

Reproduction perspectives in South Asia: Understanding ‘caesarian section decisions’, through consumption factors.

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Abstract

Emphasizing on health care attitude in commodity economy perspective, the study aims to explain the rise of consumer community in terms of value laden reciprocal benefit aspects. Through understanding the factors associating in caesarian section decisions, the objectives will work to find linkage between individual to domestic utility need and continental policy of public welfare ground. In recent years, C-section rates are swelling in some South Asian countries and crossing the reference level of WHO. This creates a doubt that whether the profit maximizing behavior of hospitals and physicians or utility-maximizing consumers, like patients and payers, or both are influenced by nonclinical factors (e.g. profit, prestige, avoiding labor pain etc.) rather than clinical factor. The article will reveal that influence of both consumer and service providers is responsible for increase of C-section decisions from safe birth welfare policy metaphor.

(Key Concepts: Commodity economy, consumer community, value laden reciprocity, safe birth policy.)

Introduction

Ethical life formulation of Kanti'an philosophy has welcomed the difference and contradiction in modern social science to accommodate the diversity and necessity in course of socio-politics adventure/legitimacy. Economic rebalancing (ki2010 special chapter) in South Asia, in the period of last more than a decade, reminds the contradictive reshaping of the profit ideology, reflecting in the neo-liberal democracy (Foucault on bio politics in kalb 2015: 54) and clean technology policies (Kakonen and Thuon 2018). Examining of C-section behavior will explain the rationale and critical presence of micro-economic factors in theoretically measurable socioeconomic factors i.e., age, education, health support. P. Bourdieu will be discussed here to identify new form of created world (Bourdieu 1977) of embedded logic, parallel to created origin or actuality, and induced from consumer/actor's rational or utility measurement aspect, through his concept 'symbolic power' (Bourdieu 1988 [1984]). The plausible relation of this post-modern approach is the context of mosaic socio-economic cognition and practice of South-Asia.

Emphasizing and facilitating ‘consumer community’ (\$2-\$20 per day in 2008 is 56% of developing Asia’s population) (ki2010 special chapter), which is getting different form in SouthAsia for the sake of economic growth followed by sustainability issues, is the ongoing debate in specialized field of social science and policy concern. Discussing and formulating the pattern of this group definition otherwise, here the interest has been given on the associated obligations attached with this rising groups to reshape the ever-shifting capitalist realities (Kalb 2015). Though there are long and strong theoretical debate on identical and definitional problems of groups according to class, where defining labour (Kasmir and Carbonella 2014 citing in Kalb 2015) and my class (Buffet. W in Kalb 2015: 51). concept has gaining more relevance, Easterly (2001 in ki2010) finds that... the size of the middle class strongly influences (in the ‘correct’ direction) several variables, including economic growth. They are the host of health and educational outcomes. Physical infrastructure, several policy variables (e.g., financial depth, intensity of international trade, inflation etc.). Endways indicators of democracy and political stability depends on the size of middle class. To find ways of consensus, Banerjee and Duflo (2008 in ki2010) have identified three mechanisms through which a large middle class could promote development. In explaining third, they have pointed that, with its willingness and ability to pay extra for higher-quality products, the middle class drives demand for high-quality consumer goods, the production of which typically presents increasing returns to scale. This positive attitude towards qualitative improvement of life-style is the fuel for market economy with its capitalist drawbacks. Kasmir and Carbonella’s recent book (2014) supported in more visible understanding of labour concept rather than class, but the components outlined by them to rethink these newly reshaping groups are worthy to understand policy issues. According to them, ‘class refers to all sorts of mechanisms of systematic appropriation and extraction within the social relationships that men and women need to enter as they try to reproduce their lives over time’, this may include relationships of kinship, housing, of care, of education, of health, of citizenship (Kalb and Carrier 2015: 54). This systematic appropriation reproduces pervasion in its capitalist realization through health policies in South-Asia. On the other hand, socially constructed factors prevailing in C-section decisions will reveal the anomic social relation (in terms of lawlessness in response to desire and social condition anomalies) (Ritzer and Goodman 2004 in Coleman 2014) by the behavioral factors prevailing in new productive entity of capitalism that is, labour and middle class consumers. The following analysis gives the idea of ongoing unequal practice of C-section, through the empirical data from different aspect of SouthAsian realities. The objective of the article is to interrelate C-section decision in the context of South-Asia by distributing in three parallel components of factors, determinants and output. This interrelation could be arranged fictionally through the diagram below:

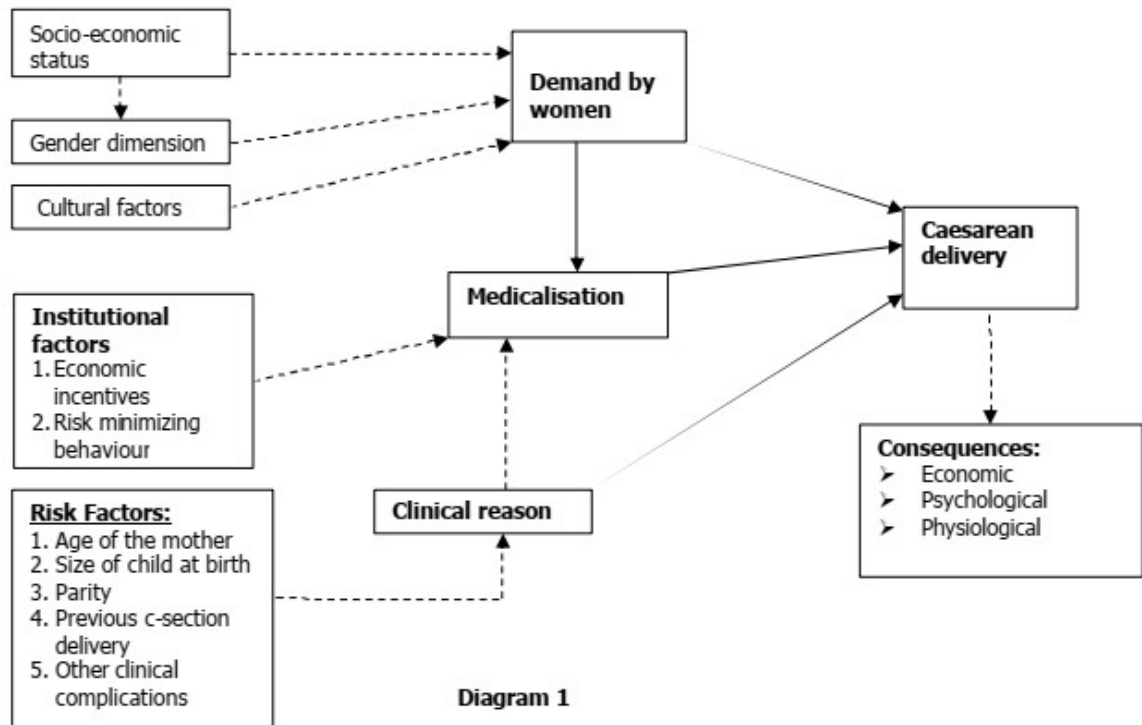


Diagram 1: Conceptual framework of factors associated with C-section.

Source: Ghosh, 2010

Methodology

This study used globally authorized, publically available and nationally representative DHS data sets from India (2015/16), Pakistan (2011/12), Maldives (2009) and Bangladesh (2014). These data sets were downloaded from the official website of the DHS program

(<https://dhsprogram.com>), after obtaining permission from the DHS team. The DHS is a global program supported by the United States Agency for International Development and ICF International, and conducts surveys worldwide to collect high-quality data on maternal and child healthcare, women's empowerment, domestic violence, and knowledge of HIV/AIDS to provide guidelines in the policy-making and health evaluation programs of various nations. DHS apply multistage stratified sampling procedure for all surveyed countries and interviewed ever-married women aged 15–49 years with their most recent live birth in the five years preceding the surveys.

The outcome variable for this study was whether the last birth of a woman occurred by C-section coded as 1 if birth by C-section or 0 if otherwise. The explanatory or independent variables selected for this study were included mother' age (<20, 20-34, 35-49), mother's education (no education, primary incomplete, primary complete, secondary incomplete or secondary complete or higher), mother's BMI (underweight, normal, overweight or obese), wealth index (poorest, poorer, middle, richer, or the riches), area of residence (urban or rural) and place of delivery (public or private facility).

Analysis was completed in Stata v13, with svyset commands to apply inverse probability weights that account for oversampling of urban PSUs, and to adjust for clustering of observations within PSUs and stratification by district. Unadjusted Odds ratios (ORs) and 95% confidence intervals are reported.

Results

In the five years preceding the survey (2015/16) about 17 percent of births are delivered by caesarean section in India (table 1) whereas about 14 percent in Pakistan (2012/13), about 32 percent in Maldives (2009) and 23 percent in Bangladesh (2014). In bivariate analysis, the following factors were significantly associated with caesarean section for all reported countries: birth order ($p = 0.000$), mother's BMI ($p < 0.001$), maternal education ($p = 0.000$), wealth quintile ($p = 0.000$) and area of residence ($p < 0.001$). Also, mother's age at last birth ($p < 0.001$) was associated with caesarean section in India and Pakistan. No. of antenatal care visits during last birth ($p = 0.000$) was found significant factor for explaining caesarean section all reported countries except Maldives. Private facilities are more responsible for increasing caesarean section than public facilities ($p < 0.05$) in India, Maldives and Bangladesh.

Table 2 contains results of logistic regression. Several factors were associated with caesarean section: caesarean births are more common among first births and births to women in urban areas. In India and Bangladesh, caesarean rate is more than five times in private facility than public facility (e.g. 5.06 times higher in India and 7.25 times higher in Bangladesh). Rates of C-section deliveries increase with the mother's education, number of antenatal visit prior to c-section and wealth status in all reported countries. Considering mother's BMI, apart from underweight mothers, overweight and obese mother's have higher rate of caesarean section in all reported countries. In India and Bangladesh, underweight women's have lower rate of caesarean section where as in Pakistan it is 1.63 times higher than normal weight. Mother's age of 20 to 34 has higher rate of c-section in India and Pakistan.

In bivariate analysis of c-section at private facility in table 3, this study found that with increase of level education and wealth the prevalence of c-section at private facility increases for India, Maldives and Bangladesh. In urban areas of India and Maldives, the rate c-section at private facility is higher. From table-4, it is found that a good percentage of c-section is conducted without any pregnancy complications in all the reported countries. In case of Bangladesh, it is found that 31.7 % of c-section decision was taken a week before the operation day and 66.69% of deliveries are done at non-office time (4 pm to 9 am).

Table 1: Cesarean Section rates (%) by socio-demographic characteristics

Characteristics	India 2015/16			Pakistan 2012/13			Maldives 2009			Bangladesh 2014		
	Total Births	CS	%	Total Births	CS	%	Total Births	CS	%	Total Births	CS	%
Total N	259469	35671	17.17 [16.81-7.53]	11733	1429	14.09 [12.7-15.61]	3802	1213	32.54 [30.45-34.7]	4667	1086	23.17 [21.12-25.35]
Mother's age at Last birth			0.0000			0.0002			0.6165			0.4716
<20	21927	2724	16.69 [15.85,17.57]	731	73	12.74 [9.144,17.47]	126	44	36.16 [25.91,47.85]	1450	307	21.86 [18.75-25.32]
20-34	219470	30636	17.4 [17.02,17.79]	9005	1174	15.17 [13.57,16.91]	3103	996	32.71 [30.54,34.96]	2973	722	23.94 [21.6-26.46]
35-49	18072	2311	14.42 [13.33,15.58]	1997	182	9.296 [7.303,11.76]	573	173	30.74 [25.77,36.19]	244	57	21.58 [15.35-29.48]
Birth order			0.0000			0.0000			0.0000			0.0000
1	96193	18866	23.77 [23.26,24.28]	2626	520	22.57 [20.34,24.97]	1577	617	39.43 [36.39,42.55]	1912	569	30.12 [26.87,33.57]
2-3	121215	15391	15.84 [15.42,16.27]	4231	623	16.73 [14.72,18.96]	1407	424	30.5 [27.42,33.77]	2103	464	21.7 [19.44-24.15]
4-5	31214	1169	4.094 [3.758,4.458]	2585	185	8.577 [6.945,10.55]	518	99	20.94 [16.85,25.71]	495	45	8.96 [6.474,12.28]
6 & 6+	10847	245	2.18 [1.806,2.63]	2291	101	4.936 [3.695,6.565]	300	73	23.55 [18.29,29.79]	157	8	4.11 [1.682,9.696]
Antenatal care visits			0.0000			0.0000			0.0809			0.0000
None	33541	1723	6.375 [5.92,6.862]	1905	27	2.082 [1.358,3.178]	11	3	28.79 [11.11,56.68]	963	36	4.537 [2.97,6.872]
1-3	65964	6596	12.11 [11.65,12.58]	2671	219	10.71 [9.143,12.51]	72	15	19.17 [9.929,33.8]	2089	464	22.09 [19.44,25]
4 & +	158110	27001	21.01 [20.54,21.48]	7142	1181	18.45 [16.56,20.49]	3363	1077	33.1 [30.94,35.33]	1610	584	35.71 [32.29,39.28]
Mother's BMI			0.0000			0.0002			0.0005			0.0000
Underweight	62443	5201	10.92 [10.44,11.41]	598	77	14.24 [9.958,19.96]	265	64	23.08 [17.52,29.78]	1191	160	14.24 [11.41,17.63]
Normal	160155	19426	15.22 [14.84,15.6]	2232	186	9.564 [7.672,11.86]	1576	454	29.24 [26.24,32.42]	2705	583	21.37 [19.16,23.75]
Overweight	28496	8000	33.31 [32.28,34.35]	977	141	18.52 [14.95,22.72]	892	335	38.08 [34.16,42.16]	648	274	40.55 [34.75,46.62]

Obese	8375	3044	40.97 [38.79,43.18]	7926	1025	14.89 [13.22,16.72]	1068	359	34.83 [30.36,39.59]	123	69	58.22 [47.42,68.28]
Place of deliver (% of facility delivery)			0.0000			0.8416			0.0011			0.0000
Public Facility	141028	15165	11.92 [11.54,12.31]	2191	477	28.45 [24.67,32.55]	3337	1099	32.82 [30.59,35.13]	616	218	38.72 [33.78,43.91]
Private Facility	53142	20124	40.96 [40.17,41.74]	3617	951	29.65 [27.00,32.41]	262	107	44.05 [36.93,51.42]	1039	830	80.37 [77.46,82.99]
Maternal Education			0.0000			0.0000			0.0000			0.0000
No education	80996	4158	5.968 [5.671,6.278]	6712	353	6.479 [5.43,7.714]	507	121	21.9 [17.67,26.81]	640	45	7.107 [4.967,10.07]
Primary incomplete	16917	1291	10.42 [9.502,11.41]	627	81	14.79 [10.59,20.27]	525	128	24.91 [20.34,30.13]	742	80	10.26 [7.773,13.43]
Primary complete	20992	1890	12.39 [11.18,13.71]	1052	146	16.78 [13.08,21.27]	1007	290	28.53 [24.68,32.72]	558	73	13.99 0.36,18.61]
Secondary incomplete	95333	15180	19.95 [19.44,20.46]	940	174	22.14 [18.58,26.16]	1549	588	38.23 [35.16,41.39]	1863	436	24.79 [22.05,27.76]
Secondary or higher	45231	13152	33.64 [32.73,34.56]	2402	675	33.49 [30.13,37.03]	163	65	41.49 [32.53,51.05]	864	452	52.33 [47.99,56.64]
Wealth quintile			0.0000			0.0000			0.0000			0.0000
Poorest	68644	2523	4.423 [4.178,4.681]	2754	82	4.354 [3.125,6.036]	864	230	25.4 [22.05,29.06]	1002	56	6.74 [4.45,10.08]
Poorer	61391	4774	9.686 [9.246,10.14]	2352	140	6.773 [4.993,9.126]	1053	288	26.74 [23.63,30.09]	892	100	10.46 [8.176,13.29]
Middle	51728	7810	19.03 [18.33,19.76]	2268	192	11.23 [8.78,14.25]	1006	333	32.53 [28.84,36.46]	889	170	18.75 [15.16,22.97]
Richer	42928	9627	26.82 [25.99,27.67]	2184	360	20.76 [18.16,23.62]	574	236	37.89 [32.39,43.73]	974	282	29.36 [25.46,33.6]
Richest	34778	10937	35.89 [34.83,36.97]	2175	655	34.02 [29.69,38.64]	305	126	40.82 [35.1,46.8]	910	478	52.47 [48.24,56.66]
Residence			0.0000			0.0000			0.0008			0.0000
Rural	198116	21160	12.85 [12.55,13.17]	6780	547	10.18 [8.721,11.85]	3311	1020	29.96 [27.71,32.3]	3185	544	17.75 [15.64,20.09]
Urban	61353	14511	28.23 [27.29,29.18]	4953	882	23.62 [20.68,26.83]	491	193	38.55 [34.04,43.26]	1482	542	38.8 [34.61,43.16]

Source: Authors calculation from the Demographic and Health Surveys conducted in India (2015/16), Pakistan (2012/12), Maldives (2009) and Bangladesh (2014)

Table 2: Unadjusted Odd Ratio of CS by socio-demographic characteristics from the Demographic and Health Surveys

Characteristics	India 2015/16		Pakistan 2012/13		Maldives 2009		Bangladesh 2014	
	OR (95% CI)	p value	OR [95% CI]	p value	OR (95% CI)	p value	OR (95% CI)	p value
Mother's age at Last birth								
<20	0.87 [0.84-0.91]	0.000	0.74 [0.58-0.95]	0.018	1.14 [0.78-1.65]	0.506	0.84 [0.72-0.97]	0.022
20-34	1		1		1		1	
35-49	0.90 [0.86-0.95]	0.000	0.68 [0.57-0.79]	0.000	0.91 [0.75-1.11]	0.368		0.746
Birth order								
							0.95 [0.70-1.29]	
1	1		1		1		1	
2-3	0.60 [0.58-0.61]	0.000	0.70 [0.62-0.80]	0.000	0.67 [0.58-0.78]	0.000	0.67 [0.58-0.77]	0.000
4-5	0.16 [0.15-0.17]	0.000	0.31 [0.26-0.37]	0.000	0.37 [0.29-0.47]	0.000	0.24 [0.17-0.33]	0.000
6 & 6+	0.09 [0.08-0.11]	0.000	0.19 [0.15-0.23]	0.000	0.50 [0.38-0.66]	0.000	0.13 [0.06	0.000
Antenatal care visits								
							-0.26]	
None	1		1		1		1	
1-3	2.05 [1.94-2.17]	0.000	6.21 [4.15-9.31]	0.000	0.70 [0.17-2.97]	0.631	7.35 [5.19-10.42]	0.000
4 & +	3.80 [3.62-4.00]	0.000		0.000	1.26 [0.33-4.74]	0.736	14.66 [10.35-20.76]	0.000
Mother's BMI								
			13.78 [9.38-20.25]				0.56 [0.47-0.68]	
			1.63 [1.23-2.16]					
Underweight	0.66 [0.64-0.68]	0.000		0.001	0.79 [0.58-1.06]	0.119		0.000
Normal	1	0.000	1		1		1	
Overweight	2.83 [2.74-2.91]	0.000	1.86 [1.47-2.34]	0.000	1.49 [1.25-1.77]	0.000	2.67 [2.23-3.20]	0.000
Obese	4.14 [3.95-4.34]	0.000	1.63 [1.39-1.92]	0.000	1.25 [1.06-1.48]	0.009	4.65 [3.22	0.000
Place of deliver (% of facility delivery)								
							-6.72]	
Public Facility	1		1		1		1	
Private Facility	5.06 [4.94-5.18]	0.000	1.28 [1.13-1.45]	0.000	1.43 [1.12-1.84]	0.005	7.25 [5.79	0.000

Maternal Education							-9.07]	
No education	1		1		1		1	
Primary incomplete	1.53 [1.43-1.63]	0.000	2.64 [2.07-3.35]	0.000	1.02 [0.77-1.37]	0.847	1.60 [1.09-2.34]	0.016
Primary complete	1.83 [1.73-1.93]	0.000	2.90 [2.36-2.56]	0.000	1.29 [1.01-1.65]	0.042	1.99 [1.35-2.94]	0.001
Secondary incomplete	3.50 [3.38-3.63]	0.000	4.09 [3.36-4.98]	0.000	1.95 [1.55-2.45]	0.000	4.04 [2.93-5.57]	0.000
Secondary or higher	7.58 [7.30-7.86]	0.000	7.04 [6.13-8.09]	0.000	2.11 [1.46-3.08]	0.000	14.51 [10.42-20.20]	0.000
Wealth quintile								
Poorest	0.21 [0.20-0.22]	0.000	0.33 [0.25-0.43]	0.000	0.73 [0.60-0.90]	0.002	0.25 [0.18-0.34]	0.000
Poorer	0.47 [0.46-0.49]	0.000	0.68 [0.54-0.85]	0.001	0.76 [0.63-0.92]	0.005	0.53 [0.41-0.70]	0.000
Middle	1		1		1		1	
Richer	1.62 [1.57-1.68]	0.000	2.13 [1.77-2.57]	0.000	1.41 [1.14-1.74]	0.001	1.72 [1.39-2.14]	0.000
Richest	2.58 [2.50-2.67]	0.000	4.66 [3.92-5.55]	0.000	1.42 [1.09-1.85]	0.009	4.68 [3.79-5.78]	0.000
Residence								
Rural	1		1		1		1	
Urban	2.59 [2.53-2.65]	0.000	2.47 [2.20-2.78]	0.000	1.45 [1.20-1.77]	0.000	2.80 [2.43-3.22]	0.000

Source: Authors calculation from the Demographic and Health Surveys conducted in India (2015/16), Pakistan (2012/12), Maldives (2009) and Bangladesh (2014)

Table 3: Cesarean Section rates (%) at private facility by socio-demographic characteristics

Characteristics	India 2015/16			Pakistan 2012/13			Maldives 2009			Bangladesh 2014		
	Total CS	Private Facility	% [95% CI]	Total CS	Private Facility	% [95% CI]	Total CS	Private Facility	% [95% CI]	Total CS	Private Facility	% [95% CI]
	35289	20124	63.422 [62.40-64.44]	1429	952	70.56 [65.45-75.21]	1213	114	14.05 [11.3-17.33]	1048	830	78.54 [74.68-81.95]
Maternal Education			0.0000			0.8961			0.0000			0.0490
No education	4132	2011	56.010 [53.531,58.459]	353	231	71.6 [64.18,78]	121	7	7.329 [3.195,15.93]	43	26	63.82 [46.28,78.31]
Primary incomplete	1275	602	49.713 [45.225,54.206]	81	51	69.39 [51.27,83.01]	128	6	6.058 [2.39,14.52]	78	57	75.18 [61.58,85.13]
Primary complete	1877	920	52.425 [47.044,57.751]	146	91	65.29 [51.49,76.93]	290	15	5.824 [2.704,12.1]	69	51	68.3 [52.18,80.97]
Secondary incomplete	15008	7558	57.566 [56.158,58.962]	174	111	71.99 [61.02,80.84]	588	67	17.15 [13.17,22.04]	419	336	78.41 [72.19,83.56]
Secondary or higher	12997	9033	75.267 [73.861,76.622]	675	468	71.28 [62.32,78.84]	65	17	32.00 [19.33,48.03]	439	360	83.00 [77.97,87.07]
Wealth quintile			0.0000			0.7175			0.0000			0.0313
Poorest	2504	1110	48.651 [45.88,51.45]	82	53	65.52 [49.78,78.47]	230	5	2.016 [.7763,5.132]	56	36	65.1 [43.43,81.93]
Poorer	4743	2018	47.704 [45.450,49.967]	140	88	70.19 [56.04,81.3]	288	18	6.726 [4.078,10.9]	96	77	81.11 [70.97,88.3]
Middle	7732	3651	53.903 [51.742,56.049]	192	126	68.99 [55.7,79.74]	333	22	7.528 [4.715,11.81]	167	119	68.53 [59.21,76.56]
Richer	9530	5504	65.629 [63.998,67.224]	360	235	68.28 [60.45,75.21]	236	28	13.77 [8.592,21.33]	268	211	76.66 [65.88,84.81]
Richest	10780	7841	77.714 [76.016,79.325]	655	450	74.03 [66.82,80.14]	126	41	33.64 [24.64,44]	461	387	84.78 [79.81,88.7]
Residence			0.0000			0.0788			0.0000			0.7406
Rural	20985	11074	60.403 [59.321,61.475]	547	381	74.62 [68.21,80.11]	1020	62	6.449 [4.575,9.017]	533	425	78.02 [72.66,82.58]
Urban	14304	9050	66.968 [65.075,68.807]	882	571	66.3 [58.74,73.12]	193	52	27.81 [21.01,35.81]	515	405	79.24 [73.48,84.03]

Source: Authors calculation from the Demographic and Health Surveys conducted in India (2015/16), Pakistan (2012/12), Maldives (2009) and Bangladesh (2014)

Table 4: Caesarean Delivery at private facility

Characteristics	India 2015/16		Pakistan 2012/13		Maldives 2009		Bangladesh 2014	
	Total CS	% [95% CI]	Total CS	% [95% CI]	Total CS	% [95% CI]	n	% [95% CI]
Pregnancy complications								
Yes	10600	69.866 [68.73-70.98]	424	62.06 [57.27-66.62]	47	46.87 [36.27-57.76]	436	54.34 [49.78-58.83]
No	4935	30.13 [29.02-31.28]	244	37.94 [33.38-42.73]	49	53.13 [42.24-63.73]	365	45.66 [41.17-50.22]
Delivery Time [#]								
Office Time	N/A	N/A	N/A	N/A	N/A	N/A	285	33.31 [29.39-37.47]
Non-office time	N/A	N/A	N/A	N/A	N/A	N/A	545	66.69 [62.53-70.61]
Days before delivery decision was made for c-section [#]								
≤ 7 days	N/A	N/A	N/A	N/A	N/A	N/A	575	68.3 [63.63-72.64]
> 7 days	N/A	N/A	N/A	N/A	N/A	N/A	255	31.7 [27.36-36.37]

No data was found about delivery time and Days before delivery decision was made for c-section in India (2015/16), Pakistan (2012/13) and Maldives (2009)

Source: Authors calculation from the Demographic and Health Surveys conducted in India (2015/16), Pakistan (2012/12), Maldives (2009) and Bangladesh (2014)

Discussion

Cesarean section has increased noticeably worldwide in the last decades (Betrán et. al, 2016), despite the lack of evidence supporting considerable maternal and neonatal benefits and some studies showed that use of caesarean section without medical need can put women and child at risk of short-term and long-term health problems like respiratory problems, obesity, and other metabolic disease of child [Li, Zhou & Liu, 2013] and high risk of related complications or death among women (Marshall & Guise, 2011; Wispelwey & Sheiner, 2013). Research conducted by WHO has found that increases in c-section rates beyond 10% are not related with reduction in maternal and newborn mortality rates (WHO, 2015). So cesarean sections above this threshold are unnecessary. But globally this rate 18.6% of all births [Betrán et. al, 2016]. This happens due to the access to surgical and anaesthetic techniques, pain and vaginal tone after vaginal birth, regaining increasing average maternal age, providers' influence on patient decisions, patient demand, cultural background, pregnancies in obese and older women (Mi & Liu, 2014, Wispelwey & Sheiner, 2013; Teixeira et. al., 2013; Potter et. al., 2008).

In recent decades, South Asian countries has gone through significant urbanization, reduction in poverty, rural-urban migration, access to health and other facility, decreases in fertility rates, implementation of several government programmes and policies to improve maternal and child health (World Bank, 2018).

With the development of countries health and socio-economic infrastructure, a demand for health service is also emerging. For this reason, a market for health services is also developing by profit maximizing private sector where health care providers and owners of private facilities are playing an important role. So, supply-driven factors can be a cause of increasing cesarean rates. On the other hand, as people are more aware now and observe others more frequently than any previous time, this could lead them to perform c-section.

As rich peoples are more likely to be conscious of their illnesses or need for health services, it may prompt the doctors and private clinics to influence on patient decisions for c-section (Khan, 2017; Cavallaro, 2013). This study found the similarities for all the reported South Asian countries where people with higher income status usually demand for c-section and choose private clinics/hospital which can be seen from odds of a cesarean among wealthier and in private facilities.

This study has shown that level of education has strong association with a high C-section rate. As education has direct link with awareness, employment and income, so it may easier for providers to explain the seriousness of complications and put panic on the pregnant women to go for csection. On the other hand, it may a reason of patients demand and cultural background of patients who observe that it is safer, faster, and less painful, and is less likely to affect the quality of sexual life and work than vaginal birth.

Additionally, higher antenatal visit represents close attachment with health professional which can ensure higher probability of complication-free pregnancy. But this study found positive association between the antenatal visits and c-section. It may be a reason of health provider's influence for conducting c-section, as c-section can earn lots of profit for doctor as well as clinic.

The reason for rural urban differences on the rate of CS is very complex. In general, more affluent peoples live in urban areas and have available of C-section facilities The gross number of private hospital is generally higher in communities and they usually prefer private health facilities (Neuman et. al, 2014). And this study also found the same result for all reported countries where odds of urban areas is higher than the rural.

If the first delivery is done through cesarean section, it can hamper future reproductive health of the women (Catherine et. al., 2012). But it is also found that new mothers are more likely to do csection than second or more birth in India, Pakistan, Maldives and Bangladesh. This signifies that doctors and health institutions are not prescribing them not to do c-section for their first birth.

As like as previous studies (Darmasseelane et. at., 2014; Djelantik et. al., 2012; Gaillard et. al., 2014), this study also found that a high c-section rate among women who were overweight or obese. This may be the reason of increased complexities of delivery of obese mothers.

Higher age of mothers is related with greater birth complexities. But this is found mixed result age with 35 to 49 is associated with lower c-section in some countries.

C-section conducted without any pregnancy complications is common in all the reported countries which a matter of concern which is mainly frequent in public facilities and it is directly linked with profit maximizing behavior of private facilities. In case of Bangladesh, a good number of c-section decision was taken a week before the operation day and 66.69% of deliveries are done at nonoffice time (4 pm to 9 am). This situation also means that doctors are not doing c-section when they are in public hospital, but conduct in private clinic after finishing their duty.

Limitations

Although this study used high-quality, standardized, and nationally representative DHS data that facilitated comparability across populations, it does have some limitations. First, our analysis was restricted to the last birth, which occurred during the five years preceding the survey. Second, this study lacks information regarding the clinical indications for C-sections.

Conclusion

The profit maximizing behavior of hospitals and physicians or utility-maximizing consumers like patients and payers or both are influenced by nonclinical factors (e.g. profit, avoiding labor pain etc.) rather than clinical factor. As patients and payers choose the hospitals and physicians, they give a signal to them; and then, the hospitals and physicians utilize this and optimize their own interest or profit. And it is found that patients or payer with higher education, income, urban living etc. have more visits to physician and as a result, they are indirectly forced to do c-section in private clinics at doctors preferred time, even in holydays. This clearly indicates that influence of both consumer and service providers is responsible for increase of c-section.

As a result, structural changes may be needed within the health system to reduce unnecessary caesarean sections, including training and education for providers and for women and the development of accurate and reliable tools for measuring the risks and benefits of the procedure. Governments of respective countries should introduce policy and law and implement them to restrain unnecessary c-section.

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