

Correlation between Socio-economic Status and Spontaneous Premature Birth: Nursing Teaching brochure

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Abstract: Spontaneous preterm birth is a multi-factorial process. Low socioeconomic status (SES) considered as one of those factors. It has been associated with an increased risk of preterm birth, although the relationship varies by SES factors and not quiet identifiable. The aims were to assess the Correlation between socio-economic status and spontaneous premature birth design and provided nursing teaching brochure. A cross sectional research-design on purposive sample of 300 women at Women's Health Hospital, Assuit University. A structure interviewing questionnaire for data collection, socioeconomic status data scale and the nursing education brochure were used. Results: Sixty percentages of women had a threatened preterm labor, while 40% had inevitable preterm labor. In addition, nearly two thirds of the studied women (65.67%) were in the age group 21-30 years. The results indicate that (75.3%) of the studied women were moderate socioeconomic level. In addition, results showed that the majority of mothers (90.7%) were house wives with a statistically significant difference of gestational age and socioeconomic status at level ($P < 0.002$). There was a statistically significant difference ($P < 0.05$) in both threatened and inevitable preterm birth and household crowding index. Conclusions: There is no an association or relationship between preterm labor and socioeconomic status evidenced with any statistical significant difference. Recommendations: Health education programs should be organized for pregnant women about the causes of preterm birth and risk factors leading to it, and also to the symptoms of premature birth.

Keywords: Socio-economic, Spontaneous Premature Birth, Nursing Teaching, brochure.

1. INTRODUCTION

Preterm labor refers to the onset of uterine contractions of sufficient strength and frequency (> 4 contractions in 30 minutes) to effect progressive dilatation and effacement of cervix at less than 37 completed weeks of gestation. Preterm labor complicates (5-10%), of pregnancies and is a leading cause of neonatal morbidity and mortality worldwide. It is a major public health problem in terms of loss of life, long-term disability (cerebral palsy, blindness, deafness, chronic lung disease) and health care costs both in the developing and the developed world. It is strongly associated with long-term developmental disabilities, accounting for 1 in 5 children with mental retardation, 1 in 3 children with vision impairment, and almost half of children with cerebral palsy. Majority of preterm birth occurs spontaneously, whereas 25% occur following preterm pre-labor rupture of membranes (PPROM) [1].

Despite advances in medicine, the cause of preterm birth is in many situations indefinable and unknown. Preterm labor (PTL), it is one of the major causes of perinatal mortality and morbidity, and a significant cost factor in healthcare. There are sub-categories of preterm birth, based on gestational age: extremely preterm birth from (<28 weeks), very preterm birth from (28 to <32 weeks), and moderate to late preterm birth from (32 to <37 weeks) [2].

Preterm delivery is one of the pre-eminent obstetric problems of the twenty-first century. This can lead to significant mortality and morbidity, considered prematurity being the biggest cause of stillbirth and neonatal death, accounting for 40 and 37%, respectively. Preterm labor is notoriously hard to diagnose. Over 50% of women admitted with suspected preterm labor will continue their pregnancies to term [3].

There is no separation of medical and social issues in health and disease. Prematurity and low SES is not mutually exclusive. Due to the risk factors for premature birth including both low SES itself as well as many of the factors associated with it, such as cigarette smoking, young maternal age, and chronic stress, infants often have risk both from a medical and socio-demographic standpoint. When studies are done without considering the influence of both variables it is possible that effects due to prematurity could be falsely ascribed to low SES or vice versa. This is similar to the conflicting evidence around whether poor outcomes in teen pregnancy are due to the physiology of young maternal age or the socio-demographics of women who have children during these years [4].

Socioeconomic Status as a risk factor associated with preterm labor represented in poverty, social deprivation, employment that involves hard physical work, age less than 16 years or more than 35 years [5].

However, the relationship between socioeconomic position and pre-term birth is variable and inconsistent. Further, the inconsistency in the relationship between socioeconomic position and preterm birth is evident irrespective of whether socioeconomic position is measured using income, education, occupation or area-based measures [6].

Significance of the study

Preterm birth is the leading cause of neonatal mortality and the most common reason for antenatal hospitalization. In the United States, approximately 12% of all live births occur before term, and preterm labor preceded approximately 50% of these preterm births. Although the causes of preterm labor are not well understood, the burden of preterm births is clear—preterm births account for approximately 70% of neonatal deaths and 36% of infant deaths as well as 25–50% of cases of long-term neurologic impairment in children [7].

Preterm birth remains major cause of perinatal mortality and morbidity. Despite the advances in neonatal care during the last decades, pre-term birth remains the major cause of handicaps in children born without congenital anomalies [8].

Preterm labor is associated with significant long term disability and morbidity. The incidence of preterm labor is increasing, but currently stands at around 8%, although with wide racial differences. [9].

There are many maternal or fetal characteristics that have been associated with preterm birth, including maternal demographic characteristics that are need to study, also high quality prenatal care can help to prevent poor preterm labor outcomes [10].

The aims of the study

The aims of this study were to:

- Evaluate a possible correlation between socio-economic status and spontaneous preterm birth.
- Design a nursing teaching brochure.

Research question:

1. What is the correlation between socio-economic status and spontaneous preterm birth?

Patients and Methods

Research design:

A cross-sectional research design.

Setting:

The study was conducted in emergency and antenatal departments at the Women's Health Hospital, at Assuit University. The hospital provides women's health services for rural and urban areas within Upper Egypt.

Sample:

Purposive participants were included in this study. The following sample size equation used to demonstrate the included sample size:

$$\text{Sample Size} = \frac{Z^2 \times (p) \times (1-p)}{c^2}$$

c^2

Z=Z value (e.g.1.96 for 95% confidence level)

P=Percentage picking a choice, expressed as decimal

c=confidence interval, expressed as decimal (e.g., .04= ±4)

According to the sample size equation, 300 women included in this study, calculated by Epi ver. 6.5 with CI 95%. The patients recruited those who admitted to preterm labor (PTL) at Women's Health Hospital during the period from 1st January till the end of June 2015.

Patients' criteria was recruited based on

Inclusion criteria which include: Threatened and inevitable preterm labor.

Exclusion criteria which include: those who refused to participate in the study.

Study tools:

The investigator reviewed related national and international literature using textbooks, articles, and scientific journals. The tools used for data collection consisted of structure interviewing questionnaire sheet and socioeconomic data scale. The 1st tool: A structure interviewing questionnaire was designed, validated and utilized by the investigator to be completed from every woman admitted to labor department with preterm labor. It was including the following six parts:- Part1:- Personal data: Name, age, address, taking certain drugs, smoking, and violence.

Part2: Data related to medical history: The history of diabetes, hypertension, renal disease, cardiac disease, hepatic disease, and any other diagnosed medical disease. Part3: Data related to menstrual history: Age at menarche, Duration, Interval, and rhythm.

Part4: Data related to obstetrical history: number of gravidity, parity, history of abortion, number of live children, still birth. It also was included the history of previous deliveries as modes of delivery, complicated vaginal deliveries, cesarean sections, and the time since these deliveries.

Part5: Data related to: General examination, and vaginal examination.

Part6: Data related to current pregnancy: LMP, EDD, gestational age, type of preterm labor, present complaint, management, and fetal condition.

The 2nd tool:

Each woman was assessed through the socioeconomic status data scale which was designed and validated by **Abd-El-Tawab, (2004)** to assess socioeconomic status of the family and consists of 4 dimensions, which include the following:

- Couples' level of education: included 8 items.
- Couples' occupation: included 2 items.
- Total family monthly income: included 6 items.
- Life style of the family: included 3 items.

The summation of items score gives the total score of the variable. The total score for an individual can be obtained from an equation that depends upon these four variables. Categorization of individuals of a given sample as high, middle, or low socioeconomic class was done as follow:

Calculation of the mean and SD for each patient scores of the studied patients according to the following calculation:

- Individuals having scores higher than mean + 1 SD are classified as high socioeconomic class.
- Individuals having scores lower than mean -1 one SD are classified as low socioeconomic class.
- Individuals in between are classified middle class.

***The nursing teaching brochure:**

- It was designed by the researchers based on the literature review, were used to improve woman knowledge regarding preterm labor.
- It consisted of the etiology, medical and nursing management of preterm labor.
- This brochure contained colored pictures explaining each knowledge clearly and seen easily.

2. SUBJECT AND METHODS

- The investigator obtained an official permission from the Director's department of Obstetrics and Gynecology in Woman's Health Hospital at Assuit University and ethical approval was obtained from committee of faculty of Nursing soliciting the necessary approval to conduct the present research after explaining the aim and nature of the study to them to obtain their cooperation.
- A review of national and international related literature in the various aspects of the problem using books, articles, periodicals, and magazines was done.
- **Content validity of tools:** was established by 5 expertise's (3 specialist in maternity and gynaecological nursing field) who reviewed the tools of data collection for clarity, relevance, comprehensiveness, understanding, and applicability. Modifications were made accordingly, and then the tools were designed in their final format and tested.
- **Content reliability:** was estimated by Cronbach test. The tools proved to be reliable at (0.73, 0.71 and 0.81 respectively).
- The researcher introduced herself to the women, explained the purpose and nature of the study,
- The researchers asked every woman for her consent to participate.
- The study period from 1st January till the end of June 2018.
- Upon agreement, the researcher made daily round six days/week from 8.00 Am till 6.00Pm to meet the participated women face to face, to assess their conditions after medical and nursing management for more than half an hour.
- Personal data were obtained from each woman and from woman's record.
- The maternal condition was assessed through taking the history, which includes medical history, menstrual history, obstetric history, general examination involved general maternal condition and vital signs.
- A minimum number of careful vaginal examination was done to determine the condition of the membranes upon admission and degree of cervix dilatation, the researcher palpated presenting part, and effacement.
- Accordingly, the woman was classified as she suffered from the threatened or inevitable Preterm labor
- The researcher followed the woman until delivery and prepared her for delivery.
- Neonatal evaluation was done at one and five minutes after birth using Apgar score, weighting the baby, evaluate baby for any malformation or complication
- The researcher provided women with an illustrated tool in the form of brochure. The researcher explained the brochure to all the women (Illiterate and Literate). This tool was containing general health education related the etiology, medical and nursing management of preterm labor.
- **A pilot study** The tools were pre-tested through a sample of 30 women before the beginning of data collection to test the relevance of the tools to the aim of the work and to determine whether they are understood by the respondents or not. Also, to determine the time needed to complete the questionnaire form. The tools were finalized based on the results of

the pilot study. In the current study, there was no modification done in the questionnaire, so the pilot sample was included in the main study sample.

- Ethical consideration:

- Research proposal was approved by ethical committee of the faculty of nursing.
- Informed consent was taken from women participating study, after explaining the nature and purpose of the study.
- Confidentiality and anonymity were being assured.
- Women were assured that, the data of his research will not be refused without second permission.
- Women were informed that they refuse to participate and or withdraw from the study without any rational any time.

Statistical design:

All analyses were performed with the IBM SPSS 20.0 software. The categorical variables were described by number and percent (N, %), where continuous variables described by mean and standard deviation (Mean, SD). Chi-square test used to compare between categorical variables where compare between continuous variables by ANOVA. Continuous variables were tested for normal distribution using Kolmogorove Smirnov test and Q-Q Plots. A two-tailed $p < 0.05$ was considered statistically significant.

3. RESULTS

Table 1: Distribution of women according to socio-demographic characteristics and personal data of studied women.

Item	No.(300)	%
Age:		
Range	19 – 40 years	
Mean +SD	26.2+5.2	
<20 years	48	16.00
21-30 years	197	65.67
31-40 years	55	18.33
Residence		
Urban	69	23.00
Rural	231	77.00
Passive smoking		
Yes	228	76.00
No	72	24.00
Violence		
Yes	103	34.33
No	197	65.67
Taking certain drugs		
Yes	43	14.33
No	257	85.67

Table (1) shows the socio-demographic characteristics of the study participants, and reveals that nearly two thirds of the studied women

(65.67%) were in the age group 21-30 years. Nearly two thirds of women

(65.67%) didn't exposed to violence, and the majority of studied women

(85.67%) weren't taking certain drugs as anti-hypertensive drugs.

Table 2: Distribution of women according to medical and menstrual history of studied women

Item	No.(300)	%
1- Medical history		
Do you have any of these medical diseases diagnosed by doctors?		
Yes	23	7.67
No	277	92.33
If yes		
<input type="checkbox"/> Hypertension	5	1.67
<input type="checkbox"/> cardiac diseases	2	0.67
<input type="checkbox"/> Bleeding disorder	2	0.67
<input type="checkbox"/> Diabetes	10	3.33
<input type="checkbox"/> Hepatic disease	1	0.33
<input type="checkbox"/> chest disease	3	1.00
2- Menstrual history		
Age at menarche		
Range	11 – 17 years	
Mean +SD	13.2 + 1.3 years	
<14 years	196	65.33
>14 years	104	34.67
Period days		
Range	3 – 8 days	
Mean +SD	4.6 + 1.2	
<5 days	232	77.33
>5 days	68	22.67
Rhythm		
Regular	272	90.67
Irregular	28	9.33

Table (2) shows that the vast majority of women (92.33%) didn't have history of medical disease, but the majority of women (90.76%) had a regular menstruation.

Table 3: Distribution of women according to obstetrical history of studied women

Item	No.(300)	%
Gravidity		
Primigravida	105	35.0
2 – 4	135	45.0
≥5	60	20.0
Parity		
Nullipara	125	41.67
Primipara	66	22.00
2-4	86	28.67
≥5	23	7.67
Abortion		
No	193	64.33
1	83	27.67
2	21	7.00
≥3	3	1.00
Still birth		
No	297	99.00
1	3	1.00
Live birth		
No	131	43.67
1	69	23.00
2-4	88	29.33
≥5	12	4.0
History of previous		
<input type="checkbox"/> Obstructed labor	4	1.33
<input type="checkbox"/> Cesarean section	87	29.00
<input type="checkbox"/> Abortion	91	30.33
Pre-term PROM		
<input type="checkbox"/> PROM	10	3.33
<input type="checkbox"/> Pre-term labor	29	9.67
<input type="checkbox"/> Cerclage	3	1.00
Mode of delivery in last pregnancy		
SVD	105	35.00
Instrumental delivery	0	0.0
CS	70	23.33
Fetal status		
Live	170	56.67
Die	2	0.67

Table (3) indicates that nearly half of the studied women (45.0%) were had (2-4) gravidity; while more than one third (35%) were had Primigravidas. More than one third of women were nulliparous., (64.33%) of the studied women didn't have abortion, the vast majority of women (99%) didn't have a history of still birth, nearly one third of studied women (29%) had a history of previous C.S, (9.67%) of women had a history of previous Pre-term deliveries, more than one third of women (35%) had spontaneous vaginal delivery, and more than half of women (56.67%) had live baby.

Table 4: Distribution of women according to general and vaginal examination of studied women at admission

Item	Range	Mean +SD
a- Data related to general examination		
Pulse	38 - 105	84.9 + 7.1
Temperature	36.5 - 38.5	37.3 + 0.3
Blood pressure		
Hypotension	5(1.7%)	
Normal	278(92.7%)	
Hypertension	17(5.6%)	
b- Data related to vaginal examination		
Cervix		
Closed	55	18.3
Open	245	81.7
Degree of dilatation		
<3 cm	116	47.3
≥3 cm	129	52.7
Grade of effacement		
<25%	102	41.6
≥25%	143	58.4
Presentation		
Breech	44	14.7
Vertex	256	85.3
Membrane		
Intact	197	65.7
Rupture (spontaneous)	103	34.3
Amniotic fluid		
Bloody	5	4.9
Clear	98	95.1
Abnormal findings		
No	193	64.3
Amniotic fluid	7	2.3
Infected discharge	48	16.0
Amniotic fluid & Infected Discharge	52	17.3

Table (4) shows that the majority of women 92.7% were within normal range of blood pressure, and reveals that more than half of women 52.7% were had 3cm or more of degree of dilatation and more than half of women 58.4% were had more than 25% of effacement.

Table 5: Distribution of women according to current pregnancy of studied women

Item	No.(300)	%
Gestational age		
Range	28 – 36	
Mean +SD	32.7 + 2.4	
Type of preterm labor		
Threatened preterm labor	180	60.0
Inevitable preterm labor	120	40.0
If threatened, type of management*		
Bed-rest left lateral position	2	1.1
Tocolytic agents	2	1.1
Corticosteroid therapy	7	3.9
Bed-rest left lateral position & Tocolytic agents	2	1.1
Bed-rest left lateral position & Corticosteroid therapy	10	5.6
Tocolytic agents & Corticosteroid therapy	25	13.9
Bed-rest left lateral position & Tocolytic agents & Corticosteroid therapy	132	73.3
If Inevitable		
Fetal condition		
<input type="checkbox"/> Living	118	98.3
<input type="checkbox"/> Intra uterine fetal death	2	1.7
Apgar score		
Min.1		
≤3	10	8.5
4-6	59	50.0
≥7	49	41.5
Min.5		
<3	0	0.0
4-6	39	33.1
≥7	79	66.9
Fetal weight		
Range	0.9 - 3.5	
Mean +SD	2 + 0.7	
Fetal complications*	77	65.3
<input type="checkbox"/> Respiratory	65	84.4
<input type="checkbox"/> Mal formation	13	16.9
<input type="checkbox"/> Admission to nursery or Neonatal Intensive Care	65	84.4
Unit		

*There were more than one variable in one case

Table (5) shows that the range of gestational age was (28-36) weeks with Mean \pm SD 32.7 ± 2.4 . Women who had a threatened preterm labor were (60%), while 40% had inevitable preterm labor, the vast majority of born babies (98.3%) were living, and nearly two thirds of infants (65.3%) had complications.

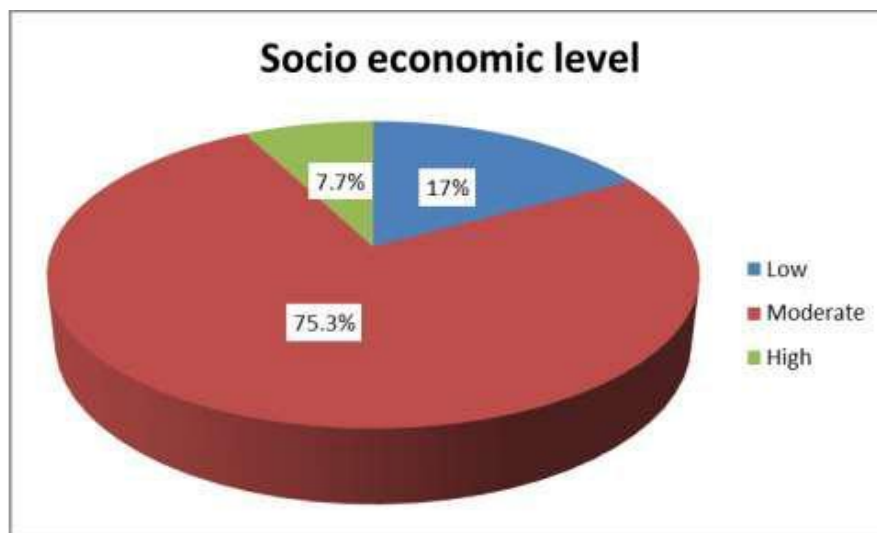


Fig (1): Distribution of women according to socio economic level of studied women

Fig. (1) Demonstrated that about three quarter of studied women (75.3%) belonging to the moderate socioeconomic level according to socioeconomic status scale by Abd-El-Tawab, (2004)

Table (6): Relationship between socio economic level and current pregnancy outcomes

	Socio economic level						P. value
	Low (n=51)		Moderate (n=226)		High (n=23)		
	No.	%	No.	%	No.	%	
Gestational age	33.6 \pm 2.2		32.5 \pm 2.4		31.8 \pm 2.4		0.002**
Fetal condition							
Live	19	37.3	92	40.7	7	30.4	0.077
Die	0	0.0	0	0.0	2	8.7	
Fetal weight	2.3 \pm 0.6		2 \pm 0.7		1.5 \pm 0.6		0.012*
Fetal complications							
Respiratory	7	13.7	53	23.5	5	21.7	0.266
Mal formation	0	0.0	13	5.8	0	0.0	
Admission to nursery or NICU	5	9.8	55	24.3	5	21.7	

** Statistically significant difference (p<0.01)

Table (6) shows that there is highly statistically significant difference between gestational age (p<0.01) and socioeconomic level. Also, there is statistical significant difference between socioeconomic status and fetal weight. However, there is no a statistically significant difference between socioeconomic status and fetal complication.

Table 7: Relationship between threatened preterm labor and socioeconomic status scale dimensions.

socioeconomic status scale dimensions	Threatened preterm labor(n=180)						P. value
	Socio economic level						
	Low		Moderate		High		
	No.	%	No.	%	No.	%	
Age							
<20 years	6	18.8	26	19.4	0	0.0	<0.001**
21-30 years	10	31.3	91	67.9	11	78.6	
31-40 years	16	50.0	17	12.7	3	21.4	
Mother education							
Illiterate	25	78.1	11	8.2	0	0.0	<0.001**
Read and write	7	21.9	7	5.2	0	0.0	
Basic education	0	0.0	4	3.0	0	0.0	
Secondary	0	0.0	26	19.4	0	0.0	
University	0	0.0	81	60.4	6	42.9	
Diploma or Master degree	0	0.0	5	3.7	8	57.1	
Father occupation							
Employee	0	0.0	31	23.1	8	57.1	<0.001**
Craftsman	13	40.6	28	20.9	0	0.0	
wage earner	11	34.4	65	48.5	3	21.4	
Retired	0	0.0	0	0.0	0	0.0	
Farmer	8	25.0	5	3.7	0	0.0	
To go abroad	0	0.0	5	3.7	3	21.4	
Don't work	0	0.0	0	0.0	0	0.0	
Mother occupation							
Housewife	32	100.0	119	88.8	12	85.7	0.3
Student	0	0.0	4	3.0	0	0.0	
Employee	0	0.0	11	8.2	2	14.3	
Residence							
Urban	3	9.4	37	27.6	2	14.3	0.064

Rural	29	90.6	97	72.4	12	85.7	
Violence							
Yes	7	21.9	56	41.8	3	21.4	0.052
No	25	78.1	78	58.2	11	78.6	
Passive smoking							
Yes	20	62.5	118	88.1	12	85.7	0.002**
No	12	37.5	16	11.9	2	14.3	
Family income							
From 200 to 400 pound	4	12.5	0	0.0	0	0.0	0.001**
From 400 to 800 pound	8	25.0	11	8.2	0	0.0	
From 800 to 1500 pound	13	40.6	65	48.5	0	0.0	
More than 1500 pound	7	21.9	58	43.3	14	100.0	
Crowding index							
Three or more person/room	2	6.3	7	5.2	2	14.3	0.001**
Two person/room	12	37.5	94	70.1	12	85.7	
One person/room	18	56.3	33	24.6	0	0.0	
Gravidity							
Pgda	8	25.0	55	41.0	5	35.7	0.001**
2 – 4	9	28.1	69	51.5	3	21.4	
≥5	15	46.9	10	7.5	6	42.9	
Parity							
Nullipara	10	31.3	62	46.3	8	57.1	0.001**
Primipara	3	9.4	31	23.1	0	0.0	
2 – 4	11	34.4	39	29.1	3	21.4	
≥5	8	25.0	2	1.5	3	21.4	

Table 7: shows that there is highly statistically significant difference between threatened preterm labor and either participants' age and educational level ($p=0.001$). However, there is no a statistically significance difference between threatened preterm labor and mother's occupation, residence and violence respectively. While there is highly statistically significance difference between the following variables: passive smoking, family income, and crowding index in relation

to threatened preterm labor (P= 0.002, P= 0.001 & P=0.001) respectively. There is highly statistically significant relationship between both “gravidity and parity” and threatened preterm (P= 0.001 & P= 0.001) respectively.

Table 8: Relationship between Inevitable preterm labor and socioeconomic status scale dimensions.

Inevitable preterm labor (n=120)							
socioeconomic status scale dimensions	Socio economic level						P. value
	Low		Moderate		High		
	No.	%	No.	%	No.	%	
Age							
<20 years	2	10.5	14	15.2	0	0.0	0.357
21-30 years	14	73.7	62	67.4	9	100.0	
31-40 years	3	15.8	16	17.4	0	0.0	
Mother education							
Illiterate	16	84.2	12	13.0	0	0.0	<0.001**
Read and write	3	15.8	5	5.4	0	0.0	
Basic education	0	0.0	6	6.5	0	0.0	
Secondary	0	0.0	22	23.9	0	0.0	
University	0	0.0	47	51.1	0	0.0	
Diploma or Master degree	0	0.0	0	0.0	7	77.8	
Father occupation							
Employee	0	0.0	4	4.3	7	77.8	<0.001**
Craftsman	6	31.6	25	27.2	0	0.0	
wage earner	6	31.6	35	38.0	0	0.0	
Retired	0	0.0	3	3.3	2	22.2	
Farmer	7	36.8	16	17.4	0	0.0	
To go abroad	0	0.0	7	7.6	0	0.0	
Don't work	0	0.0	2	2.2	0	0.0	
Mother occupation							
Housewife	19	100.0	83	90.2	7	77.8	<0.001**
Student	0	0.0	0	0.0	2	22.2	

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Employee	0	0.0	7	7.6	0	0.0	
Residence							
Urban	3	15.8	24	26.1	0	0.0	0.151
Rural	16	84.2	68	73.9	9	100.0	
Violence							
Yes	2	10.5	30	32.6	5	55.6	0.041*
No	17	89.5	62	67.4	4	44.4	
Passive smoking							
Yes	14	73.7	59	64.1	5	55.6	0.603
No	5	26.3	33	35.9	4	44.4	
Family income							
From 200 to 400 pound	2	10.5	7	7.6	0	0.0	0.427
From 400 to 800 pound	6	31.6	19	20.7	0	0.0	
From 800 to 1500 pound	5	26.3	36	39.1	4	44.4	
More than 1500 pound	6	31.6	30	32.6	5	55.6	
Crowding index							
Three or more person/room	5	26.3	6	6.5	0	0.0	<0.001**
Two person/room	10	52.6	50	54.3	0	0.0	
One person/room	4	21.1	36	39.1	9	100.0	
Gravidity							
Pgda	2	10.5	31	33.7	4	44.4	0.101
2 – 4	12	63.2	37	40.2	5	55.6	
≥5	5	26.3	24	26.1	0	0.0	
Parity							
Nullipara	5	26.3	36	39.1	4	44.4	0.459
Primipara	0	2	2.52	22	2.53	7	
2 – 4	2252	2	2.52	22	2.53	7	
≥5	33.3	0.0	10	10.0	0	0.0	

Table 8: shows that there is no statistically significant difference between age and inevitable preterm labor. While there is highly statistically significant difference between mother's educational level and parents' occupation with inevitable preterm labor ($P= 0.001$ & $P= 0.001$) respectively. Relationship between violence and inevitable preterm labor reflects a statistically significant difference. However, there was no statistical significant difference between passive smoking and family income with inevitable preterm labor. The relationship between crowding index and inevitable preterm labor reveals highly statistically significant difference.

4. DISCUSSION

Preterm labor is an important concern for public health because of the birth complications that arise from immature organ systems that are not yet prepared to support life in the extra uterine environment. The response of the infant's organ systems to the demands of that environment and the life support that is subsequently provided have an important impact on the infant's short- and long-term health and neuro developmental outcomes[11].

Socioeconomic status (SES) is one of the most important social determinants of health and disease, thus, widely studied constructs in the social sciences. Usually composite scales are used to measure SES, which has a combination of social and economic variables. Several ways of measuring SES have been suggested for categorizing different rural and urban populations in last decades [12].

Thus, the present study aimed to evaluate a possible correlation between socio-economic status and spontaneous premature birth and to assess whether the preterm rate is different in socio-economic groups defined by maternal education, and to determine the extent to which a difference is attributable to a socio-economic differential in obstetrical intervention at Women's Health Hospital, Assiut University. Patients were women who delivered before 37 completed weeks' gestation (28–36 weeks' gestation).

The findings of the present study showed that the age range of studied women age was (19-40) years old, with Mean \pm SD (26.2 \pm 5.2) and revealed that nearly two-thirds of the studied women were in the age group (21-30) years. Similar findings were reported by [Ibrahim, et al. 2014] [13] study was matched with the present study, which carried out on the effect of risk factors and habits of preterm labor in Assiut and stated that mean of maternal age were (28.1 \pm 5.7). On the same hand, international studies reflected variety of findings. A study by [Kaewluang, et al. 2015] [14] was in agreement with the present study, which conducted on risk factors associated with preterm birth in the United States of America and found that mean \pm SD of maternal age (Mean = 27.78, SD = 6.43).

The present study showed that there wasn't statistical significance difference between age and Inevitable preterm labor, the present study found that PTB rates declined in older women for both age categories, whereas rates increased in younger women, especially for those younger than 30 years. More studies were similar to the current study related to age or insignificant relationship between age and preterm birth. This study agreed with [Mirabzadeh, et al.2013] [15] study which carried on path analysis associations between perceived social support, stressful life events and other psychosocial risk factors during pregnancy and preterm delivery and revealed that The mean age of the participating women was 27.46 \pm 4.97 years, [Sarhan, and Anini. 2015] [16]study which conducted on risk factors of preterm birth among Palestinian women: case control study who found that there was no significant relationship between age and preterm birth.

Concerning to women educational level, The present study showed that nearly half of the studied women had secondary educational level with a highly statistical significance difference between preterm birth and mother's education. This result agreed with a study conducted by [El-Sayed and Galea.2012] [17] about temporal changes in socioeconomic influences on health: maternal education and preterm birth who found that PTB risk increased among the most educated and did not change among the least educated women, and also, a study conducted by [Al- Dabbagh & Al-Taee .2006] [18]on risk factors for preterm birth in Iraq, which reported a positive significant association between maternal educational level and occurrence of PTB. Also, [Nedra. 2012] [19] confirmed that low maternal education was associated with an increased risk of preterm contractions. Conversely, a study reported by [Ibrahim, et al. 2014] [13] stated that more than half of women had secondary education and a study done by [Abdelhady & Abdelwahid. 2015] [20] stated that low educational level was insignificantly a risk factor for preterm labor.

As regard to occupation, the present findings showed that the majority of studied women were house wives (unemployed) and there was a statistical significant difference between inevitable preterm labor and mother occupation. This finding

study was in the same line with [Pauline, et al.2010] [21] who conducted a study about (Employment status and the risk of pregnancy complications).

Regarding residence of the studied women, the present study displayed that more than two-thirds of studied women were from rural area and there was no statistical association between preterm labor and residence. This finding was consistent with [Zhang, et al. (2012)] [22] who reported that living in a town or city was associated with a smaller risk of preterm birth than living in a village. However, contradictory to the current study the findings reported by [Hillemeier , et al .2007] [23] who found that rural-urban residence continuum in central Pennsylvania, was an important predictor of preterm birth because the study confirmed that women living in rural communities were shown to experience risks of poor birth outcomes as great as those found among women living in urban-focused communities.

Regarding, the relationship of cigarette smoking to preterm birth, the current study showed that almost three-fourths of preterm labor women were exposed to passive smoking with no statistically significant difference with inevitable preterm labor .This is similar to [Arief, et al . 2008] [24] carried out study about effect of passive smoking on maternal and neonatal outcomes who clarified that there was no statistically significant difference between preterm labor and exposure to smoking.

Contradictory to the present study findings, a study by [Tepper, et al .2012] [25] which conducted on singleton preterm risk factors and association with preterm labor and reported that passive smoking contributed to preterm labor.

Regarding to violence, the present study clarified that there was a statistical significance difference between violence and inevitable preterm labor. This result in the same line with [Rodrigues , et al . 2008] [26] that conducted a study in Porto, about physical abuse during pregnancy and preterm delivery and confirmed that violence was associated with preterm birth even after controlling for age, marital status, education, income, parity, planned pregnancy, antenatal care, smoking, alcohol, and illicit drugs use.

On the other hand, this result was in contradiction with [Schoeman , et al .2005] [27] that conducted study in a South Africa and stated that violence alone did not seem to cause preterm labor but was part of a low socioeconomic lifestyle. This may be related to negative impact of low socioeconomic lifestyle.

Regarding family income, the present results revealed that there was no statistically significance difference between inevitable preterm labor and family income. This was agreed with a study of [Mortensen, et al . 2010] [28] who found that income was not associated with preterm birth or small for gestational age in Denmark which conducted about incomerelated and educational inequality in small-for-gestational age and preterm birth in Denmark and Finland. Contradictory, a study by [Morgen ,et al .2008] [29] who found that lower income was associated with lower risk of preterm birth in a study about socioeconomic position and the risk of preterm birth.

Concerning of a previous preterm labor and socioeconomic status, in the present study there was a statistical significant difference at ($p=0.01$).This was in conformity with [Alijahan , et al .2014] [30] who conducted a study about prevalence and risk factors associated with preterm birth in Ardabil, Iran and found that experience of previous preterm birth was identified as the most significant risk factor for preterm birth.

Concerning history of premature rupture of membrane, the current result revealed that premature rupture of membrane was 3.33 % this was go in line with [Alijahan, et al.2014] [30] who conducted a study about prevalence and risk factors associated with preterm birth in Ardabil, Iran a found that preterm rupture of membrane was the most common cause of Oligo-hydramnios.

Regarding relationship between socioeconomic level and current pregnancy, the results showed that there was a statistical significant difference of gestational age ($p=0.01$) and the range of studied women gestational age was (28 – 36) weeks, with Mean \pm SD (32.7 + 2.4). This was in conformity with [Kaewluang , et al. 2015] [14] who conducted a study about risk factors associated with preterm birth in the United State of America and revealed that Mean \pm SD gestational age was (33.81 \pm 3.05) weeks. The findings of the present study showed that the majority of studied women belonged to the moderate socioeconomic level according to socioeconomic status scale by Abd-El-Tawab, (2004) with no statistical significance difference between preterm labor and socioeconomic status. This result go opposite with [Mirabzadeh , et al .2013] [15] who conducted a study about path analysis associations between perceived social support, stressful life events

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and other psychosocial risk factors during pregnancy and preterm delivery and found a direct relationship between socioeconomic status and social support, mental status and preterm labor.

5. CONCLUSION

Based on the results of the present study, it can be concluded that:

- It was concluded that there is a highly statistical significant difference between gestational age and socioeconomic level.
- There was highly statistical significant increase in passive smoking and threatened preterm labor.
- There is increased incidence of both threatened and inevitable preterm labor in the rural area, but with no statistically significant difference between preterm and residence.
- There is highly statistically significant difference in both threatened and inevitable preterm birth and house hold crowding index.
- There is highly statistical significant difference between socioeconomic status and history of preterm birth.
- There is highly statistical significant difference between socioeconomic status and gravidity.
- There is statistical significant difference between socioeconomic status and parity.

6. RECOMMENDATIONS

Based on the results of the present study, the following recommendations were suggested:

- 1- Upgrading the educational level of rural communities.
- 2- Health education programs should be organized for pregnant women about the causes of preterm labor and risk factors leading to it, and also to the symptoms of premature birth.
- 3-Raising the level of health of poor rural households to reduce the problems and health risks leading to wasting the lives of the mother and the fetus, which affect social and economic burden on society as a whole.
- 4- Health education programs should be organized for staff about the early management of preterm labor.
- 5- Mass media and announcements such as (T.V., Radio) play an important role in conveying health information to the public.

REFERENCES

- [1] Shafaq Farooq. 2014: Risk factors of preterm labour and the use of progesterone in prevention of preterm birth. *JPMI: Journal of Postgraduate Medical Institute*. Vol. 28 Issue 2, p189-195.
- [2] Yüksel Onaran, Esra Aktepe Keskin, Zehra Candan Itemir Duvan, Serap Aynur Simavli, Cemile Koca, Hasan Kafali, Nilgün Turhan. 2014: Prohepcidin in maternal circulation: is it related to spontaneous preterm labor?, *Turkish Journal of Medical Sciences (Turk J Med Sci)* 44: 1108-1113 © TÜBİTAK. doi:10.3906/sag-1304-94.
- [3] Dutta Debarati and Jane E. Norman. 2011: Pilot study into the efficacy of foetal fibronectin testing in minimising hospital admissions in women presenting with symptoms of preterm labour: a randomised controlled trial of obstetric and neonatal outcomes, *Archives of Gynecology and Obstetrics* © Springer-Verlag, Volume 284, Issue 3, pp 559-565.
- [4] Ruth. C. Anastasia. 2010: The Influence of Socioeconomic Status On Morbidity in Late Preterm Infants, University of Manitoba (Canada), ProQuest, UMI Dissertations Publishing, MR69656.
- [5] Sue Macdonald, Julia Magill. (2011): Preterm baby and small baby, Mayes, midwifery, 14th ed, EL Sevier Bailliere Tindall, Italy. Ch. (44), No. (12485), P.P. (650-651).
- [6] Joseph et al. 2014: BMC Pregnancy and Childbirth, 14:117 <http://www.biomedcentral.com/1471-2393/14/117>

International Journal of Novel Research in Healthcare and Nursing

 Vol. 6, Issue 2, pp: (665-683), Month: May - August 2019, Available at: www.noveltyjournals.com

- [7] American College of Obstetricians and Gynecologists.2012: Management of Preterm Labor, No 127, 119:1308-17. http://www.acog.org/Resources_And_Publications/Practice_Bulletins/Committee_on_Practice_Bulletins/Obstetrics/Management_of_Preterm_Labor/
- [8] Serra V,A Perales,J Meseguer,JJ Parrilla,C Lara,J Bellver,R Grifol,I Alcover,M Sala,JC Marti,nez-Escoriza,A Pellicer.2012: Increased doses of vaginal progesterone for the prevention of preterm birth in twin pregnancies:a randomised controlled doubleblindmulticentre trial,BJOG: An International Journal of Obstetrics & Gynaecology,Vol.120, Issue 1,p.p.50-57. DOI: 10.1111/j.14710528.2012.03448. www.bjog.org
- [9] Fraser, D .M. and Cooper, M.A.2009: Active First Stage of Labor. Myles textbook for Midwives, 5thed. ELSevier Mosby, China, Ch. (26), No.(12414), p .p (489).
- [10] Jacob Annamma. 2008: The low birth weight baby the preterm baby and Intrauterine Growth related baby .A comprehensive textbook of Midwifery, 2nd Ed .Jaypee Brothers medical publishers, India, Ch. (42), No. (12427), P.P (532).
- [11] Angelica E. Miranda, Valdir M. Pinto, Célia L. Szwarcwald, Elizabeth T. Golub.2012: Prevalence and correlates of preterm labor among young parturient women attending public hospitals in Brazil, vol.32, n.5, Washington. <http://dx.doi.org/10.1590/S102049892012001100002>
- [12] Mohan Bairwa, Meena Rajput, and Sandeep Sachdeva.2013: Modified Kuppaswamy's Socioeconomic Scale: Social Researcher Should Include Updated Income Criteria, Indian J Community Med. 2013 Jul-Sep; 38(3): 185–186.doi: 10.4103/0970-0218.116358
- [13] Ibrahim. N. Abu Elmawaheb, Abd Elrady. S, Mustafa. M. Farouk, Ahmed. N. Hussien. 2014: Effect of risk factors and habits on preterm labor at women,s health hospital . Faculty of Nursing, P.P. (56:59).
- [14] Kaewluang N, Suzan M. Ludington, Christopher J.Burant, et al. 2015: Risk factors associated with preterm birth, Faculty of Nursing, Degree of Doctor of Philosophy, United States.
- [15] Mirabzadeh Arash, Mahrokh Dolatian , Ameneh Setare Forouzan , Homeira Sajjadi 1,Hamid Alavi Majd , Zohreh Mahmoodi .2013: Path Analysis Associations Between Perceived Social Support, Stressful Life Events and Other Psychosocial Risk Factors During Pregnancy and Preterm Delivery, Iranian Red Crescent Medical Journal. 15(6): 507-14
- [16] Sarhan, A.L, and Anini, H.E. 2015: Risk Factors of Preterm Birth among Palestinian Women: Case Control Study. Austin J Nurs Health Care; 2(1): 1011-1018.
- [17] El-Sayed A M and S. Galea.2012: —Temporal changes in socioeconomic influences on health: maternal education and preterm birth, American Journal of Public Health, vol. 102, no. 9, pp. 1715– 1721.
- [18] Al–Dabbagh SA, Al–Tae WY.2006: Risk factors for preterm birth in Iraq: a case–control study. BMC Pregnancy Child birth; 6: 13.
- [19] Nedra S. Whitehead. 2012: The Relationship of Socioeconomic Status to Preterm Contractions and Preterm Delivery. Maternal Child Health J.Nov; 16 (8): 1645-56. doi: 10.1007/s10995-012-0948-4.
- [20] Abdelhady & Abdelwahid. 2015: Rate and Risk Factors of Preterm Births in a Secondary Health Care Facility in Cairo, World Journal of Medical Sciences 12 (1): 09-16.
- [21] Pauline W Jansen, Henning Tiemeier, Frank C Verhulst, Alex Burdorf, Vincent W V Jaddoe, Albert Hofman, Henriëtte A Moll, Bero O Verburg, Eric A P Steegers, Johan P Mackenbach and Hein Raat.2010: Employment status and the risk of pregnancy complications: the Generation R Study, Occupational and Environmental Medicine, Vol. 67, No. 6, pp. 387-394.Published by: BMJ .Stable URL: <http://www.jstor.org/stable/25701671>
- [22] Zhang Y-P, Liu X-H, Gao S-H, Wang J-M, Gu Y-S, et al. 2012: Risk Factors for Preterm Birth in Five Maternal and Child Health Hospitals in Beijing. PLoS ONE 7(12): e52780. doi:10.1371/journal.pone.0052780

International Journal of Novel Research in Healthcare and NursingVol. 6, Issue 2, pp: (665-683), Month: May - August 2019, Available at: www.noveltyjournals.com

- [23] Hillemeier M. Marianne ,Carol S. Weisman , Gary A. Chase and Anne-Marie Dyer .2007: Individual and Community Predictors of Preterm Birth and Low Birthweight Along the Rural-Urban Continuum in Central Pennsylvania. *The Journal of Rural Health* Volume 23, Issue 1, pages 42–48.
- [24] Arief. A. Fouad , Eshra. D. Khalil , Mohamed . S. Nageib, Hamdee. R. 2008: Effect of passive smoking on maternal and neonatal outcomes, Faculty of Nursing, Assuit University, and P.P.58:59.
- [25] Tepper, N, Farr, S., Cohen, B., Nannini, A., Zhang, Z., Anderson, J, Macaluso, M. 2012: Singleton Preterm Birth: Risk Factors and Association with Assisted Reproductive Technology. *Maternal & Child Health Journal*, 16(4), 807-813
- [26] Rodrigues T, Barros H. 2007: Comparison of risk factors for small-for-gestational-age and preterm in a Portuguese cohort of newborns. *Maternal Child Health J*; 11:417-24.
- [27] Schoeman J, Grove DV & Odenhaal HJ.2005: Are domestic violence and the excessive use of alcohol risk factors for preterm birth? *J Trop Pediatr*;51:49–50.
- [28] Mortensen LH, Lauridsen JT, Diderichsen F, Kaplan GA, Gissler M, Andersen AM. 2010: Income-related and educational inequality in small-for-gestational age and preterm birth in Denmark and Finland 1987-2003. *Scand J Public Health*; 38:40-5.
- [29] Morgen C S, Christina Bjørk, Per Kragh Andersen, Laust Hvas Mortensen and Anne-Marie Nybo Andersen.2008: Socioeconomic position and the risk of preterm birth—a study within the Danish National Birth Cohort, *International Journal of Epidemiology* 2008;37:1109–1120, doi:10.1093/ije/dyn112
- [30] Alijahan Rahele, Sadegh Hazrati, Mehrdad Mirzarahimi, Farhad Pourfarzi, Peymaneh Ahmadi Hadi.2014: Prevalence and risk factors associated with preterm birth in Ardabil, Iran *J Reprod Med* Vol. 12. No. 1. pp: 47-56