

Effect of Wound Care Guidelines on Women's Knowledge, Beliefs, and Practices Regarding Cesarean Section Wound Healing

Samar Zidan Ali ¹, Enas Kassem Ali ², Safaa Soliman Ahmed ³

¹*Assistant Lecturer in Maternity & Neonatal Health Nursing, Faculty of Nursing - Beni-suf University*

²*Professor of Maternal and Newborn Health Nursing, Faculty of Nursing – Menoufia University*

³*Assistant Professor of Maternal and Newborn Health Nursing, Faculty of Nursing - Beni-suf University*

Abstract: Background: Improving women's knowledge, beliefs, and practices based on wound care guidelines should be recognized as being essential to reduce post-cesarean wound infection. **The purpose of the study** was to assess the effect of wound care guidelines on women's knowledge, beliefs, and practices regarding cesarean section wound healing. **Methods:** A quasi-experimental design was utilized. **Sample:** A purposive sample consisted of 200 pregnant women undergoing cesarean section. **Setting:** The study was carried out at the Obstetrics and Gynecological Department & outpatient clinic at Beni-suef University Hospital in Beni-suef Governorate, Egypt. **Instruments** of this study were a structured interviewing questionnaire to assess pregnant beliefs in women knowledge and beliefs regarding wound care guidelines and self-care practice tool. **Results:** There was a statistically significant reduction beliefs in postoperative wound infection in the study group compared to the control group. **Conclusion:** Women had higher knowledge, beliefs, and practice score about wound care guidelines regarding caesarean section wound healing. **Recommendations:** There is more knowledge, beliefs and practices related to cesarean wound healing that need to be corrected.

Keywords: *Wound care guidelines, Women's Knowledge, Believes, Practices, Cesarean Section Wound Healing*

Introduction

Caesarean section (CS) refers to delivery of a fetus through surgical incisions made through the abdominal and uterine walls. It's a life-saving surgical intervention achieved when complications occur during pregnancy or labour (Byamugisha et al., 2020).

Globally, the prevalence of CS is approximately 18.5%, ranging from 6 to 27.2%. The average rate of CS in North Africa is 27.8% (Betran et al., 2016), with a high rate in Egypt (52%). Cesarean section is considered the most important risk factor for

***Effect of Wound Care Guidelines on Women's Knowledge, Beliefs, and Practices
Regarding Cesarean Section Wound Healing***

postpartum maternal infection (Abdelraheim et al., 2019).

World Health Organization (2018) Stated that wound infection is an infection occurring within 30 days from the operative procedure in the part of the body where the surgery took place. It divided surgical site infection (SSIs) into incisional SSI divided into superficial, involving the skin and subcutaneous tissue, and deep SSI, involving fascial and muscle layers.

Several risk factors increase women's vulnerability to wound infection such as obesity, multiple pregnancy, diabetes, hypertension, premature rupture of membranes, age, blood loss and emergency CS birth, in addition, low socioeconomic status is considered a risk factor for SSIs. (Regmi et al., 2022).

Knowledge about women's post-cesarean practices helps to avoid identified factors that contribute to the presence of wound infection and comprehend the importance of effective post-CS wound care (Peter et al., 2020).

Furthermore, assessing patients' practices on wound caring in prevention of infection is of top significance since it gives an understanding of their cultural care practices and encourages the preparation of the health care plan to provide an intervention with their cultural environment (Lube et al., 2017).

Preventing C-section SSIs requires appropriate antibiotic prophylaxis and wound care, including wound care after discharging a woman from the hospital (Campa., 2020). According to American Pregnancy Association (2019) it is recommended that women regularly replace the dressing over the wound once a day, keep the wound clean and dry after washing with mild soap and water and avoid soaking in bathtubs or swimming.

Significance of the study

The global rate of SSIs ranges from 3% to 15%, the difference in incidence may reflect variances in population characteristics and risk factors, perioperative practices, and the duration from the procedure until ascertainment (Alfouzan et al., 2019), while the incidence of SSIs in Africa ranges from 5% in Tunisia (Abdallah et al., 2018). to 16.7% in Egypt (Bryanton et al., 2018). Patients who develop SSIs were five times more likely to be readmitted to hospital and two times more likely to die compared with patients without SSIs (Mekonnen & Mittiku., 2021).

Maternity nurse plays a crucial role in care of C.S women, so nurse should assess woman's knowledge to guide it to return to a pre-pregnant state and provide health education about wound care before cesarean delivery. Nurse can present a formal educational plan to schedule appointments to review various aspects of wound care management and reinforce their importance (Sickder et al., 2017).

Purpose of the Study

To evaluate the effect of wound care guidelines on women's knowledge, beliefs, and practices regarding cesarean section wound healing

Research Hypothesis

Women who receive wound care guidelines will have an improvement in their knowledge, beliefs, and practices regarding cesarean section wound healing.

Operational definitions of study variables

Effect is the ability to affect and achieve results. the present study refers to changes in the knowledge score,

*Effect of Wound Care Guidelines on Women's Knowledge, Beliefs, and Practices
Regarding Cesarean Section Wound Healing*

score of practice, and beliefs of the maternal woman regarding pre, intra, and post-cesarean section wound care.

Wound care guidelines are considered standards at a universal level and recognized numerous effective elements of pre-, intra-, and postoperative measures for wound infection prevention. Operationally it refers to a standard of care that include several recommendations followed by a maternal woman and healthcare provider to reduce the incidence of post-cesarean wound infection. This element is measured by instruments three and four.

Wound healing refers to an alive organism's replacement of destroyed or broken tissue by newly created tissue there are four phases of normal wound healing hemostasis, inflammatory Phase, Proliferative Phase, and maturation Phase.

Methods

Research Design:

A quasi-experimental design (study and control groups) was used to carry out the present study.

Settings:

The current study was conducted at the Obstetrics and Gynecological Department & outpatient clinic at Beni-suef University Hospital in Beni-suef Governorate, Egypt.

Sample type and size:

A Purposive sample of 200 pregnant women participated in the present study and divided equally into group (1) study group (100) women they received wound care guidelines and group (2) control group (100) they received routine hospital care only.

Data Collection Instruments:

Data was collected using instruments, which are developed by the researcher

and revised by qualified experts, then tested for validity and reliability.

Instrument I: A Socio-Demographic

Data Questionnaire: -

This instrument was developed by the researcher after reviewing related literature and under the guidance of the supervisors to obtain complete data about pregnant women. **It comprised of:** - socio-demographic data of the studied women, previous obstetrical history, data about current pregnancy, caesarean section indication, operative data.

Instrument 1 Validity:

The validity of the instrument was ascertained by three qualified experts (one expert in the Maternal and Newborn Health Nursing Department at the Faculty of Nursing, Beni-Suef University, and two experts from the Obstetrics and gynecology department at the Faculty of Medicine, Beni-Suef University) who reviewed the instrument for the content and internal validity. They were also asked to judge the items for completeness and clarity. Modifications were done to ascertain relevance and completeness.

Instrument 1 Reliability:

The researcher for testing the internal consistency of the instrument applied test-retest reliability. It was done through the administration of the same instrument to the same participants under similar conditions on two or more occasions. Scores from repeated testing were compared to test the consistency of the results over time.

Instrument II: Interviewing questionnaire

Was used to evaluate pregnant women knowledge regarding pre-cesarean section wound care guidelines.

*Effect of Wound Care Guidelines on Women's Knowledge, Beliefs, and Practices
Regarding Cesarean Section Wound Healing*

Scoring System of this Part

This part consists of ten questions in the form of multiple-choice questions. Responses were scored two points for correct & complete answers for which the woman selects all of the given answers, one point for partially correct answers (select some of the given answers), and zero points for incorrect answers & don't know. Each part of the tool was scored separately according to the number of correct answers. The total score was calculated using the summation of all parts (Omran, 2011).

Responses were categorized as the following:

- Satisfactory knowledge $\geq 60\%$
- Unsatisfactory knowledge $< 60\%$

This tool is used as a pre / posttest for knowledge

Validity:

The researcher conducted an extensive literature review and developed the questionnaire from the previously used instruments and reviewed pertinent reviews for validity purposes. The questionnaire was formulated and cross-checked for its content validity by three qualified experts (one professor in the Maternal and Newborn Health Nursing Department at the Faculty of Nursing, Beni-Suef University, and two professors from the Obstetrics and Gynecology Department at the Faculty of Medicine, Beni-Suef University) who judged the instruments for content accuracy and internal validity. They were also asked to judge the items for completeness and clarity. Suggestions were incorporated into the tools.

Reliability:

Test-retest reliability was used by the researcher for testing the internal consistency of the instrument. The reliability of the data collection tools

was tested using Cronbach's alpha coefficient, which was (0.832) for knowledge, which indicates good internal consistency of the study tools. It was done through the administration of the same instrument to the same participants under similar conditions. Scores from repeated testing were compared to test consistency of the results over time and "r" was computed.

Instrument III: Interviewing questionnaire

Was used to evaluate pregnant women believes regarding caesarean section wound healing. It consisted of 8 statements, and every woman had two responses for each statement to choose from agree or disagree, as follows:

- Statement 1: Increasing woman's age contribute to poor healing.
- Statement 2: Psychological state affects low wound healing
- Statement 3: Increasing body weight delay wound healing.
- Statement 4: Increasing cesarean numbers means increasing days for wound healing.
- Statement 5: Wound healing depends on the type of suture.
- Statement 6: Wound healing depends on the sterilization of the operation's equipment.
- Statement 7: Antibiotics before surgery fast the process of healing.
- Statement 8: Good nutrition facilitates wound healing

Scoring system of this part:

Pregnant woman's responses were scored (one) for the agreed answer and (zero) for a disagreed answer, with a total score=8, ranging from (0-8). Mean and standard deviation were calculated and then converted into percent scores. This tool is used as a pre / post-test for beliefs.

*Effect of Wound Care Guidelines on Women's Knowledge, Beliefs, and Practices
Regarding Cesarean Section Wound Healing*

Validity:

The validity of the instrument was ascertained by three qualified experts (one expert in the Maternal and Newborn Health Nursing Department at the Faculty of Nursing, Beni-Suef University, and two experts from the Obstetrics and gynecology department at the Faculty of Medicine, Beni-Suef University) who reviewed the instrument for the content and internal validity. They were also asked to judge the items for completeness and clarity. Suggestions were incorporated into the tools.

Reliability:

Test–retest reliability was used by the researcher for testing the internal consistency of the instrument. The reliability of the data collection tools was tested using Cronbach’s alfa coefficient which was (0.794) for beliefs that indicate good internal consistency of the study tools. It was done through the administration of the same instrument to the same participants under similar conditions. Scores from repeated testing were compared to test the consistency of the results over time.

Instrument IV:

Checklist for evaluating women practice regarding cesarean section wound care. It containing the following items (wound care, diet, exercises, hygienic care, sexual relation, bathing, lochia, postpartum warning signs, follow up...etc)

Scoring system of Instrument 2:

Each part of the instrument was scored separately according to the number of correct answers as follows. The correct practice was done. It was scored “1”, while if not done it was scored “0”. The total score=25 ranged from (0-25). Mean and standard deviation was calculated and then converted into a

percent score. This tool is used as a pre/post-test for practice. Then the data was split into two groups, satisfied and not satisfied. The total score was calculated using the summation of all parts.

Validity:

The validity of the instrument was ascertained by three qualified experts (one expert in the Maternal and Newborn Health Nursing Department at the Faculty of Nursing, Beni-Suef University, and two experts from the Obstetrics and gynecology department at the Faculty of Medicine, Beni-Suef University) who reviewed the instrument for the content and internal validity. They were also asked to judge the items for completeness and clarity. Modifications were done to ascertain relevance and completeness.

Reliability:

Test–retest reliability was used by the researcher for testing the internal consistency of the instrument. The period between both tests was two weeks. The reliability of the data collection tools was tested using Cronbach’s alfa coefficient which was (0.869) for practice which indicates good internal consistency of the study tools. It was done through the administration of the same instrument to the same participants under similar conditions. Scores from repeated testing were compared to test the consistency of the results over time.

Ethical consideration:

Approval of the Faculty of Nursing Ethical and Research Committee, Menoufia University was obtained written consent was obtained from all participants who met the inclusion criteria to participate in the study. Confidentiality and anonymity of nurses were assured through coding all data and all information obtained

*Effect of Wound Care Guidelines on Women's Knowledge, Beliefs, and Practices
Regarding Cesarean Section Wound Healing*

would only be used for the purpose of the study. All participants were informed about the purpose, procedure, and benefits of the study. They were informed that participation in the study was voluntary and that they can withdraw from the study at any time without penalty. Moreover, they were assured that the nature of the instruments would not cause any physical or emotional harm to them.

Pilot study:

A pilot study was conducted to test the applicability of the instruments, the feasibility of the study, and estimate the time needed for collecting the data. It was conducted on 10% of the total sample (20 women) according to selection criteria. All pregnant women who participated in the pilot study were excluded from the study participants because the researcher rephrased some questions and sentences and then set the final fieldwork schedule.

Study field work

- A broad review related to the study area was done including electronic studies, available books, articles, and publications to create a knowledge base relevant to the study area.
- The data were gathered over a period of 5 months from beginning of October, 2021 until end of February, 2022.
- The researcher went to the outpatient clinic of obstetrics and gynecology and the Obstetrics and Gynecological department in the previous mentioned hospital three days weekly.
- Participants in the study ranged between 3-4 women each day, then the cases were randomly assigned to (a study and a control group) as mentioned before.

- During the initial contact, the researcher clarified the purpose of the research and gained their acceptance.
- Participants for the study group only were divided into subgroups and they received (3) sessions. The researcher starts to give health education sessions to the study group and used (Arabic Educational Booklet). This booklet containing total knowledge, beliefs, and practice guidelines of precesarean section wound care was given to the women to facilitate an explanation of knowledge and practice they needed to reduce the incidence of wound infection and to be a reference for them. At the end of the sessions, the women received a copy of the self-learning educational booklet.
- based on the advice of the Pharmacist, Obstetrician, and Gynecologist in the study setting, the study pregnant women were taught about the importance of showering with a soap that contains Chloroxylenol, which is an antiseptic and disinfectant which is used for skin disinfection that kills bacteria on the human skin, such as Dettol soap, before the operation (either the night before the caesarean section, or the day of the surgery) as this helps to reduce the chances of infection Postoperatively.
- During each follow up, assess and ask woman about the following wound status, signs of wound infection, if the woman exposure to wound infections assess type of SSIs (superficial, deep, or organ space), extension of infection (just one stitch, part of wound, or whole wound), discharge (serous discharge, purulent discharge, or bloody discharge), and days of

*Effect of Wound Care Guidelines on Women's Knowledge, Beliefs, and Practices
Regarding Cesarean Section Wound Healing*

healing (8-15 days, or more than 15 days)

Statistical analysis: -

Data were coded, transformed, and presented. Data were entered and statistically analyzed using an IBM personal computer with Statistical Package of Social Science (SPSS) version 22 (SPSS, Inc, Chicago, Illinois, USA).

Quantitative data were presented by mean and standard deviation (SD). It was analyzed using student t-test for comparison between two means, and ANOVA (F) test for comparison between more than two means. The level of significance was set as P value <0.05 for all significant tests.

Results

Table (1): Showed the socio-demographic characteristics of the study participants. As shown in the table, there was no statistically significant difference ($p > 0.05$) between the control and study groups regarding the general characteristics of both groups which means that both groups had similar characteristics.

Figure (1): Illustrates the comparison between the levels of knowledge among the study participants. Before the intervention, the percentage of satisfactory level for the control group was (24%) while for the study group

was (30%). This revealed that this difference in level was non-significant ($X^2=1.280$, $P=0.258$). After the intervention, the percentage of satisfactory level for the control group was (8%) while for the study group was (89%). This revealed that this difference in levels was significant ($X^2=170.37$, $P=0.000$).

Table (2): Showed the women's beliefs toward cesarean section wound healing post-intervention there was a statistically significant difference ($P > 0.01$) between both groups regarding all dimensions of beliefs. This means that women's beliefs were improved after the intervention.

Figure (2): describes wound healing follow-up for both groups. The critical point for infection was at 10 days where the highest percentages of SSI were for both control and study groups (30% and 14%) respectively. The critical point for healing was at 25 days when no women in the study group had an infection.

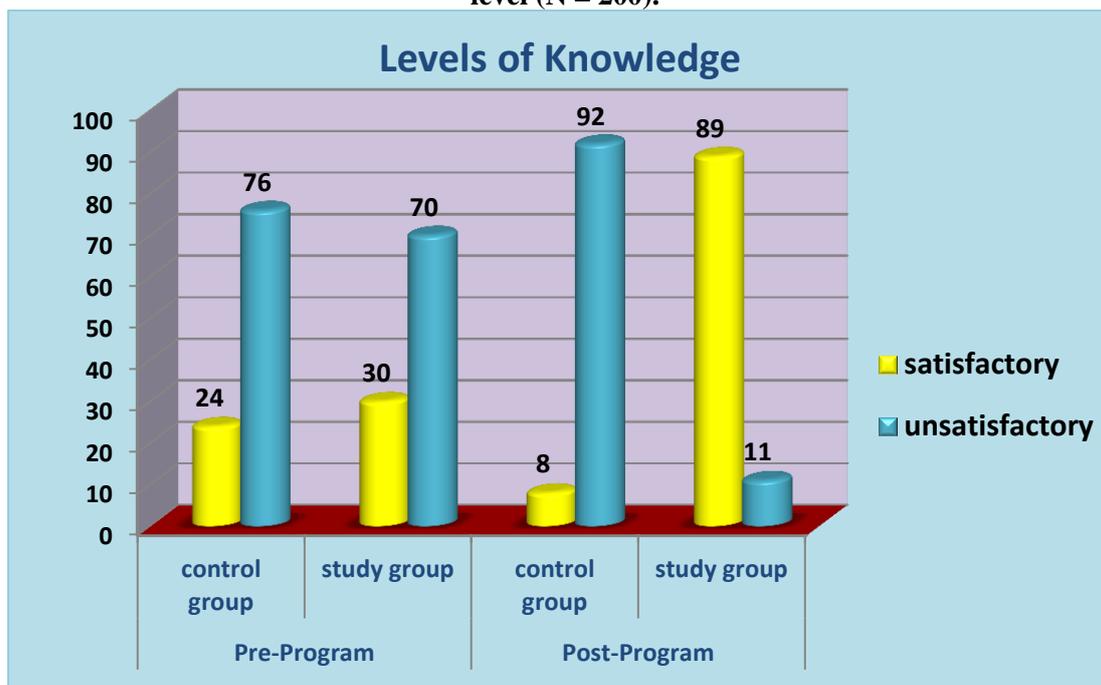
Table (3): Showed that, there was a highly significant improvement in the study group regarding their total self-care practice (wound care, nutrition, hygiene, rest, daily activities, postpartum warning signs, and sexual relationship) than the control group.

*Effect of Wound Care Guidelines on Women's Knowledge, Beliefs, and Practices
Regarding Cesarean Section Wound Healing*

Table (1): Socio-demographic Characteristics of the Study Participants (N = 200).

Variables	Control (No=100)		Study (No=100)		X ²	Test of sig. P-value
	N	%	N	%		
Age groups						
- Less than 20	10	10	12	12	0.395	P= 0.821(>0.05)
- 20-35	70	70	66	66		
- More than 35	20	20	22	22		
Mean±SD	33.34±5.78		31.98±6.87		-	-
level of education						
- Read and write	36	36	24	24	3.546	P=0.315(>0.05)
- Basic education	24	24	28	28		
- Secondary education	28	28	32	32		
- Higher education	12	12	16	16		
Body mass index (BMI)						
- Normal (BMI < 25)	18	18	20	20	0.880	P=0.644(>0.05)
- Overweight (≥ 25 BMI < 30)	50	50	54	54		
- Obesity (BMI ≥ 30)	32	32	26	26		
Occupation						
- Housewife	86	86	86	86	0.000	P=1.00(>0.05)
- Working	14	14	14	14		
Residence						
- Urban	82	82	82	82	0.000	P=1.00(>0.05)

Figure (1): Distribution of the studied women according to their total knowledge level (N = 200).



**significant difference at P<0.01

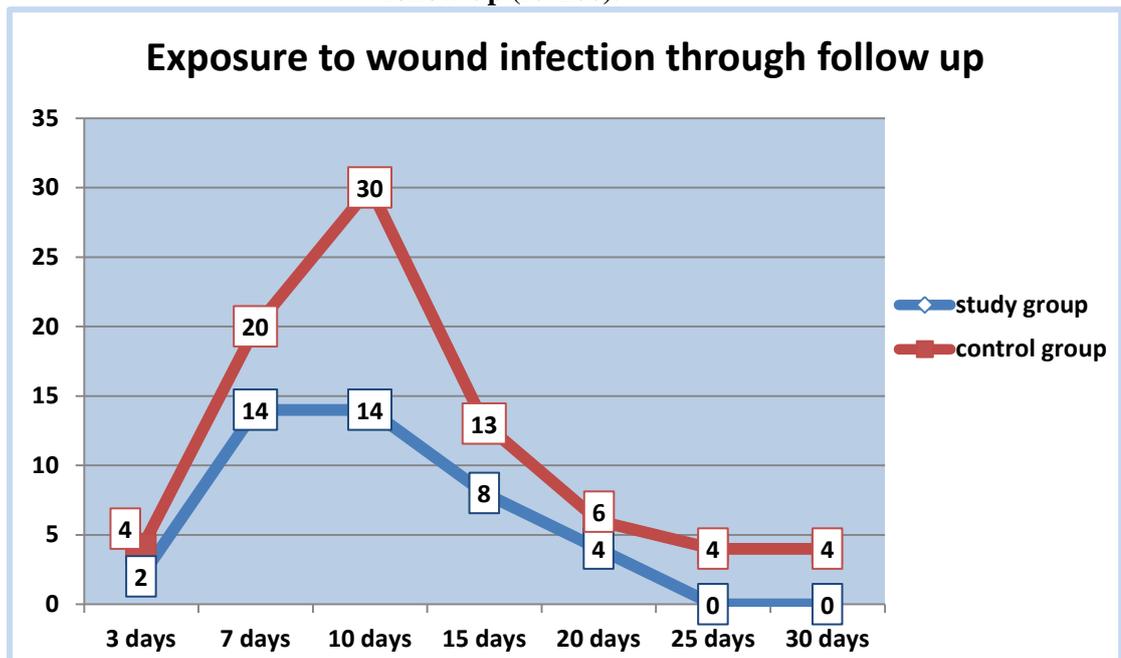
**Effect of Wound Care Guidelines on Women's Knowledge, Beliefs, and Practices
Regarding Cesarean Section Wound Healing**

Table (2): Women's Beliefs toward Caesarean Section Wound Healing Post intervention(N = 200).

Variables	Post- intervention								Test of sig. P-value
	Control (N=100)				Study (N=100)				
	Agree		Not Agree		Agree		Not Agree		
	N	%	N	%	N	%	N	%	
■ Increasing woman age contribute to poor healing.	52	52	48	48	94	94	6	6	$X^2= 44.749$ $P = 0.000 (<0.01)$
■ Psychological state affects low wound healing	51	51	49	49	88	88	12	12	$X^2= 30.857$ $P = 0.000 (<0.01)$
■ Increase body weight delay wound healing.	64	64	36	36	92	92	8	8	$X^2= 22.844$ $P = 0.000 (<0.01)$
■ Increase cesarean numbers means increase days for wound healing.	52	52	48	48	86	86	14	14	$X^2= 27.022$ $P = 0.000 (<0.01)$
■ Wound healing depends on type of suture.	26	26	74	74	54	54	46	46	$X^2= 16.333$ $P = 0.000 (<0.01)$
■ Wound healing depends on sterilization of operation's equipment.	72	72	28	28	100	100	0	0	$X^2= 32.558$ $P = 0.000 (<0.01)$
■ Antibiotics before surgery fast the process of healing.	12	12	88	88	56	56	44	44	$X^2= 43.347$ $P = 0.000 (<0.01)$
■ Good nutrition facilitates wound healing	94	94	6	6	100	100	0	0	$X^2= 6.186$ $P = 0.013 (<0.05)$

**significant difference at P<0.01, * significant difference at P<0.05

Figure (2): comparing control and study group regarding wound infection through follow-up (N=200).



* Significant difference at P<0.05

***Effect of Wound Care Guidelines on Women's Knowledge, Beliefs, and Practices
Regarding Cesarean Section Wound Healing***

Table (3): Comparison between control and study groups' satisfaction regarding their practice about CS post-intervention (n=200):

Variables	Post-intervention				X2	P-Value
	Control (n=100)		Study (N=100)			
	N	%	N	%		
General preoperative preparation						
- Satisfactory	76	76	74	74	0.107	0.744
- Unsatisfactory	24	24	26	26		
Wound Care After Suture Removed or Absorbable						
- Satisfactory	60	60	100	100	50.000	0.000**
- Unsatisfactory	40	40	0	0		
Nutrition, Hygiene And Rest						
- Satisfactory	42	42	98	98	74.667	0.000**
- Unsatisfactory	58	58	2	2		
Daily Activities						
- Satisfactory	89	89	100	100	22.222	0.000**
- Unsatisfactory	20	20	0	0		
Postpartum warning signs						
- Satisfactory	56	56	100	100	56.410	0.000**
- Unsatisfactory	44	44	0	0		
sexual relationship						
- Satisfactory	94	94	100	100	6.186	0.013**
- Unsatisfactory	6	6	0	0		
Total Practice						
- Satisfactory	72	72	100	100	32.558	0.000**
- Unsatisfactory	28	28	0	0		

**significant difference at P<0.01

Discussion:

Cesarean section (CS) is a procedure in which surgery was made through a mother's abdominal and uterine wall to deliver the baby (Sung & Mahdy, 2021). Now, it is the most frequently performed major obstetrical operation among women in both developed and developing countries (Dessu et al, 2021). However, women undergoing CS are at risk of rising postnatal infection eight-fold than that of normal delivery (Gadeer et al, 2020). This study was quasi-experimental research that hypothesized that Women who receive wound care guidelines will

have an improvement in their knowledge, beliefs and practices regarding cesarean section wound healing.

The current study found no statistically significant difference between the study and control groups in terms of socio-demographic variables (age, body mass index, education, employment, and residence). The majority of the study participants between the ages of 20 and 35, had a secondary education, had overweight, and had housewives and rural residents. According to the researchers,

*Effect of Wound Care Guidelines on Women's Knowledge, Beliefs, and Practices
Regarding Cesarean Section Wound Healing*

these results indicate that both study groups were homogeneous and comparable. The fact that both studies were conducted in the same town may help to explain this commonality.

This result comes in agreement with Elgaied et al., (2020) who studied "Influence of Different Scrubbing Methods of Surgical Team on Surgical Site Infection in Cesarean Section" in Egypt and stated that there was no significant difference between the study and control groups regarding socio-demographic data as age, body mass index, education, employment, and Residence.

The current study revealed that the overall percentage of study group knowledge related to cesarean section during pregnancy improved with a highly significant difference after implementing wound care guideline. The researcher's point of view, this result may be due to the effect of developed guideline that has enhanced women's knowledge.

The present study findings were supported by Elsayed et al., (2021) who studied "Effect of Educational Intervention on Women's Knowledge, Practices and Beliefs Regarding Cesarean Section Wound Care and Healing" and reported that the overall score of knowledge and practice in pre-intervention was unsatisfactory and this score was changed and become satisfactory in post-intervention. This study finding highlighted the urgent need for implementing post-cesarean wound care intervention where knowledge and practice often come from educational intervention and post-cesarean wound care is mandatory for women.

Regarding the women's beliefs toward cesarean section wound healing before intervention. There were no statistically significant differences between both groups regarding almost all dimensions of beliefs, while there

were statistically significant differences post-intervention regarding all dimensions of beliefs, the percentages of subjects' agreement about all items in the study group were higher than the control group. From the researcher's point of view, this means that women's beliefs were improved after the intervention.

The finding was in agreement with Mahmoud., (2014) who study women's beliefs toward caesarean section wound healing, and reported that most women believed that poor healing in one C.s. means poor healing in the subsequent C.s, wound healing depends on sterilization of operation equipment, antibiotics before surgery fast the process of healing, and good nutrition facilitates wound healing.

Regarding the pregnant women's practice of cesarean section wound care before intervention; the current study revealed that there were no statistically significant differences between both groups regarding almost all dimensions of their total practice, while all subjects in the study group revealed satisfactory practice level compared to more than two-thirds of the control group who revealed satisfactory practice levels. There were revealed that the difference in practice levels between both groups was statistically highly significant differences after the intervention.

The present study findings were supported by Atuhaire., (2021) who study "Knowledge and Practices of Post Cesarean Section Mothers towards Self-Care after Delivery" and reported that the knowledge of post-cesarean section self-care among postpartum women in Mbarara was poor as the majority of the participants reported to have never heard about post-cesarean self-care.

Furthermore, the finding was in agreement with Mohamed et al., (2019) in Egypt who reported that

***Effect of Wound Care Guidelines on Women's Knowledge, Beliefs, and Practices
Regarding Cesarean Section Wound Healing***

there was no statistically significant difference between both groups regarding the total practical level of studied women about self-care after CS before the intervention but there was a statistically significant difference between two groups regarding the total practical level of studied women after CS (at the end of the 1st, 3rd, 6th week after CS). There was a highly statistically significant difference between pre and the 6th week after CS regarding women's knowledge in both groups.

Conclusion

In light of the present study results, it can be concluded that the current study intervention was effective in increasing the level of women's knowledge and practice as well as acquiring positive beliefs toward cesarean section wound. Based on the present study findings; the research hypothesis was accepted.

Recommendations

Based on the findings of the present study, the following recommendations are suggested:

- 1) Wound care guidelines should be incorporated as an essential part of routine antenatal care before caesarean section to enhance pregnant women undergoing cesarean section their knowledge, beliefs and practices post cesarean.
- 2) Further research is needed to focus on conducting multinational interventional studies to evaluate the effect of pre cesarean section wound care guidelines on occurrence of post-operative infection and to achieve generalization of the results.

Acknowledgment

We would like to thank all pregnant women participant for their cooperation and help during data collection.

Reference

- Abdallah A, Sayed Rafeek ME. (2018). Risk factors of surgical site infection of cesarean section and role of skin cleansing and prophylactic antibiotic. *Int J Reprod Med Gynecol.* 2018;4(2):047–51.
- Abdelraheim, A. R., Gomaa, K., Ibrahim, E. M., Mohammed, M. M., Khalifa, E. M., Youssef, A. M., Abdelhakeem, A. K., Hassan, H., Alghany, A. A., & El Gelany, S. (2019). Intra-abdominal infection (IAI) following cesarean section: a retrospective study in a tertiary referral hospital in Egypt. *BMC pregnancy and childbirth*, 19(1), 234. Available at: <https://doi.org/10.1186/s12884-019-2394-4>.
- Alfouzan W, Al Fadhli M, Abdo N, Alali W, Dhar R (2019). Surgical site infection following cesarean section in a general hospital in Kuwait: trends and risk factors. *Epidemiology and Infection* 147, e287, 1–5. <https://doi.org/10.1017/S0950268819001675>
- Ali, Oumer & Kassahun, Dawit & Kelkay, Bayew & Atnafu, Asmamaw. (2022). Maternal factors are important predictors for surgical site infection following cesarean section in Northwest Ethiopian. *Clinical Epidemiology and Global Health.* 13. 100936. [10.1016/j.cegh.2021.100936](https://doi.org/10.1016/j.cegh.2021.100936).
- American Pregnancy Association (2019). Care after a Cesarean Delivery: Physical and Emotional. Retrieved April 24, 2020, from <https://americanpregnancy.org/lab-or-and-birth/cesarean-aftercare>

*Effect of Wound Care Guidelines on Women's Knowledge, Beliefs, and Practices
Regarding Cesarean Section Wound Healing*

- Atuhaire S. (2021). Knowledge and Practices of Post Cesarean Section Mothers towards Self-Care after Delivery at Mbarara Regional Referral Hospital. Accepted: 11th/02/ Journal of Obstetrics and Gynecology
- Betran AP, Ye J, Moller AB, Zhang J, Gulmezoglu AM, Torloni MR. (2016). The increasing trend in caesarean section rates: global, regional and National Estimates: 1990-2014. *PLoS One*. 11(2): e0148343.
- Bryanton J. Fraser-Davey H. & Sullivan P. (2018): Women's perceptions of nursing support during labor. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*. 23: 638–644
- Byamugisha J& Adroma M (2020): Caesarean Section in Low-, Middle- and High-Income Countries.
- Campa E, (2020). Cesarean Wound Care After Hospital Discharge: A Qualitative Study in Rural Haiti. Master's thesis, Harvard Medical School.p42-48
- Dessu S, Samuel S, Gebremeskel F, Basazin A, Tariku Z& Markos M (2021). Determinants of post cesarean section surgical site infection at public hospitals in Dire Dawa administration, Eastern Ethiopia: Case control study. Available at: [https://doi.org/10.1371/journal.pone.16\(4\):0250174](https://doi.org/10.1371/journal.pone.16(4):0250174).
- Elgaied, Alaa & Nofal, Ahmed & Kasemy, Zeinab & Elaziz, Mohamed & Nasr, Ibrahiem. (2021). Influence of Different Scrubbing Methods of Surgical Team on Surgical Site Infection in Cesarean Section. *The Egyptian Journal of Hospital Medicine*. 83. 1082-1087. 10.21608/ejhm.2021.160876.
- Elsayed, A., Elsayed Ahmed, N., Mohamed, N., Mohamed, H. (2021). Effect of Educational Intervention on Women's Knowledge, Practices and Beliefs Regarding Cesarean Section Wound Care and Healing. *Zagazig Nursing Journal*, 17(2), 116-128. doi: 10.21608/znj.2021.205498.
- Farahat S, Kassem I, El sayed H & Ahmed M. (2019): Effect of preoperative vaginal cleansing to reduce post caesarean infection. Doctorate in nursing science thesis, Menoufia university.
- Funk S., Champagne M., Wiese Al-Kharabsheh, R., Ahmad, M., Al Soudi, M., & Al-Ramadneh, A. (2021). Wound Infection Incidence and Obesity in Elective Cesarean Sections in Jordan. *Medical archives (Sarajevo, Bosnia and Herzegovina)*, 75(2), 138–143. <https://doi.org/10.5455/medarh.2021.75.138-143>.
- Gadeer R, Baatiah NY, Alageel N, Khaled M (2020). Incidence and Risk Factors of Wound Infection in Women Who Underwent Cesarean Section in 2014 at King Abdulaziz Medical City, Jeddah. *Cureus*. 2020 Dec 19;12(12):e12164. doi: 10.7759/cureus.12164. PMID: 33489576; PMCID: PMC7814933.
- Lube, C., Chibante, D. P., Porto, I. S., & Daher, D. V.: Knowledge and practices in care focused on individuals with wounds.2017; 21(2), 1–8.
- Mahmoud R, (2014). Women Believes and Practice toward Cesarean Section Wound Healing, *Journal of Biology, Agriculture and Healthcare*. Vol.3, No.20, ISSN 2224-3208 (Paper) ISSN

*Effect of Wound Care Guidelines on Women's Knowledge, Beliefs, and Practices
Regarding Cesarean Section Wound Healing*

- 2225-093X (Online). Available at: www.iiste.org
- Mekonnen, A.G., Mittiku, Y.M. (2021). Surgical site infection and its association with rupture of membrane following cesarean section in Africa: a systematic review and meta-analysis of published studies. *matern health, neonatol and perinatol* 7, 2 (2021). <https://doi.org/10.1186/s40748-020-00122-2>
- Mohamed S S, Hamido S, Talaat A & Farrag R. (2019). Effect of Self-Care Guideline versus Counseling on Post Cesarean Section Women Practices. *Egyptian Journal of Health Care*, Vol.10. No.3:126-137.
- Nguhuni, B., De Nardo, P., Gentilotti, E., Chaula, Z., Damian, C., Mencarini, P., Nicastrì, E., Fulment, A., Piscini, A., Vairo, F., Aiken, A. M., & Ippolito, G. (2017). Reliability and validity of using telephone calls for post-discharge surveillance of surgical site infection following caesarean section at a tertiary hospital in Tanzania. *Antimicrobial resistance and infection control*, 6, 43. <https://doi.org/10.1186/s13756-017-0205-0>.
- Peter E. G: Knowledge and practice of wound care and their influence on surgical site infection among post caesarean section women in Dodoma region (Master's Dissertation). 2020. The University of Dodoma, Dodoma. Available at: <http://hdl.handle.net/20.500.12661/2724>. Accessed on June 2023.
- Regmi, A., Ojha, N., Singh, M., Ghimire, A., & Kharel, N. (2022). Risk Factors Associated with Surgical Site Infection following Cesarean Section in Tertiary Care Hospital, Nepal. *International journal of reproductive medicine*, 2022, 4442453. <https://doi.org/10.1155/2022/4442453>
- Sickder H, Lertwathanawilat W, Sethabouppha H & Viseskul W (2017). Nurses' Surgical Site Infection Prevention Practices in Bangladesh. *Pacific Rim Int J Nurs Res*. 21(3) 244-257
- Sung S, Mahdy H. (2021). Cesarean Section. [Updated 2021 Apr 25]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK546707>.
- World Health Organization (2018). Protocol for surgical site infection surveillance with a focus on settings with limited resources. Geneva. Licence: CC BY-NC-SA 3.0 IGO.