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Research Article

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Women's Awareness of the Risks of Caesarean Section in Saudi Arabia.

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Abstract: Awareness of complications results from vaginal delivery (SVD) or cesarean section (CS) deliveries was generally low. Despite the complication of CS, the rate of CS is increased worldwide, the World Health Organization (WHO) recommendations to keep the rate below 10-15%. The most common cause for choosing a CS is to avoid labor pains and lower fetal distress risk. This study aims to determine the women's awareness in regard to the CS risks and the prevalence of the CS in Saudi Arabia (SA). This study is a cross-sectional study that uses randomized sampling, conducted among people who live in SA through the social media to determine the awareness of women about the complications of CS on the health of women. 854 women were included in the study. The demographics data included marital status, age, education level, occupation, and delivery mode with P-value < 0.05. The results show the prevalence of CS in SA is about 19%. Education level, age, occupation, nationality are the significant correlation risk factors for increasing the rate of CS In the present study, the prevalence of the complications that might happened post to CS is 47% of the total women. The most common complication after CS includes an infection (50%). While, the less common complication was an injury of surrounding structures like the urinary bladder or Intestine (6.4%). In conclusion, the prevalence of women's awareness of the risk and complications of CS is 53%.

Keywords: Cesarean Section (CS), Vaginal Delivery (SVD), Deep Venous Thrombosis (DVT), Cephalopelvic Disproportion (CPD) .

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1. INTRODUCTION

The concept of Cesarean Section (CS) has received significant attention from the previous literature on both health centers, academicians, and health practitioners[1]. Nowadays, most women are going for C.S. without knowing the risk factors associated with it. C.S. is defined as the process or operation delivering a baby by carrying out surgery on the mother's uterus and abdominal wall[2]. The first C.S. was documented in 1020; from that time, the C.S. is the most common surgery performed worldwide. The application of C.S. in most health centers for nonmedical reasons increases in different parts, both in developing and developed countries. Provided the increasing C.S. in different parts of the world, particularly with nonmedical reasons, increased attention to children and women's health problems, specifically in S.A., has become crucial. There are many efforts to decrease the rate of C.S., and it is complications either than the immediate or long termcomplications[3], which will be discussed in this paper. Awareness of complications resulting either from SVD or C.S. deliveries was generally low[4]. Despite the complication and risk of C.S., the rates of C.S. worldwide increased; the World Health Organization recommends keeping rates below 10-15%[5]. The most common cause for choosing a C.S. is to avoid labor pains and to lower the risk of fetal distress[4]. In the United States, in the last 20 years, the C.S. rate increased while the infant mortality decreased because it improves the infant's outcome and protects them such as in fetal Distress, malpresentation of fetus, and big baby > 4.5 kg. On the other hand, C.S. has a risk and complication to the infant-like: iatrogenic prematurity or respiratory disease[6]. SVD carries less maternal mortality, and morbidity than C.S. C.S. leads to significant blood loss (>1000 ml), deep venous thrombosis and can decrease infection morbidity by using antibiotics as prophylactic. The C.S. can lead to the surrounding structure (e.g., bowel, bladder, ureters). There are many indications for C.S. include fetal malpresentation and Cephalopelvic disproportion (CPD), which is the most common indication[7]. The C.S. rate has been dramatically increased in the United Kingdom (U.K.) from 10% to 22%[8]. However, a study carried in Swedish indicated that fear associated with childbirth during pregnancy might lead to an increased C.S. in hospitals[8]. Studies on the C.S. on maternal request found an increase in the rate of C.S. This increase will impact the maternal request without medical or obstetrical causes. This is due to the fear of losing their baby during labor, fearing labor pain, or delay in conception. Thus, it will lead to an increased complication of CS[9]. Nowadays, the elective C.S. option has a maternal morbidity rate for the delivery approximates of vaginal delivery due to advances in surgical techniques, aesthetic care, blood transfusions, antibiotics, postpartum infections, hemorrhage, and thromboembolism, which are associated with C.S. delivery. This can lead to maternal morbidity compared with vaginal delivery[10]. Over the past 40 years, C.S. deliveries markedly increased due to dystocia by (30%), repeat C.S. (25-30%), breech presentation (10-15%), and Fetal Distress (10-15%). Can reduce C.S. delivery rates by two clinical interventions: 1- external cephalic version (The success rate of ECV is about 60%.). 2- VBAC (The overall success rate of VBAC is approximately 70%)[10]. Previous studies have cited that giving birth is a powerful and profound human experience[11]. Women usually give different views concerning their empowerment feelings, achievement, and elation, following vaginal birth without medical regulations[11]. The prevalence of maternal morbidity and maternal mortality has increased after the C.S. operation compared to SVD[12]. There is evidence that the increased use of C.S. is associated with different health risks such as ectopic pregnancy, uterine rupture, preterm birth, and abnormal placentation[13]. Besides, babies born through C.S. medical exposures, hormonal differences, and risk of bacterial infection[13]. Other effects of C.S. that are frequently reported include asthma, childhood obesity, and altered immune development. Evidence exists that maternal height is a risk factor for those who go for C.S. as a result of failing to progress in labor. Other studies advocate that maternal obesity is among the risk factors for CS[14]. In our study, we will shed light on the prevalence of C.S. in S.A., The risk and complications of it among Saudi populations, and the prevalence of the awareness of the complications of C.S. We recommend increase increasing the awareness of the risk to minimize the rate and complications and improve the counseling antenatal, intrapartum and postpartum.

2. MATERIALS AND METHODS

The study took place within six months, from 1st May 2020 to 31st October. During this period, research and data were collected from women living in S.A. A cross-sectional study using randomized sampling was conducted to determine the awareness of women about complications and side effects of C.S. on the health of women. Important variables about the risks of C.S. delivery were collected and analyzed. The data was collected using electronic questionnaires through social media platforms. All participants were informed about the purpose of the questionnaire and provide their consent to participate. The results are based upon an inclusion criterion, indicating demographics to include marital status, age, education level, occupation, and mode of delivery. Statistical analyses were performed using the Statistical Package for the Social Science (SPSS) version 22.0. During the study duration, the total enumeration method was applied to all women in the study area by answering questionnaires. The study was conducted in different areas among women who live in S.A., including hospitals located in S.A. The target population included all pregnant women who were willing to attend cesarean and those who have already attended. The research is approved by the ethical committee of the Saudi Ministry of Health with registration No. H-02-J-002. All the women who participate in the research agreed and signed on the inform consent before answering the questionnaire. Fig 1 showed the questionnaire in the English form. We sent it in English and Arabic form.

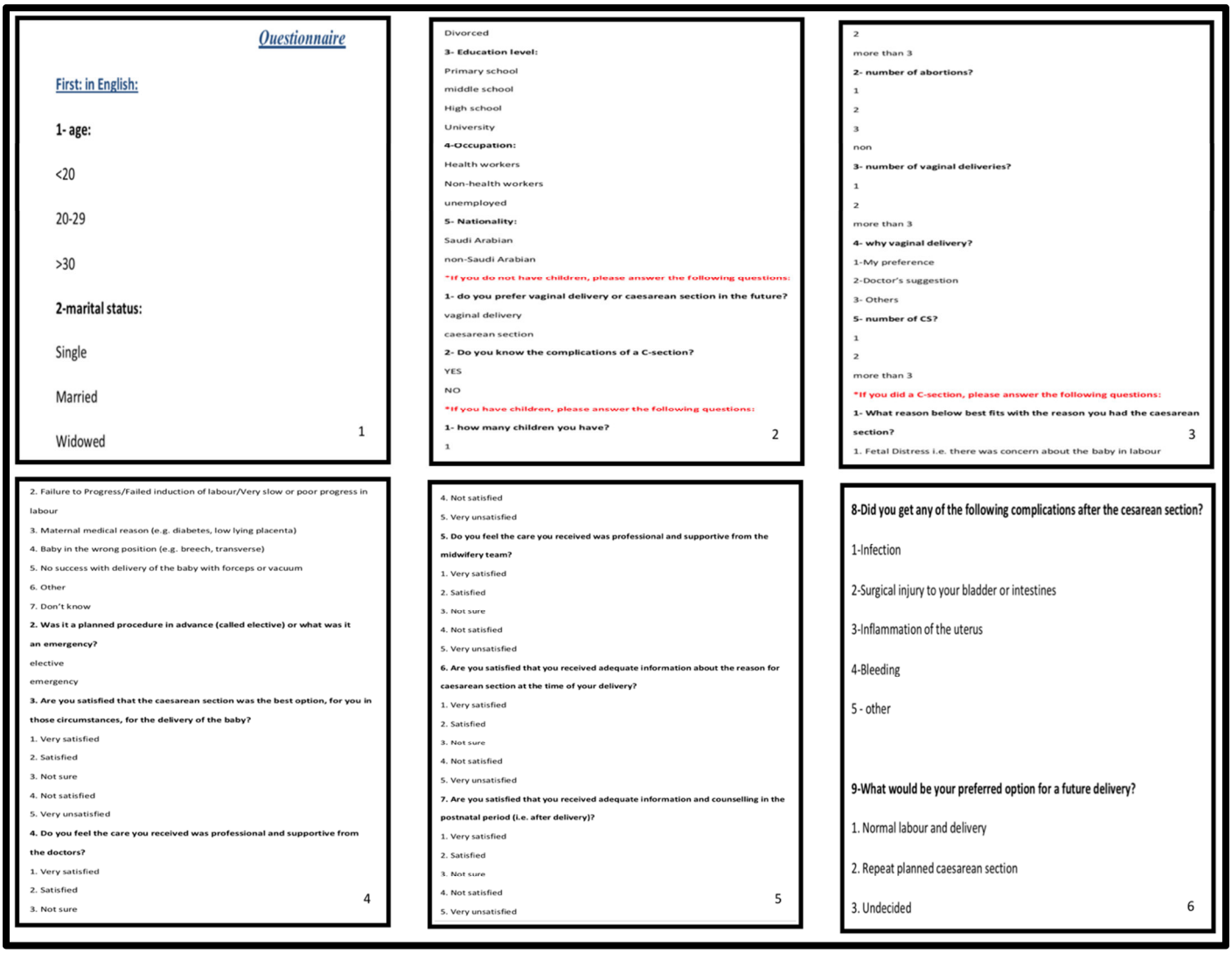
3. STATISTICAL ANALYSIS

Statistical analyses were performed using the Statistical Package for the Social Science (SPSS) version 22.0. Continuous variables were summarized as means and standard deviations (S.D.s), and the frequency to obtain the prevalence of women's awareness of the C.S. risks. A P-value < 0.05 was considered significant.

3.1 Sample Size

The total number of participants was 1007, who had completed their forms correctly, and other uncompleted or wrong forums were excluded. During the study duration, the total enumeration method was applied to all women in the study area by answering questionnaires. The sample size taken during the research included the formula below;

Adopted at P < 0.05 (= $NZ2P\ (1-P)\ /\ (D2 + Z2P\ (1-P))$, The total respondent will be 1000.



Questionnaire

First: in English:

1- age:

<20

20-29

>30

2-marital status:

Single

Married

Widowed

1

Divorced

3- Education level:

Primary school

middle school

High school

University

4-Occupation:

Health workers

Non-health workers

unemployed

5- Nationality:

Saudi Arabian

non-Saudi Arabian

*If you do not have children, please answer the following questions:

1- do you prefer vaginal delivery or caesarean section in the future?

vaginal delivery

caesarean section

2- Do you know the complications of a C-section?

YES

NO

*If you have children, please answer the following questions:

1- how many children you have?

1

2

more than 3

2- number of abortions?

1

2

3

non

3- number of vaginal deliveries?

1

2

more than 3

4- why vaginal delivery?

1-My preference

2-Doctor's suggestion

3- Others

5- number of CS?

1

2

more than 3

*If you did a C-section, please answer the following questions:

1- What reason below best fits with the reason you had the caesarean section?

1. Fetal Distress i.e. there was concern about the baby in labour

3

2. Failure to Progress/Failed induction of labour/Very slow or poor progress in labour

3. Maternal medical reason (e.g. diabetes, low lying placenta)

4. Baby in the wrong position (e.g. breech, transverse)

5. No success with delivery of the baby with forceps or vacuum

6. Other

7. Don't know

2. Was it a planned procedure in advance (called elective) or what was it an emergency?

elective

emergency

3. Are you satisfied that the caesarean section was the best option, for you in those circumstances, for the delivery of the baby?

1. Very satisfied

2. Satisfied

3. Not sure

4. Not satisfied

5. Very unsatisfied

4. Do you feel the care you received was professional and supportive from the doctors?

1. Very satisfied

2. Satisfied

3. Not sure

4

4. Not satisfied

5. Very unsatisfied

5. Do you feel the care you received was professional and supportive from the midwifery team?

1. Very satisfied

2. Satisfied

3. Not sure

4. Not satisfied

5. Very unsatisfied

6. Are you satisfied that you received adequate information about the reason for caesarean section at the time of your delivery?

1. Very satisfied

2. Satisfied

3. Not sure

4. Not satisfied

5. Very unsatisfied

7. Are you satisfied that you received adequate information and counselling in the postnatal period (i.e. after delivery)?

1. Very satisfied

2. Satisfied

3. Not sure

4. Not satisfied

5. Very unsatisfied

5

8-Did you get any of the following complications after the cesarean section?

1-Infection

2-Surgical injury to your bladder or intestines

3-Inflammation of the uterus

4-Bleeding

5 - other

9-What would be your preferred option for a future delivery?

1. Normal labour and delivery

2. Repeat planned caesarean section

3. Undecided

6

Fig 1: Questionnaire

4. RESULTS

The study includes only 854 women, 87% are Saudi, and 17% are Non-Saudi. The total number of women delivered by SVD is 688, while the number of women delivered by C.S. is 166. In governmental hospitals, 475 women were delivered by SVD, and 113 women were delivered by C.S. On the other hand, in the private hospitals, 213 women delivered by SVD, and 53 women delivered by C.S (table 1). The significant correlation risk factors are Education level, Age, Occupation, nationality, and the hospital (Fig 2). The women are delivered by C.S. their age are 30 years, and more (54.2%) regarding their education level (76.5%) have University degrees. (88.6%) of women who delivered by C.S. are Saudi and (56.6) are Unemployed. (67.8%) of the women delivered by C.S. in governmental hospitals and (32.2%) were delivered in private hospitals (table 1). The prevalence of C.S. in our study in S.A. is (19%).

Table 1: Shows the relations of Vaginal Delivery and Caesarean Section Delivery.

Descriptive statistics			
	Vaginal delivery (n=688)	**Caesarean section (n=166)**	**P-value**
Education level			
Literacy	5 (0.7%)	0 (0.0%)	**0.004**
Primary school	12 (1.7%)	2 (1.2%)	
Middle school	20 (2.9%)	1 (0.6%)	
High school	148 (21.5%)	36 (21.7%)	
University	503 (73.1%)	127 (76.5%)	
Age			
Less than 20	46 (6.7%)	6 (3.6%)	**0.032**
Between 20 and 29	285 (41.4%)	70 (42.2%)	
30 and more	357 (51.9%)	90 (54.2%)	
Occupation			

Health workers	87 (12.6%)	28 (16.9%)	**0.007**
Non-health workers	184 (26.7%)	44 (26.5%)	
Unemployed	417 (60.6%)	94 (56.6)	
Nationality			
Saudi Arabian	593 (86.2%)	147 (88.6%)	**0.014**
Non-Saudi	95 (13.8%)	19 (11.4%)	
Hospital			
Governmental	475 (69%)	113 (67.8%)	**0.039**
Privet	213 (31%)	53 (32.2%)	

The prevalence of the complications that happened after CS are 78 women (47%) of the total women who delivered by C.S., and the most common complication after C.S. in our study is an infection by (50%). In contrast, the less common complication is an injury of surrounding structures like the urinary bladder or Intestine by (6.4%) (table 2). 454 women (53.2%) are aware of the complications and risk, while 400 women (46.8%) did not know about the complication (table 3).

Fig 2: Significant correlation of risk factors.

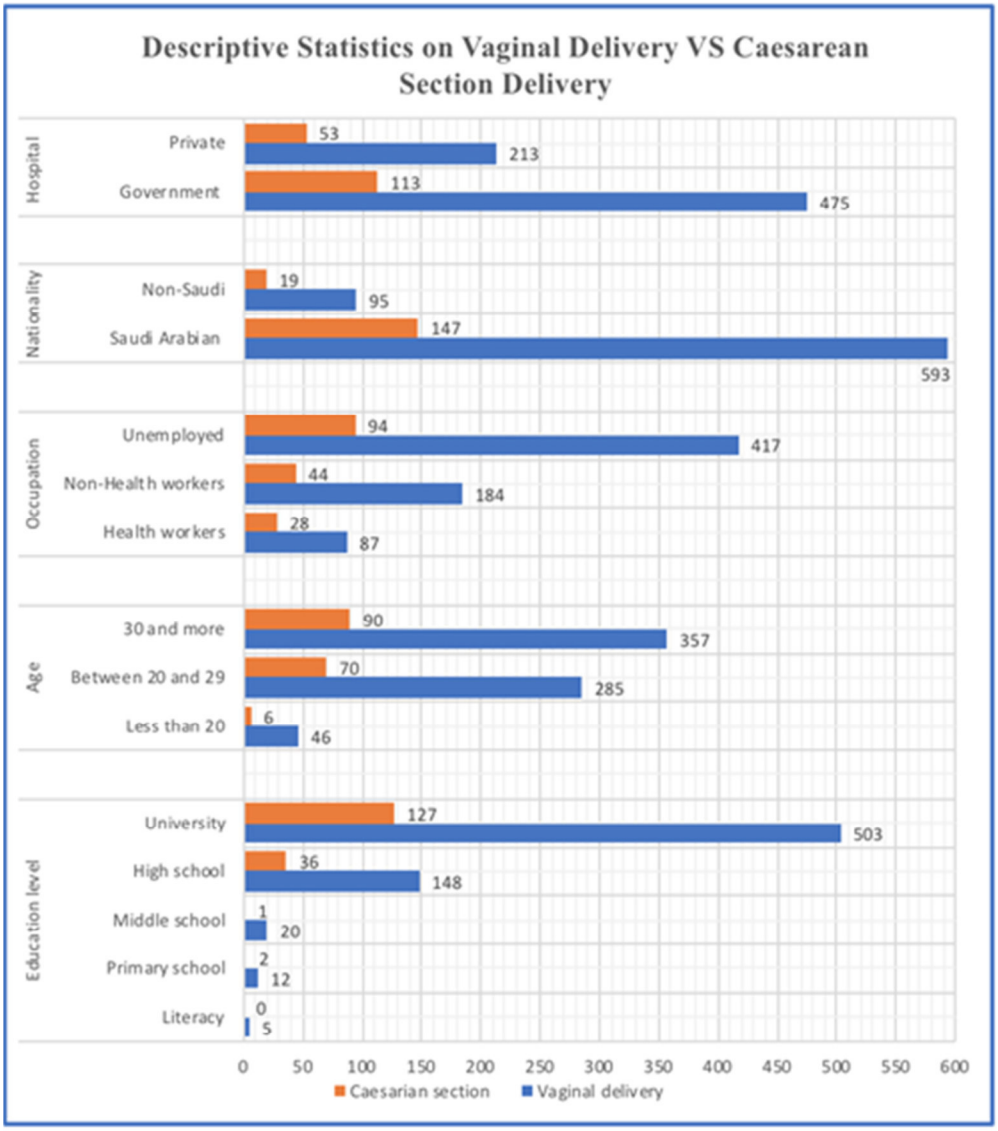


Fig 3: Shows the Descriptive statistics of Vaginal Delivery and Caesarean Section Delivery.

Table 2: Shows the complications of CS and the type of it.		
Complications that happened after the CS		
	Frequency (n)	**Percent (%)**
Yes	78	47 %
No	88	53 %
Types of Complications happened after CS		
Infection	39	50 %
Surgical injury to your bladder or intestines	5	6.4 %
Inflammation of the uterus	13	16.7 %
Bleeding	21	26.9 %

In our study, the prevalence of women's awareness of the risk and complications of CS is (53%).

Table 3: Shows the Awareness of the complications of CS.		
Women's aware of the complications of CS		
	Frequency (n)	**Percent (%)**
Yes	454	53.2 %
No	400	46.8 %

5. DISCUSSION

Our study's objective was to assess the prevalence and awareness of the risk and complications of C.S. in S.A. In our cases, we found the most women delivered by SVD were 688 women (81%), which is the natural way and the way with less mortality and morbidity for both maternal and neonatal. The present study showed the prevalence of C.S. in S.A. (19%). While other research conducted by other researchers found the rate of C.S. increased by (80.2%) from (10.6 – 19.1%) in 2006[15]. This is lower compared to the study that was done in other countries like the U.S (33%), Brazil (55.5%), Egypt (55.5%), [16]and similar to the rate of C.S. in the U.K., which is (10-22%)[8]. The education level, age, occupation, nationality, and the delivery hospital are significant risk factors for increasing the rate of C.S. in S.A (Fig 2). A study done in S.A. in 2018 showed repeated C.S. is the most common indications by (21.5%), followed by Failure to progress (9.3%), Fetal Distress (7.7%), Breech presentation (6.4%), and Antepartum hemorrhage (5.8%)[17]comparing to other study done outside S.A. they found the dystocia is the most indication by (30%) then repeated C.S. (25-30%), breech presentation (10-15%), and Fetal Distress (10-15%)[10]. Additionally, most women preferred C.S. delivery because they fear of vaginal birth[18]. In our opinion, if we minimize as much as we can the first C.S., mostly if it were without any medical indications, we would decrease the rate of C.S. in S.A., and we will prevent many complications. In this study, there is an increase in the percentage of C.S. in governmental hospitals by (67.8%) compared to private hospitals by (32.2%) it could be due to the cost of C.S.; it is so expensive in private hospitals (Fig 3). Further, our study showed that the prevalence of the complications that may happen after C.S. is (47%) of the total number of deliveries by C.S. and the most common complications are infections (50%). We are trying to decrease it by giving all the patient preoperative prophylactics antibiotics to minimize the risk of getting infections after C.S. On the other hand, we found the fewer complications of C.S. are an injury of the surrounding structures like urinary bladder or Intestine (table 2), which may be due to high professional doctors and qualified centers. The awareness of the complications of C.S. is low, although the rate of the complications of C.S. increased, and the WHO recommended keeping it below (10-15%). Moreover, in our study, we found the women in S.A. are aware of the complications of C.S. by (53%) (table 3). On the other side, there is (47%) of the women did not know about the complications of C.S. So, the proper counseling of the risk and complications of C.S. is essential antenatal, intrapartum and postpartum for the next pregnancy. This is in agreement with a previous study at which 57.6% of the participants are aware of C.S. delivery complications[19]. Some studies demonstrated that the most common cause of the increase in the rate of C.S. in S.A. is repeated C.S., Failure to progress, fetal Distress, and Breech Presentations[17]. Another previous study was conducted in Taif, Saudi Arabia reported that 68.8% of participants' women preferred SVD, while 39.8% thought that C.S. is more safe for mother and her baby among them; 19% had C.S. for fetus' complications and health reasons[20]. Additionally, the same study added that uterine adhesion was the most complications of C.S., followed by delay and lack of breastfeeding (44.1%), and constant pain (18.6%)[20]. Also, another study reported that bleeding and prolonged bed rest are observed as the most common complications of C.S. delivery[21]. Besides, visceral injury haemorrhage, and emergency hysterectomy are also reported as C.S. delivery complications among mothers[22]. While, asphyxia and respiratory distress are the most common C.S. delivery' complications among the infant[22]. Other previous studies conducted in different regions of KSA reported a similar result to the present study. The prevalence of C.S. delivery among the particpants' women was 21% in 2013 and 19.1% in 2006, respectively[15, 23]. While, the rate of C.S. delivery of the current study is higher than that is reported in previous studies conducted in different Arab countries (5-15%)[24]. We can avoid the repeated C.S. by excellent and proper counseling of trying Vaginal Delivery after C.S., which had a success rate of 70%. Counseling is the most effective way to explain to the patient about the delivery method for this pregnancy or even for the next and all the risks that can happen.

6. CONCLUSION

In the present study, the prevalence of C.S. in S.A. is 19%, which is considered within the range of WHO recommendations. C.S. delivery has many complications, such as; infection and bleeding that can resulted in increasing the rate of maternal mortality and morbidity. The awareness level of the participants regarding C.S. delivery complications in S.A was 53% which is a good value compared to other studies. Education level, age, occupation, nationality are significantly correlated with increasing the C.S. risk factors (Fig 2). We recommended increasing the awareness about C.S. risk to decrease its rate and the number of C.S. by Maternal request without any medical indications to protect the mother and her infant. Additionally, a proper counseling should be enhanced to build up the level of awareness. We hope to decrease the rate of C.S. in the future to improve the quality of life of both mother and infant.

7. AUTHORS CONTRIBUTION STATEMENT

Dr. Abeer is the first author and she's the corresponding author for this research. Ala'a designed the questionnaire, developed analysis and computer service. Ala'a, Mozi, Shua'a, Randa, Fatimah, Samar and Abdulaziz did a literature review, collected and verified data. Ala'a, Mozi, Shua'a and Abdulaziz wrote the introduction. Randa, Fatimah and Samar wrote the patient and method. Dr. Abeer prepared results interpretation, discussion and manuscript for the paper.

8. CONFLICT OF INTEREST

Conflict of interest declared none.

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