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Effect of Wristband on Post Cesarean Nausea and Vomiting

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Abstract
Introduction: *Cesarean section is a major surgery in obstetrics and gynecology, and it is currently among the most common surgical procedures. Post–operative Nausea and Vomiting (PONV) are annoying effects that influence 87-92% of women after undergoing Caesarean Sections and as high as 90% in patients receiving opioids through a patient-controlled analgesia device.* ***Aim of the study****: to evaluate the effect of wristband on post cesarean nausea and vomiting.* ***Materials and method: Design****: A quasi experimental research design was utilized. Subjects: A convenient sample of 80 post cesarean section women were selected from EL-Shatby Maternity University Hospital.* ***Tools****: three tools were used by the researchers to collect the necessary data: Tool I: basic data structured interview schedule, Tool II: A visual analog scale for severity of nausea and vomiting (VAS). Tool III: Rhodes index for nausea and vomiting (RINV).* ***Results****: There was a highly statistically significant difference between both groups' degree of nausea immediately after interventions (P =0.005) as well as at 1st, the 3rd and the 7th hour (P =0.000). There was also statistically significant difference between control and study groups according to their overall score of Rhodes index for nausea & vomiting after the 1st hour of intervention (P=0.001), and highly significant between them after the 3rd and the 5th (P=0.000) as well as the 7th hour of intervention (P=<0.0001).****Conclusion****: it could be concluded that application of acupressure (P6) wrist band results in significantly less severe, less frequent, less or no discomfort and more relief of nausea as well as less duration of nausea and less amount of vomiting. It proves to be more effective in alleviating post cesarean nausea and vomiting during intervention or immediately afterwards.*

Keywords: postpartum, caesarean section, postoperative nausea and vomiting, acupressure

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I. Introduction

Cesarean section (CS) is a major surgery in obstetrics and gynecology, and it is currently among the most common surgical procedures. Cesarean delivery is a surgical procedure in which the fetus is delivered through an incision in the mother's abdomen and uterus. Its incidence is reported to be more than 60% in some countries. According to the most recent estimates, the average global rate of CS is 18.6%, ranging from 6.0% to 27.2% in the least and more developed regions, respectively. Countries with the highest CS rates in each region are Brazil (55.6%) and Dominican Republic (56.4%) in Latin America and the Caribbean, Egypt (51.8%) in Africa, Iran and Turkey in Asia (47.9% and 47.5%, respectively), Italy (38.1%) in Europe, United States (32.8%) in Northern America, and New Zealand (33.4%) in Oceania. The countries of the Arab world show a large discrepancy in their population-based CS rates, with some countries having exceptionally high CS rates and others very low rates [(1, 2)]. Today, 52 % of women in Egypt give birth by C-section, according to the 2014 Egyptian Demographic and Health Survey (EDHS). This rate is 3.5 times higher than it should be, considering the World Health Organization has set the target C-section rate at 15 %. What's more, the rate of C-sections has nearly doubled since the last EDHS survey in 2008, when it was estimated to be around 27 %. It is expected to continue rising in the years to come. Reasons for the dramatic increase in CS rates are not clear[(3)].

Adverse effects of CS, compared to vaginal delivery, include slower recovery for the woman, increased complication rates such as infections, injury to the nearby organs and increased risk of adverse events in subsequent pregnancies in addition to higher costs of surgery for women and health care system. In certain instances maternal death may be the sad tragedy after all. However, the actual risk of death from CS is decreasing in the western world, data extrapolated from confidential enquiries in the United Kingdom estimated the risk of maternal death from CS to be 3 times greater than that with vaginal delivery. [(4, 5)]Postoperative Nausea and Vomiting (PONV) are annoying effects that influence 87-92% women after undergoing CSs and as high as 90% in patients receiving opioids through a patient-controlled analgesia device.PONV is defined as nausea and vomiting occurring within 24 hours after surgery. Current literature indicates a high incidence of

PONV during CS up to 80%. Pregnant women are already likely to suffer from nausea and vomiting because of the pregnancy itself. This is applicable not only to the first 3 months of pregnancy but also to the third and last trimester due to the reduced tone of the esophagogastric junction and an increased intra-abdominal pressure. Moreover, pregnant women can be assigned to a high-risk group regarding the likelihood of the occurrence of nausea and vomiting of any origin (motion sickness, and PONV)[(4)]

Even womenwith zero risk factors carry a 10% risk of PONV.This risk increases dramatically to 61% and 79%respectively, when 3 or 4 risk factors exist (femalegender, nonsmoker, history of motion sickness postoperative opioid use, and a history of PONV.It can lead to significantadverse physical, metabolic, and psychological consequences for the post cesarean mothers[(6,7)].The etiologies of PONV in parturients after caesarean deliveries are multi-factorial and they include an increase in intra-abdominal pressure, increased central venous pressure, physiologic changes of pregnancy, intra-operative hypotension,visceral stimulation, the potential for aspiration, increased heart rate, increased vagal activity and visceral stimulation, as well as administration of neuraxial opioids and oxytocic drugs. PONV also prolongs recovery time and hospital stay, increases healthcare costs, necessitating more time for nursing care. All these factors have an adverse effect on the women's comfort level [(8)].

Antiemetics used to control post-cesarean nausea and vomiting should be effective and safe and should not interfere with the mother's ability to care for the baby, and due to the potential secretion to breast milk, they should also be free of side effects for the baby.Since current pharmacological methods of pain relief do not meet the above-mentioned qualifications. Therefore, nurses and physicians are seeking alternative approaches or solutions that are noninvasive, inexpensive and easy to reduce PONV as well as to raise women comfort during the postoperative period. Therefore, health care providers attempt to make approaches for improving patient outcomes. All attention has been focused on easy, cheap, and non-invasive methods and worry on their costs has led to attention on the use of alternative approaches for preventing emesis [(9,10)].

Acupressure is traditional Chinese medicine or an ancient naturopathic sciencewhich based on a non-pharmacological theory thatdiffers radically from modern allopathic medicine . Itis a noninvasive method induced by manual stimulation.A core tenet of acupressure is that a person's health depends on the balance of energy in the body and the overall energy levels. The hypothesis is that the body's energy flows in channels, called meridians and these techniques can restore energy balance through the manipulation of these meridians. One of the important points in the body is p6 and stimulating this point with pressure or needles can reduce pain as well as nausea and vomiting.[(11,12)] Acupressure as complementary therapy may help reduce pain, decrease postoperative analgesic requirements, and decrease the incidence of postoperative nausea and vomiting. In addition, acupressure using low frequency skin stimulation may activate nerve fibers (A-B) that influence neurotransmission in the dorsal horn or higher centers. Acupressure point on the wrist (P6 acupoint stimulation (Neiguan)) is a substitute method for reduction of PONV and pain with a least risk of side effects that has been studied in many trials. Wrist Bands usedfor the application of acupressure to the p6 point. These bands are British made, commercially available; contain a stud in an elasticized band. It is comfortable and fits all wrist sizes. Wrist band can be re-used, wash in a gentle cycle, no specialstorage conditions needed and shelf-life unlimited [(13)].

Stimulation through P6 acupressure has been shown to cause an increase in the electrical discharge in the dorsal motor nucleus of the vagus nerve in the brainstem and subsequently induces prolonged slow waves of gastric peristalsis with respect to the baseline as revealed by electrogastrography. The prolonged slow waves, together with decreased spike waves, reduce antiperistalsis, which is the cause of nausea and vomiting. Also stimulation of acupoint P6 is thought to prevent PONV by releasing b-endorphins in the cerebrospinal fluid and changing serotonin transmission.Wrist pericardium 6 (P6) (Neiguan) acupressure point application using a wristband is a non- pharmacologic intervention method that nurses should investigate. However, there is limited research regarding the effects of wrist band acupressure on nausea and vomiting, after caesarean delivery. Therefore, the present study aimed to evaluate the effects of wrist band acupressure on postoperative nausea and vomiting among women after caesarean section. [(14-16)]

Aim of the study: This study aims to evaluate effect of wristband on post cesarean nausea and vomiting.

Research hypothesis: Post cesarean women who apply acupressure wristband exhibit less nausea and vomiting than those who don't receive this modality.

II. Materials And Method

MATERIALS

Design: A quasi experimental research design was utilized.

Setting: This study was conducted at the postnatal cesarean section ward of El-Shatby Maternity University Hospital in Alexandria Governorate. This hospital was particularly chosen because cesarean section turnover is suitable for the study and the women attending this hospital have nearly the same socio-economic status which maintains homogeneity of the study sample. In addition that sufficient staff cooperation to employ the intervention is geared with no real obstacles since it is an educational hospital.

Subjects: A convenient sample of 80 post cesarean section women who were available at the time of data collection were recruited from the above mentioned setting. Subjects were selected by using the nonprobability sampling technique according to the following criteria: Conscious, free from any medical disease and with normal course of pregnancy.

- The Epi info 7 statistical program was used to estimate the sample size using the following parameters:
  - Population size =1000 over 3 months
  - Expected frequency= 50%
  - Acceptable error= 10%
  - Confidence coefficient= 95%
  - Minimal sample size =75

– The selected subjects were equally assigned to one of two groups: a control and experimental group. Each group contained 40 women.

Tools :Three tools were used for data collection. They were as follows:

Tool I: Socio- demographic and clinical data structured interview schedule: It was developed and used by the researchers to elicit basic data about subjects as follows: Scio-demographic characteristics including age, level of education, occupation, residence and marital status.

Tool (II): A visual analog scale for severity of nausea and vomiting (VAS)

This tool was originally developed by (Boogaerts J, 2001) [(17)]. It was used to measure the severity of nausea and vomiting. It consists of a 10 cm straight line which represents a continuum of intensity, it is a verbal descriptive scale (VDS) indicating: 0=no nausea, 1 to less than 4= mild nausea , 4 to less than 7= moderate nausea, 7 to less than 10 = severe nausea, 10 = unbearable nausea.

Tool (III) Rhodes index for nausea and vomiting (RINV)

This tool was originally developed by Verna A. Rhodes (1996) [(18)]. RINV assesses the objective and subjective factors of nausea and vomiting in the last 12 hours through a total of 6 questions. Questions targeted the frequency and duration of nausea, as well as and amount of vomiting. Responses for each item were recorded on a 5 point Likert type scale for frequency (0= none, 1= one to two times, 2= three to four times, 3= five to six times and 4= seven or more times). The total score of the entire scale ranged from 0 to 24 (0-5= mild, 6-11= moderate, 12-17= severe, 18-24= unbearable).

METHOD

The study was accomplished according to the following steps:

1. An Official letter from the Faculty of Nursing, Alexandria University was submitted to the responsible authorities of the study setting to take their permission for data collection after explanation of the purpose of the study.
2. Tool I was developed by the researchers after extensive review of recent and related literature and reviewed for content validity by a jury of five experts in the field
3. Tools II and III were adopted and translated into Arabic language. They were tested for content validity by a jury of five experts in the field.

4. Tools reliability was tested by Alpha Cronbach test (internal consistency) and results were satisfactory (0,78).
5. A pilot study was carried out on 8 women who were excluded from the main study sample. The main purposes of the pilot study were to ascertain clarity, relevance and applicability of the tools and estimate the time needed to complete the sheet as well as to detect any problem peculiar to the tools. The pilot study revealed that :
    a. After conducting the pilot study, it was found that the sentences of the tools were clear, relevant, and applicable. However, few words had been modified .
    b. Following this pilot study the tools were reconstructed and made ready for use.
6. Collection of data:
    a. Data was collected over a period of 6 months starting from beginning of January 2019 until June 2019.
    b. To use the wristband, the researchers were trained in a short course under the supervision of an expert in Traditional Chinese Medicine (TCM)
    c. A preliminary session was conducted to establish rapport with subjects of the study group. This session was repeated four times. Each time, the session targeted 10 clients (for a total of 40 women). In addition to establishing rapport, the session included explanation of the purpose and procedure of the study.
    d. Using tool I, socio-demographic and clinical data was collected from all subjects (both control and study group.
    e. The researcher completed VAS for nausea and vomiting, Rhodes Index for Nausea & Vomiting using (tool II and III) for eligible subjects of both groups before and after the intervention.
    f. The control group was started with and completed before dealing with the experimental group to avoid contamination of the sample.
    g. **For study group:** Each subject in this group was exposed to acupressure at the P6 point of both wrists for 20 minutes, 4 times per day for 7 hours through the following steps:
        i. The wristbands were fastened on P6 point on one of the women's' wrists immediately after cesarean section operation started. P6 is found between the two major tendons (Palmarislongus and flexor carpi radials tendons) on the inside of the arm, approximately two inches, or three finger widths, below the crease of the wrist.**fig.1**

Fig.(1): Point of application of wrist band (P6)

        ii. The acupressure wristbands were placed on the P6 acupoint in a way that the pressing button compresses the desired point. The amount of pressure was set by turning the knob on the wristband while considering the size of the patient's wrists for obesity and slimming. The wristbands were in place for 7 hrs. The pressure of the wristband was so much that it causes no harm to the point and no disturbance in the radial artery blood flow and the venous return of the hand.
        iii. The researchers periodically inspected the point and examined the radial pulse and the color and temperature of the hand.
    h. **In the control group** who was started with and completed before dealing with the experimental group to avoid contamination of the sample. The control group received the routine care of the health setting in the physical presence of the researchers.
    i. The severity and episodes of nausea and the episodes of vomiting were measured four times including immediately, 1, 3, and 7 hours postoperatively.
    j. Comparison between basic assessment data of the first hour and the data of the 7th hour among the two groups will be accomplished to find out the effect of acupressure (P6) on post cesarean nausea and vomiting
    k. Statistical analysis:Analysis of data was carried out by the researcher as follows:The collected data was categorized, coded, computerized, tabulated and analyzed using Statistical Package for Social Sciences (SPSS) version 20 program.The necessary tables were then prepared and statistical

formulas were used as percentages, Chi square test (X2) and Fisher Exact test at 5% level were used to find out the statistical significance difference of the results

l. Ethical consideration :For each recruited subject the following issues were considered: securing the subject's informed consent, keeping her privacy and right to withdraw at any time as well as assuring confidentiality of her data.

III. Results

Table (I): Number and percent distribution of the study and the control groups according to their socio-demographic characteristics

Socio-demographic characteristics	Study group		Control group		F/X2 (P)
	No (40)	%	No (40)	%	
Age:					
• 18-	5	12.50	4	10.00	0.503 (0.778)
• 20-	33	82.50	35	87.50	
• 35-37	2	05.00	1	02.50	
Mean & SD	25.38 ± 4.913		24.90 ± 4113		
Marital status:					
• Married	40	100.0	40	100.0	0(1.000)
Level of education:					
• Illiterate/Read & Write	8	20.00	6	15.00	2.907 (0.406)
• Primary & preparatory	6	15.00	2	05.00	
• Secondary or its equivalent	17	42.50	21	52.50	
• University	9	22.50	11	27.50	
Occupation:					
• Working	3	07.50	6	15.00	1.127 (0.288)
• Not working (Housewife)	37	92.50	34	85.00	
Type of work:	(n=3)		(n=6)		
• Employee	1	33.33	5	83.33	2.25
• Worker	2	66.67	1	16.67	(0.134)
Current residence:					
• Rural	23	57.50	23	57.50	0
• Urban	17	42.50	17	42.50	(1.000)

χ^2(P): Chi-Square Test &P for χ^2TestFET (P): Fisher Exact Test & P for FET-Test
*: Significant at P ≤0.05

Table (I) shows the number and percent distribution of the study and the control groups according to their socio-demographic characteristics. As regards ***age***, it was observed that the majority of the study and the control groups (82.5% & 87.5%) respectively were 20 to less than 35 years old, compared to a minority of those who were 18 to less than 20 years old (12.5% & 10%) respectively and those who were 35-37 years old (5% & 2.5%) respectively. However, the mean age was 25.38 ± 4.913 for the study group and 24.90 ± 4113 for the control one. It was obvious that more than one-half (52.5%) of the control group had secondary level or its equivalent, compared to less than one-half (42.5%) of the study one. In contrast, 22.5% &27.5% of the study and the control groups respectively had university level and 20% & 15% of them respectively were illiterate or just read and write. It was clear that the vast majority of the study and the control groups (92.5% & 85%) respectively were housewives, while a minority of them (7.5% & 15%) respectively was working. However, the majority of working control group (83.33%) were employee, compared to a minority of the study one (33.33%). On the other hand, a sizeable proportion (66.67%) of the latter was workers, compared to only 16.67% of the former. The table also presents that nearly three-fifths (57.5%) of the study and the control groups were rural dwellers, while almost two-fifths (42.5%) of them were urban ones. Finally, the table shows that both groups had almost similar socio-demographic characteristics, therefore, no statistically significant differences were found between them.

Table(II): Number and percent distribution of the study and the control groups according to their severity of nausea using VAS

Severity of nausea	Study group		Control group		F/χ^2(P)
	No (40)	%	No (40)	%	
Immediately after operation (Before intervention):					
- Mild	3	07.50	9	22.50	7.253 (0.064)
- Moderate	21	52.50	10	25.00	
- Severe	13	32.50	12	30.00	

- Unbearable	3	07.50	5	12.50	
- Not applicable	0	00.00	4	10.00	
After intervention (1 hour):					
- None	4	10.00	0	00.00	
- Mild	20	50.00	9	22.50	
- Moderate	10	25.00	10	25.00	15.003 (0.005)*
- Severe	6	15.00	12	30.00	
- Unbearable	0	00.00	5	12.50	
- Not applicable	0	00.00	4	10.00	
F/□ 2(P) before/ After 1	26.047 (0.000)*		0 (1.000)		
After intervention (3 hour)					
- None	4	10.00	0	00.00	
- Mild	24	60.00	9	22.50	
- Moderate	8	20.00	8	20.00	21.222 (0.000)*
- Severe	4	10.00	14	35.00	
- Unbearable	0	00.00	5	12.50	
- Not applicable	0	00.00	4	10.00	
F/□ 2(P) before /after 2	33.926 (<0.0001)*		0.376 (0.945)		
After intervention (5 hour)					
- None	5	12.50	0	00.00	
- Mild	24	60.00	9	22.50	
- Moderate	7	17.50	6	15.00	24.12 (0.000)*
- Severe	4	10.00	15	37.50	
- Unbearable	0	00.00	6	15.00	
- Not applicable	0	00.00	4	10.00	
F/□ 2(P)before/after 3	36. 098 (<0.0001)*		1.424 (0.610)		
After intervention (7hour)					
- None	10	25.00	0	00.00	
- Mild	22	55.00	7	17.50	
- Moderate	4	10.00	8	20.00	31.337
- Severe	4	10.00	15	37.50	(0.000)*
- Unbearable	0	00.00	6	15.00	
- Not applicable	0	00.00	4	10.00	
F/□ 2(P) before / after 4	43. 765 (<0.0001)*		0.896 (0.826)		

□^{2}(P): Chi-Square Test &P for□^{2}TestFET (P): Fisher Exact Test & P for FET-Test

*: Significant at P ≤0.05

Table (II) presents the number and percent distribution of the study and the control groups according to their severity of nausea using VAS. ***Before intervention***, almost one-third (32.5% & 33.33%) of the study and the control groups respectively had severe nausea. Meanwhile, 52.50% of the former had moderate nausea, compared to 25% of the latter. In contrast 22.50% of the control group had mild degree, compared to 7.5% of the study one. However, 12.50% of the former had unbearable nausea, compared to 7.5% of the latter.

At 1 hour after intervention, severe and unbearable nausea decreased from 32.5% to 15% & from 7.5% to 0% respectively among the study group, while they remained the same among the control one (30% & 12.50%) respectively. Therefore, mild nausea increased sharply from 7.5% to 50% or even relieved (10%) among the former, while it remained the same among the latter (22.50% & 0%) respectively. ***After 3 hours***, severe nausea decreased more from 15% to 10% among the study group, while it increased from 30.00% to 35% among the control one. Thus, mild nausea increased from 50% to 60% among the former, while it remained the same among the latter (25%). However, relieved and unbearable nausea remained the same. ***After 5 hour***, severe and unbearable nausea remained the same among the study group (10% & 0%) respectively, while they increased from 35% to 37.50% & from 12.50% to 15% respectively among the control one. For this reason, relieved nausea increased from 10% to 12.5% among the former, while it remained the same among the latter (0%). However, mild nausea remained the same among the study and the control groups. ***At 7th hour after operation***, severe and unbearable nausea remained the same among the study and the control groups. Meanwhile, mild and moderate nausea decreased from 60% to 55% & from 17.5% to 10% among the former respectively, while mild nausea decreased from 22,50% to 17.50%) and moderate one increased from 15.00% to 20.00% among the latter. Consequently, relieved nausea doubled among the study group (25%), while it remained the same among the control one (0%).

However, the relationship among the study group's degree of nausea was statistically highly significant before and after intervention 1 (P =0.000) as well as before and after interventions 2, 3 & 4 (P =<0.0001). It was also statistically highly statistically significant difference between both groups' degree of nausea immediately after interventions (P =0.005) as well as at 1st , the 3rd and the 7th hour (P =0.000).

Table (III): Number and percent distribution of the study and the control groups according to their severity of vomiting using VAS

Severity of vomiting	Study group		Control group (40)		F/□ 2(P)
	No (40)	%	No (40)	%	
Immediately after operation (Before intervention):					
- Mild	3	07.50	6	15.00	5.467 (0.141)
- Moderate	6	15.00	3	07.50	
- Severe	12	30.00	8	20.00	
- Unbearable	1	02.50	5	12.50	
- Not applicable	18	45.00	18	45.00	
After intervention (1st hour):					
- None	7	17.50	0	00.00	19.121 (0.001)*
- Mild	7	17.50	6	15.00	
- Moderate	7	17.50	3	07.50	
- Severe	1	02.50	8	20.00	
- Unbearable	0	00.00	5	12.50	
- Not applicable	18	45.00	18	45.00	
F/□ 2(P)before/ After 1	18.985 (0.001)*		0 (1.000)		
After intervention (3rd hour)					
-None	8	20.00	0	00.00	20.871 (0.000)*
- Mild	11	27.50	6	15.00	
- Moderate	2	05.00	2	05.00	
- Severe	1	02.50	9	22.50	
- Unbearable	0	00.00	5	12.50	
- Not applicable	18	45.00	18	45.00	
F/□ 2(P) before/ After 2	24.879 (0.000)*		0.259 (0.967)		
After intervention (3rdhour)					
- None	9	22.50	0	00.00	25.467 (0.000)*
- Mild	11	27.50	4	10.00	
- Moderate	1	02.50	4	10.00	
- Severe	1	02.50	9	22.50	
- Unbearable	0	00.00	5	12.50	
- Not applicable	18	45.00	18	45.00	
F/□ 2(P) before/ After 3	27.451 (0.000)*		0.602 (0.896)		
After intervention (7thhour)					
- None	10	25.00	0	00.00	25.816 (0.000)*
- Mild	10	25.00	4	10.00	
- Moderate	1	02.50	4	10.00	
- Severe	1	02.50	8	20.00	
- Unbearable	0	00.00	6	15.00	
- Not applicable	18	45.00	18	45.00	
F/□ 2(P) before/ After 4	27.648 (0.000)*		0.634 (0.889)		

□2(P): Chi-Square Test &P for□2TestFET (P): Fisher Exact Test & P for FET-Test
*: Significant at P ≤0.05

Table (III) presents the number and percent distribution of the study and the control groups according to their degree of vomiting using VAS. **Immediately after operation (Before intervention)** mild and unbearable vomiting were found among 15 % & 12.50% respectively of the control group, compared to 7.5% & 2.5% respectively of the study one. On the other hand, severe and moderate degrees were found among 30% & 15 % respectively of the latter, compared to 20% & 7.5%respectively of the former.***After 1 hour of the intervention,*** severe and unbearable nausea decreased from 30% to 2.5% & from 2.5% to 0% among the study group respectively, while they remained the same among the control one (20 % & 12.5%) respectively. Therefore, mild and moderate nausea increased from 7.7% to 17.5% & from 15% to 17.5% respectively among the former, while they remained the same among the latter (15% & 7.5%). Moreover, relieved nausea became 17.5% among the study group, compared to none of the control one. ***At 3hour after cesarean section***, unbearable nausea remained the same among the study and the control groups. However, severe nausea remained the same among the former (2.5%), while it increased slightly from 20% to 22.5% among the latter. For this reason, mild and relieved nausea increased from 17.5% to 27.5% & from 17.5% to 20% respectively among the study group, while they remained the same among the control one (15% & 0%) respectively. ***At 5th hour after cesarean section*** , severe, and unbearable nausea remained the same among the study and the control groups. However, moderate nausea decreased slightly from 5% to 2.5% among the former, while it doubled among the latter (10%). In addition, mild nausea remained the same among the study group (27.5%), while it decreased from 15% to 10% among the control one. Moreover, relieved nausea increased slightly from 36.36% to 40.9% among the former, while it remained the same among the latter (0%). ***At 7 hour after cesarean section***, moderate and unbearable nausea remained the same among the study and the control groups. However,

severe nausea remained the same among the former (4.55%), while it decreased slightly from 40.91% to 36.36% among the latter. In addition, mild nausea decreased slightly from 50% to 45.45% and relieved one increased slightly from 40.9% to 45.45% among the study group, while they remained the same among the control one (18.18% & 0%) respectively. However, statistically significant differences were found among the study group's degree of vomiting before and after intervention 1 (P =0.001) as well as before and after interventions 2, 3 & 4 (P =0.000). They were also found between both groups' degree of vomiting after intervention of the 1st hour (P=0.001) as well as after intervention of the 3rd, the 5th and the 7th hour (P=0. 000).

Table (IV): Number and percent distribution of the study and the control groups according to their frequency of nausea& vomiting using RINV

Frequency of nausea	Study group		Control group (40)		F/□ 2(P)
	No (40)	%	No (40)	%	
Immediately after operation (Before intervention):					
• 1-	7	17.50	8	20.00	7.692 (0.053)*
• 3-	17	42.50	10	25.00	
• 5-	4	10.00	12	30.00	
• 7+	12	30.00	6	15.00	
• Not applicable	0	00.00	4	10.00	
After intervention (1st hour):					
• None	4	10.00	0	00.00	17.825 (0.001)*
• 1-	22	55.00	8	20.00	
• 3-	9	22.50	10	25.00	
• 5-	3	07.50	12	30.00	
• 7+	2	05.00	6	15.00	
• Not applicable	0	00.00	4	10.00	
F/□ 2(P) before/ After 1	21.506 (0.000)*		0 (1.000)		
After intervention (3rd hour)					
• None	4	10.00	0	00.00	22.872 (0.000)*
• 1-	22	55.00	8	20.00	
• 3-	11	27.50	9	22.50	
• 5-	1	02.50	13	32.50	
• 7+	2	05.00	6	15.00	
• Not applicable	0	00.00	4	10.00	
F/□ 2(P)before/ After 2	21.987 (0.000)*		0.093 (0.993)		
After intervention (5thhour)					
• None	5	12.50	0	00.00	26.062 (0.000)*
• 1-	25	62.50	9	22.50	
• 3-	7	17.50	6	15.00	
• 5-	1	02.50	10	25.00	
• 7+	2	05.00	11	27.50	
• Not applicable	0	00.00	4	10.00	
F/□ 2(P) before/ After 3	28.235 (0.000)*		2.711 (0.438)		
After intervention (7th hour)					
• None	10	25.00	0	00.00	30.703 (0.000)*
• 1-	21	52.50	7	17.50	
• 3-	6	15.00	8	20.00	
• 5-	1	02.50	9	22.50	
• 7+	2	05.00	12	30.00	
• Not applicable	0	00.00	4	10.00	
F/□ 2(P) before/ After 4	31.204 (0.000)*		2.717 (0.437)		

□2(P): Chi-Square Test &P for□2TestFET (P): Fisher Exact Test & P for FET-Test
*: Significant at P ≤0.05

Table (IV) demonstrates the number and percent distribution of the study and the control groups according to their frequency of nausea using RINV. ***Before intervention***, 3-4 & 7 or more times frequency were found among 42.5% & 30% respectively of the study group, compared to 25% & 15% respectively of the control one. In contrast, 1-2 & 5-6 times frequency were found among 20% & 30% respectively of the latter, compared to 17.5% & 10% respectively of the former. ***At 1st hour after intervention***, 5-6 & 7 or more times frequency decreased from 10% to 7.5% & from 30% to 5% respectively among of the study group, while they remained the same among the control one (30% & 15%) respectively. Therefore, 3-4 times frequency decreased sharply from 42.5% to 22.5% and 1-2 increased sharply from 17.5% to 55% among the former, while they remained the same among the latter 25% & 20%) respectively. Moreover, relieved nausea was found among 10% of the study group, compared to none of the control one. ***At 3rd hour after intervention***, relieved nausea as well as 1-2 & 7 or more times frequency remained the same among the study and the control groups. However,

5-6 times frequency decreased slightly from 7.5% to 2.5% among the former, while it increased slightly from 30% to 32.5% among the latter. Moreover, 3-4 times frequency increased slightly from 22.5% to 27.5% among the study group, while it decreased slightly from 25% to 22.5% among the control one. ***At 5th hour after intervention*** 7 or more times frequency remained the same among the study group (5%), while it increased sharply from 15% to 27.5% among the control one. Consequently, relieved nausea and 1-2 times frequency increased from 10% to 12.5% & from 55% to 62.5% respectively among the former, while relieved nausea remained the same (0%) and 1-2 times frequency increased slightly from 20% to 22.5% among the latter. ***At 7th hour after intervention*** 7 or more times frequency remained the same among the study group (5%), while it increased slightly from 27.5% to 30% among the control one. Thus, 3-4 times frequency decreased slightly from 17.5% to 15% among the former, while it increased from 15% to 20% among the latter. Moreover, relieved nausea doubled among the study group (25%), while it remained the same among the control one (0%). However, the relationship among the study group's frequency of nausea was statistically highly significant before and after intervention 1, 2, 3 & 4 (P=0.000). It was also statistically significant between both groups' frequency of nausea before intervention (P=0.053) as well as after intervention of the 1st (P=0.001), the 3rd , the 5th and the 7th hour (P=0.000).

Table (V): Number and percent distribution of the study and the control groups according to their duration of nausea using RINV

Duration of nausea (minutes)	Study group		Control group		F/□ 2(P)
	No (40)	%	No (40)	%	
Immediately after operation (Before intervention):					
• ≤10	22	55.00	7	17.50	11.819 (0.008)*
• 20-	5	12.50	10	25.00	
• 40-	4	10.00	10	25.00	
• ≥ 60	9	22.50	9	22.50	
• Not applicable	0	00.00	4	10.00	
After intervention (1st hour):					
• None	4	10.00	0	00.00	36.582 (<0.0001)*
• ≤10	31	77.50	7	17.50	
• 20-	1	02.50	10	25.00	
• 40-	3	07.50	10	25.00	
• ≥60	1	02.50	9	22.50	
• Not applicable	0	00.00	4	10.00	
F/□ 2(P) before/ After 1	14.738 (0.005)*		0 (1.000)		
After intervention (3rd hour)					
• None	4	10.00	0	00.00	38.91 (<0.0001)*
• ≤10	32	80.00	7	17.50	
• 20-	1	02.50	8	20.00	
• 40-	2	05.00	12	30.00	
• ≥60	1	02.50	9	22.50	
• Not applicable	0	00.00	4	10.00	
F/□ 2(P) before/ After 2	15.585 (0.004)*		0.404 (0.939)		
After intervention (5th hour)					
• None	5	12.50	0	00.00	35.34 (<0.0001)*
• ≤10	31	77.50	9	22.50	
• 20-	2	05.00	5	12.50	
• 40-	0	00.00	9	22.50	
• ≥60	2	05.00	13	32.50	
• Not applicable	0	00.00	4	10.00	
F/□ 2(P) before/ After 3	16.269 (0.003)*		2.697 (0.441)		
After intervention (7th hour)					
• None	10	25.00	0	00.00	46.585 (<0.0001)*
• ≤10	28	70.00	7	17.50	
• 20-	0	00.00	7	17.50	
• 40-	0	00.00	9	22.50	
• ≥60	2	05.00	13	32.50	
• Not applicable	0	00.00	4	10.00	
F/□ 2(P) before/ After 4	24.175 (0.000)*		1.309 (0.767)		

□^{2}(P): Chi-Square Test &P for□^{2}TestFET (P): Fisher Exact Test & P for FET-Test
*: Significant at P ≤0.05

Table (**V**) manifests the number and percent distribution of the study and the control groups according to their duration of nausea using RINV. ***Before intervention,*** less 10 minutes duration was found among 55% of the study group, compared to 17.5% of the control one. On the contrary, 20-30 & 40-50 minutes duration were found among 25% of the latter, compared to 12.5% & 10% respectively of the former. However, 60 minutes or

more duration was noticed among 22.5% of the study and the control groups. ***At 1st hour After the intervention,*** 20-30, 40-50 & 60 or more minutes duration decreased 12.5% to 2.5%, from 10% to 7.5% & from 22.5% to 2.5% respectively among the study group , while they remained the same among the control one (25%, 25% & 22.5%) respectively. Thus, one or less 10 minutes duration increased sharply from 55% to 77.5% among the former, while it remained the same among the latter (17.5%). Moreover, relieved nausea was found among 10% of the study group, compared to 0% of the control one. ***At 3rd hour after the intervention,*** relived nausea and 60 minutes or more duration remained the same among the study and the control groups. However, 40-50 minutes duration decreased slightly from 7.5% to 5% among the former, while it increased slightly from 25% to 30% among the latter, Consequently, one or less 10 minutes duration increased slightly from 77.5% to 80% among the study group, while it remained the same among the control one (17.5%). ***At 5th hour after the intervention, 60*** minutes or more duration doubled among the study group (5%), while it increased sharply from 22.5% to 32.5% among the control one. However, one or less hour duration remained approximately the same among the former (77.5%), while it increased slightly from 17.5% to 22.5% among the latter. Moreover, relieved nausea increased slightly from 10% to 12.5% among the study group, while it remained the same among the control one (0%). ***At 7th hour after the intervention,*** 30-40 & 60 minutes or more duration remained the same among the study and the control groups. However, 20-30 minutes duration decreased from 5% to 0% among the former, while it increased from 12.5% to 17.5% among the latter. Moreover, relieved nausea doubled among the study group (25%), while it remained the same among the control one (0%). Statistically significant differences were found among the study group's duration of nausea before and after intervention 1(P =0.005), 2 (P =0. 004), 3 (P =0. 003) & 4 (P=0.000). They were also found between both groups' duration of nausea before intervention (P= 0.008), and were highly significant after intervention of the 1st, the 3rd , the 5th and the 7th hour (P =<0. 0001).

Table (VI): Number and percent distribution of the study and the control groups according to their amount of vomiting using RINV

Amount of vomiting (cubs)	Study group		Control group		F/□ 2(Þ)
	No (40)	%	No (40)	%	
Immediately after operation (Before intervention):					
• 1/2	2	05.00	7	17.50	11.919 (0.008)*
• 1	5	12.50	4	10.00	
• 2	5	12.50	10	25.00	
• 3 +	10	25.00	1	02.50	
• Not applicable	18	45.00	18	45.00	
After intervention (1st hour):					
None	7	17.50	0	00.00	15.174 (0.004)*
• 1/2	6	15.00	7	17.50	
• 1	6	15.00	4	10.00	
• 2	1	02.50	10	25.00	
• 3 +	2	05.00	1	02.50	
• Not applicable	18	45.00	18	45.00	
F/□ 2(Þ) before/ After 1	17.091 (0.002)*		0 (1.000)		
After intervention (3rd hour)					
• None	8	20.00	0	00.00	13.121 (0.011)*
• 1/2	5	12.50	7	17.50	
• 1	5	12.50	5	12.50	
• 2	2	05.00	9	22.50	
• 3 +	2	05.00	1	02.50	
• Not applicable	18	45.00	18	45.00	
F/□ 2(Þ) before/ After 2	15.905 (0.003)*		0.164 (0.983)		
After intervention (5th hour)					
• None	9	22.50	0	00.00	15.175 (0.004)*
• 1/2	6	15.00	8	20.00	
• 1	4	10.00	5	12.50	
• 2	1	02.50	8	20.00	
• 3 +	2	05.00	1	02.50	
• Not applicable	18	45.00	18	45.00	
F/□ 2(Þ) before/ After 3	19.111 (0.001)*		0.4 (0.940)		
After intervention (7th hour)					
• None	10	25.00	0	00.00	16.581 (0.002)*
• 1/2	5	12.50	8	20.00	
• 1	4	10.00	5	12.50	
• 2	1	02.50	8	20.00	
• 3 +	2	05.00	1	02.50	
• Not applicable	18	45.00	18	45.00	
F/□ 2(Þ) before/ After 4	19.397 (0.001)*		0.4 (0.940)		

□^{2}(P): Chi-Square Test &P for□^{2}TestFET (P): Fisher Exact Test & P for FET-Test
*: Significant at P ≤0.05

Table (VI) presents the number and percent distribution of women according to the amount of vomiting using RINV. ***Before intervention,*** vomiting of 3 or more cups was reported by 25%of the study group, compared to 2.5% of the control one. On the other hand, vomiting of 2cups was reported by 25% of the latter, compared to 12.5% of the former. However, vomiting of 1/2 cup was reported by 17.5% of the control group, compared to 5% of the study one. ***At 1st hour After the intervention,*** vomiting of 2 & 3 or more cups decreased among the study group from 12.5% & 25% to 2.5% & 5% respectively, while it remained the same among the control one (25%& 2.5%) respectively. Therefore, vomiting of 1/2 & 1cup increased among the former from 5% & 12.5% respectively to 15%, while it remained the same among the latter (17.5% & 10%) respectively. Moreover, 17.5% of the study group relieved from vomiting compared to none of the control one. ***At 3rd hour after the intervention,*** vomiting of 1/2 cup decreased among the study group from 15% to 12.5%, while it remained the same among the control one (17.5%). Vomiting of 1 cup also decreased among the former from 15% to 12.5%, while it increased among the latter from 10% to 12.5%. Thus relieved vomiting increased among the study group from 17.5% to 20%, while it remained the same among the control one (0%). ***At 5th hour after the intervention,*** vomiting of 1 cup decreased among the study group from 12.5% to 10%, while it remained the same among the control one (12.5%). For this reason, subsided vomiting increased among the former from 20% % to 22.5%, while it remained the same among the latter (0%).***At 7th hour after the intervention,*** vomiting of 1/2 cup decreased among the study group from 15% to 12.5%, while it remained the same among the control one (20%). Therefore, relieved vomiting further increased among the former from 22.5% to 25%, while it remained the same among the latter. However, the relationship among the study group's amount of vomiting was statistically significant before and after intervention 1 (P=0.002), and 2 (P=0.003), as well as before and after intervention 3 & 4 (P =0. 001). It was also statistically significant between both groups' amount of vomiting before intervention (p=0.008), after intervention of the 1st and the 3rd (P=0.004) as well as the 5th (P= 0.011) and the 7th hours (P= 0.002).

Table (VII): Number and percent distribution of the study and the control groups according to overall score Rhodes index for nausea and vomiting (RINV)

overall score of Rhodes index	Study group		Control group		F/□ 2(P)
	No (40)	%	No (40)	%	
Immediately after operation (Before intervention):					
- Mild	6	15.00	9	22.50	4.883 (0.181)
- Moderate	13	32.50	10	25.00	
- Severe	7	17.50	11	27.50	
- Unbearable	14	35.00	6	15.00	
- Not applicable	0	00.00	4	10.00	
After intervention (1st hour):					
- None	4	10.00	0	00.00	17.879 (0.001)*
- Mild	19	47.50	9	22.50	
- Moderate	14	35.00	10	25.00	
- Severe	2	05.00	11	27.50	
- Unbearable	1	02.50	6	15.00	
- Not applicable	0	00.00	4	10.00	
F/□ 2(P) before/ After 1	24.841 (0.000)*		0 (1.000)		
After intervention (3rd hour)					
- None	4	10.00	0	00.00	23.965 (0.000)*
- Mild	22	55.00	9	22.50	
- Moderate	12	30.00	8	20.00	
- Severe	1	02.50	13	32.50	
- Unbearable	1	02.50	6	15.00	
- Not applicable	0	00.00	4	10.00	
F/□ 2(P) before/ After 2	28.95 (0.000)*		0.389 (0.942)		
After intervention (5th hour)					
- None	5	12.50	0	00.00	28.901 (0.000)*
- Mild	26	65.00	9	22.50	
- Moderate	7	17.50	6	15.00	
- Severe	1	02.50	10	25.00	
- Unbearable	1	02.50	11	27.50	
- Not applicable	0	00.00	4	10.00	
F/□ 2(P) before/ After 3	35.067 (<0.0001)*		2.518 (0.472)		
After intervention (7th hour)					
- None	10	25.00	0	00.00	39.254 (<0.0001)*
- Mild	25	62.50	7	17.50	
- Moderate	4	10.00	9	22.50	
- Severe	0	00.00	8	20.00	

-	Unbearable	1	02.50	12	30.00	
-	Not applicable	0	00.00	4	10.00	
F/□ 2(P) before/ After 4		44.677 (<0.0001)*		2.777 (0.427)		

□^{2}(P): Chi-Square Test &P for□^{2}TestFET (P): Fisher Exact Test & P for FET-Test
*: Significant at P ≤0.05

Table (VII) illustrates the number and percent distribution of women according to their overall score Rhodes index for nausea and vomiting (RINV). ***Before intervention,*** unbearable nausea & vomiting of the study group was more than double fold those of the control one (35% & 15%) respectively. On the other hand, mild and severe nausea & vomiting was found among 22.5% & 27.5% respectively of the latter, compared to 15% & 17.5% respectively of the former. However, moderate nausea & vomiting was found among 32.5% & 25% of the study and the control groups respectively. ***At 1st hour after the intervention,*** severe and unbearable nausea & vomiting decreased sharply from 17.5% to 5% & from 35% to 2.5% respectively among the study group, while they remained the same among the control one (27.5% & 15%) respectively. Consequently, mild and moderate nausea & vomiting increased from 15% to 47.5% & from 32.5% to 35% respectively among the former, while they remained the same among the latter (22.5% & 25%) respectively. Moreover, relieved nausea & vomiting was found among 10% of the study group, compared to none of the control one. ***At 3rd hour after the intervention,*** unbearable nausea & vomiting and relieved one remained the same among the study and the control groups. However, severe discomfort decreased from 5% to 2.5% among the former,while it increased from 27.5% to 32.5% among the latter. Thus, mild nausea & vomiting increased from 47.5% to 55% among the study group, while it remained the same among the control one (22.5%). ***At 5th hour after the intervention,*** unbearable nausea & vomiting remained the same among the study group (2.5%), while it increased from 15% to 27.5% among the control one. For this reason, mild and subsided nausea & vomiting increased from 55% to 65% & from 10% to 12.5% respectively among the former, while they remained the same among the latter (22.5% & 0%) respectively. ***At 7th hour after the intervention,*** unbearable nausea & vomiting remained the same among the study group (2.5%), while it increased from 27.5% to 30% among the control one. However, moderate nausea & vomiting decreased 17.5% to 10% among the former, while it increased from 15% to 22.5% among the latter. Moreover, subsided nausea & vomiting doubled among the study group (25%), while it remained the same among the control group (0%). However, the relationship among the study group's nausea & vomiting was statistically highly significant before and after intervention 1 & 2 (P=0.000), as well as before and after intervention 3 & 4 (P =<0. 0001). It was also statistically significant between both groups' nausea & vomiting after intervention the 1st hour (P=0.001), and highly significant between them after intervention the 3rd and the 5th (P=0.000) as well as the 7th hour (P=<0.0001).

IV. Discussion

Postoperative nausea and vomiting (PONV) is a leading complication of surgery and often is viewed by patients as the single most stressful side effect of anesthesia and the operative period. Over 40 million patients undergo surgery per year in the United States and more than 100,000,000 patients worldwide with about 30% experiencing postoperative nausea and vomiting. Routine prophylaxis would seem appropriate, but the choice of anti-emetic agents is wide, and some are too expensive to be cost-effective for routine use. While today's health care system is focusing on the reduction of expenditures and resources. The side effects associated with these anti-emetic agents can include headaches, constipation, agitation, tachycardia, extrapyramidal effects, sedation and even possibly prolonged QT intervals and fatal arrhythmia [19, 20]. A non-invasive alternative PONV preventative is acupressure. This ancient naturopathic science is based on a non-pharmacological theory that differs radically from modern allopathic medicine. Acupressure of p6 (Neiguan) is used for treatment of nausea and vomiting in traditional Chinese medicine. Recently, many clinical investigations have shown that stimulation of the p6 acupoint with non-invasive acupressure can prevent vomiting caused by early pregnancy and surgical procedures. Techniques to stimulate P6 acupoint include: acupuncture, electro-acupuncture, laser acupuncture, transcutaneous electrical nerve stimulation (TENS), and acupressure. Wrist Bands used for the application of acupressure to the p6 point. [21] Hence the present study was conducted to evaluate Effect of Wristband on Post Cesarean Nausea and Vomiting.

On investigating the effect of p6 acupressure on severity of nausea and Vomiting, the results of the present study showed that there was a significant difference in post-test, compared to the control one (Table II& III). This finding suggests that P6 acupressure is effective in decreasing intensity of nausea and improve woman comfort. This improvement of the study group may reflect the positive effect of the conducted intervention. This could be contributed to that the exact mechanism of action of P6 stimulation is unknown, but it is based on the belief that a person's well-being depends on the energy balance in the body. It is hypothesized that energy flows within the human body along special paths called meridians, and certain techniques can manipulate these

meridians to restore the balance of energy flow. An electrical stimulator can send impulses to the Neiguan (P6) acupoint and help with proper energy flow, reducing the chance of N&V without side effects [(22)].
The present finding is in line with the study of Levin D et.al [(23)] (2019) in USA found significantly fewer patients experienced intraoperative N&V in the P6 group (nausea 36.7% and vomiting 13.3%) and IV antiemetic group (nausea 23.3% and vomiting 16.7%) than those in the control group (nausea 73.3% and vomiting 45%; $p<0.001$). In addition, significantly fewer patients required rescue antiemetic medications in the P6 group (35%) and the IV antiemetic group (31.7%) than those in the control group (73.3%; $p<0.001$).

In addition, it relatively corresponds with the study of Eslami J et.al (2019) [(24)] in Shiraz, Iran, where they concluded that women who received p6 acupressure wristband reported less severity nausea and vomiting. The current findings also match with the study of Unulu M & Kaya N (2018) [(25)] in USA, where they reported that p6 acupressure with wristband was significantly effective on decreasing nausea intensity and enhances patient comfort postoperative to the extent of complete relief. It is also consider a great alternative to pharmacologic methods in the gynecologic surgery population. Moreover, the present finding is compatible with the study of Hanafy H et.al [(26)] (2018) in Egypt which have shown statistically significant effects of the using of unilateral wrist band and bilateral wristbands methods in decreasing post cesarean section nausea and vomiting, but bilateral is more effective . Furthermore, the current finding at one hand is congruent with the study of Moghadam AM &Khosravi A [(27)] (2015) in USA , where they found that women who received p6 acupressure reported less incidence of nausea and vomiting in postoperative periods in Metoclopramide and acupressure groups as compared that in the control group . In this study, the use of Metoclopramide and acupressure was found to be equally effective for reducing emetic symptoms (nausea, retching, and vomiting. In addition, the present finding agrees with the study of Noroozinia H et al [(28)] (2013) in Urmia, Iran , which revealed that there were a significant differences in the incidence of the post-operative nausea and vomiting between the acupressure and control groups, with a reduction in The amount of vomitus and the degree of discomfort in the study group.

On assessing the frequency & duration of nausea and vomiting, the results of the present study illustrated that nausea and vomiting became less in duration and frequency or even relieved among the study group after intervention, compared to the control group (tables IV, V, VI). This finding partially corresponds with the study of Mady M et.al [(29)] 2019 in Egypt, where they reported that P6 acupressure is effective in reducing the frequency of nausea and vomiting during pregnancy. Moreover it is consistent with the two previously mentioned American studiesdone by Levin. D et.al [(23)]and Moghadam A [(27)]. They concluded that P6 stimulation is as simple and effective for reducing emetic symptoms (nausea, retching, and vomiting) during and after CS performed.

In contrast, the current findings disagree with three studies. First study of conducted by Gamermann et.al [(30)] (2015) in Brazil, who found no significant differences in the incidence of nausea and vomiting and the antiemetic use between groups during the first 24 hr. These differences were only statistically significant in the episodes and the severity of nausea but it did not affect vomiting. Second study performed by Majholm B, Møller AM [(31)] (2011) in **USA** , which they found that wristband acupressure was not effective in preventing either nausea or vomiting after operation in women undergoing breast surgery so there were no statistically significant differences in the incidence of nausea and vomiting. Third study done by Sinha.A et.al [(32)] (2011) in **England**, where they reported that acupressure wristbands applied bilaterally did not reduce the incidence of nausea and vomiting during labour and delivery.

V. Conclusion

Based on the findings of the current study, it can be concluded:
Application of acupressure (P6) wristband results in significantly less severe, less frequent, less or no discomfort and more relief of nausea as well as less duration of nausea and less amount of vomiting. It proves to be more effective in alleviating post cesarean nausea and vomiting during intervention or immediately afterwards.

The results supported the study hypothesis which stated that "post cesarean women who apply acupressure wristband exhibit less nausea and vomiting than those who don't apply this modality".

VI. Recommendations

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

- P6 acupressure stimulation should be advocated as a significant therapeutic alternative to manage nausea and vomiting post cesarean.
- Clinical practice guidelines of p6 acupressure should be incorporated into postpartum care
- Maternity nurses should be trained to carry out P6 acupressure.

Further researches are recommended:

- Replication of the current study on a big size population and different setting for the purpose of better generalization.
- Comparative study to determine the effect of other modalities of acupressure, none pharmacological treatment such as herbal therapy as well as dietary and lifestyle changes.
- Evaluation of the possible risks of P6 acupressure
- The relationship between different modalities of acupressure during pregnancy and pregnancy outcome.

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