. There are limitations to comparing the CS rates in Jordan with those in published studies. We highlight that the CS rates reported in our study represent hospital-based rates in Jordan. This varies from population-based CS rates, which take into account home births. Repeated CS, failure of progress of natural labour, and fetal distress were the main CS indications in a Saudi Hospital (15). Similarly, one study showed that previous CS, multiple gestation and single cephalic preterm labour were the largest contributors to the CS rate in Gaza Strip, Palestine (16). The prevalence of emergency CS varied across 6 governmental hospitals in Palestine, ranging from 5.8% to 22.6% among primiparous women and between 4.8% and 13.1% among parous women (17).

In our study, 16% of CSs performed in private hospitals were due to patient request. This is in agreement with other studies showing that the number of CSs performed at the mothers' request is increasing worldwide (18, 19). Cultural beliefs have a strong influence on the decision regarding mode of delivery [20]. In a cross-sectional study in China, 8.8% of 1169 pregnant women at ≥ 28 weeks' gestation stated that they preferred CS delivery. The most commonly mentioned reason was their belief that CS is safer and associated with less pain, compared to vaginal delivery (20). In Ghana, women who have household

heads with high levels of education are more likely to have CS delivery (21). However, such an association is not consistent across studies (22). The reasons behind patient request for CS in our study were unavailable. One area requiring future investigation is the satisfaction of Jordanian mothers following CS. At least 1 study has revealed dissatisfaction of the mothers undergoing CS during their stay in the hospital (23). It is unknown whether this is also true in Jordan.

It is the duty of obstetric teams to provide clear information on the benefits and hazards of CS to the mothers (19). Potentially avoidable CS deliveries should be reduced by following guidelines and checklists (24). Vaginal birth following previous CS is safe according to high-quality medical evidence (25), including a study performed in Jordan (26). However, strict adherence to guidelines is essential to reduce maternal and fetal mortality in this situation (27). Establishment of counselling sessions to eliminate maternal fear about vaginal delivery could be useful.

The limitations of the present study include the lack of complete data across all health sectors during the entire study period, and the small and limited amount of CS indication data, with none available from university and military hospitals. Therefore, our results cannot be generalized to the entire population. Furthermore, we were unable to compare CS rates in Jordan and England after 2014 due to lack of corresponding data from England.

Conclusion

The CS rate in Jordan is on an alarming upward trend. Urgent action is needed to prevent further increase, including provision of clear information, advice, and counselling to pregnant women, as well as strict adherence to high-quality medical guidelines.

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Competing interests: None declared.

Tendances des accouchements par césarienne en Jordanie de 1982 à 2017 : analyses rétrospectives des rapports hospitaliers annuels

Résumé

Contexte : Selon l'Organisation mondiale de la Santé, le taux idéal de césarienne est de 10 à 15 %, mais les taux ont augmenté dans le monde entier au cours des dernières décennies. Les données sur les taux de césariennes dans tous les secteurs de la santé jordaniens sur une longue période, y compris les données récentes qui pourraient orienter les futures politiques et interventions en matière de soins de santé, sont actuellement indisponibles.

Objectifs : Étudier les tendances en matière de césarienne et identifier les indications (médicales et sociodémographiques) associées à cette intervention dans les secteurs de la santé jordaniens.

Méthodes : Les dossiers médicaux de 2,8 millions de naissances survenues en Jordanie entre 1982 et 2017 ont été récupérés et analysés. Les tendances relatives à la césarienne ont été comparées entre les secteurs de la santé (hôpitaux publics, universitaires, privés et militaires) et avec celles de l'Angleterre, du Liban et de la République islamique d'Iran. Les indications de la césarienne ont été établies à partir de données rétrospectives, basées sur 3799 naissances par césarienne, dans deux hôpitaux (publics et privés).

Résultats : En Jordanie, le taux de césariennes a augmenté au cours de la période étudiée, passant de 5,8 % ($\pm 1,9$) entre 1982 et 1987 à 31,0 ($\pm 0,7$)% entre 2015 et 2017. En Jordanie, le taux de césariennes était initialement plus faible (1983 et 2006), puis il est devenu comparable (2007 et 2014) à celui de l'Angleterre, mais inférieur à celui du Liban (2011 et 2016). Durant la période 2015 et 2017, les taux de césarienne dans les secteurs de la santé en Jordanie étaient les suivants : 40,4 % ($\pm 2,6$) [université], 39,1 % ($\pm 1,8$) [privé], 36,1 % ($\pm 0,2$) [militaire] et 27,4 % ($\pm 0,7$) [gouvernemental]. Les indications les plus fréquentes étaient la césarienne antérieure (33,6 %), la présentation anormale (20,3 %) et la demande du patient (16 %).

Conclusions : Le taux de césariennes en Jordanie connaît une tendance à la hausse alarmante. Des mesures urgentes sont nécessaires pour empêcher une nouvelle augmentation du taux de césarienne, y compris la fourniture d'informations claires, de conseils aux femmes enceintes, ainsi que le respect strict de directives médicales de haute qualité.

اتجاهات الولادة بالعمليات القيصرية في الأردن خلال الفترة 1982 – 2017: تحليلات استرجاعية لتقارير المستشفيات السنوية

عبد الفتاح سالم

الخلاصة

الخلفية: طبقاً لمنظمة الصحة العالمية، يتراوح المعدل المثالي للعمليات القيصرية بين 10 و 15٪، غير أن المعدلات ارتفعت في جميع أنحاء العالم خلال العقود القليلة الماضية. ولا تتوافر حالياً في الأردن بيانات ممتدة لفترة زمنية طويلة حول معدلات إجراء العمليات القيصرية عبر جميع القطاعات الصحية، ويشمل ذلك أحدث البيانات التي يمكن أن توجه سياسات الرعاية الصحية وتدخلاتها المستقبلية.

الأهداف: هدفت هذه الدراسة إلى استقصاء اتجاهات العمليات القيصرية، وتحديد المؤشرات (الطبية، والاجتماعية السكانية) المرتبطة بالعمليات القيصرية في القطاعات الصحية الأردنية.

طرق البحث: استُرجعت السجلات الطبية وحُللت لما مجموعه 2.8 مليون ولادة في الأردن في الفترة ما بين 1982 و 2017. وقورنت اتجاهات العمليات القيصرية عبر قطاعات الصحة (المستشفيات الحكومية، والجامعية، والخاصة، والعسكرية) وكذلك مع الاتجاهات في إنجلترا، ولبنان، وجمهورية إيران الإسلامية. وحُدِّدت مؤشرات العمليات القيصرية من بيانات استرجاعية، استناداً إلى 3799 ولادة بالعمليات القيصرية في مستشفيين (أحدهما حكومي والآخر خاص).

النتائج: ارتفع معدل CS في الأردن خلال فترة الدراسة من 5.8 (1.9)٪ في 1982-1987 إلى 31.0 (0.7)٪ في 2015-2017. كان معدل CS في الأردن أقل في البداية (1983-2006) ثم أصبح قابلاً للمقارنة (2007-2014) مع مثيله في إنجلترا، ولكنه أقل مقارنةً بالمعدل في لبنان (2011-2016). في 2015-2017، كانت معدلات CS في القطاعات الصحية الأردنية: 40.4 (2.6)٪ (جامعي)، 39.1 (1.8)٪ (خاص)، 36.1 (0.2)٪ (عسكري) و 27.4 (0.7)٪ (حكومية). كانت المؤشرات الأكثر شيوعاً هي CS السابق (33.6٪) والعرض التقديمي غير الطبيعي (20.3٪) وطلب المريض (16٪).

الاستنتاجات: يتخذ معدل العمليات القيصرية في الأردن اتجاهًا تصاعدياً مثيراً للقلق. ويلزم اتخاذ إجراءات عاجلة لمنع حدوث زيادة أخرى في معدل العمليات القيصرية، ويشمل ذلك تقديم معلومات واضحة، وإسداء النصح والمشورة للنساء الحوامل، فضلاً عن الالتزام الصارم بالمبادئ التوجيهية الطبية العالية الجودة.

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