

Impact of Sp[^] Acupressure on Reducing dysmenorrhea among Medical And Nonmedical Oriented Students: a comparative approach

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Abstract

Aim of this study is to study the impact of sp[^] acupressure on reducing dysmenorrhea among medical and nonmedical oriented students **Design:** Quasi experimental intervention study was used . **Setting:** The study was conducted at benha university hosts harbouring medical and non medical college students. **sample:** A Purposive sample of one hundred and fifty students divided into two groups (90 students study group and 60 students control group) were included in the study free from medical and obstetrical problems, With regular menstrual pattern, and not using other methods of treatment. **Data collection:** Two tools were used as: Interviewing questionnaire schedule and numerical rating scale. **Results:** There was highly statistically significant difference between the two groups (study and control group) regarding mean score of menstrual pain ($p < 0.001$), study group showed high significant difference regarding absentism from college and achievement than control group. **Conclusion:** Acupressure is a safe and effective intervention to relieve menstrual pain. With appositve effect on daily life style, no absentism, hence achieving, more satisfaction **Recommendations:** Application of

acupressure sp[^] for reducing pain on large scale sample size for generalization.

Keywords: Sp[^] acupressure, Dysmenorrhea

Menstruation is the periodic discharge of blood and mucosal tissue from the inner lining of the uterus through the vagina. It begins with the onset of menarche and stops near menopause and commonly considered the end of a female's reproductive life. The menstrual cycle is the series of changes as body gets ready for pregnancy. This is the monthly menstrual bleeding (also called menstrual period) it starts from teen years until menopause, around age 10-15 years. (Logan & Carolyn, 2013).

Pain is the sensation of discomfort. It is a subjective and personal symptom. It is unique to each individual, so the woman is the only person who can describe or know the extent of pain. Pain is a unique experience that varies for each person, some women may describe as mild, cramping, achy discomfort while others might describe as the most excruciating feeling she has ever known. (Cho & Penning, 2004) Understanding theories about pain perception is important. Four major theories of pain perception are described, namely: The gate control theory, chemical pain control theory, specificity pain control theory and pattern theory. (Thomas, et al, 2009)

Dysmenorrhea refers to pain or discomfort associated with menstruation. Dysmenorrhea is a common problem for adolescent girls and women. It may be mild, moderate, or severe and single most common cause of days missed from school and work. About 10 percent of girls are

incapacitated for up to three days each month. *Adinma* (2009) who studied menstrual characteristics among south eastern Nigerian adolescent girls and reported abdominal pain (66.2%) , pelvic pain (38.5%), and college absenteeism (4.5%). Many teens do not suffer from dysmenorrhea because their uteri are still growing. The symptoms may begin one to two days before menses, peak on the first day of flow, and subside during that day or over several days. (*Berek J.S, et al., 2007*). Dysmenorrhea incidence; 33.5% was reported by *Nag* (2007) among adolescent girls in India. Other study done in Sweden *Andersche B & Milson* (1998) showed that, more than 50% of all menstruating women experience some discomfort. It has also been reported by a senior obstetrician that probably 5 - 10% of girls in their late teens suffer from severe spasmodic dysmenorrhea interrupting their educational and social life (*Dawn C.S, 1990*).

. Dysmenorrhea is classified as primary or secondary based on the absence or presence of an underlying cause. Primary dysmenorrhea is menstrual cramps that is recurrent and not due to other diseases. Cramps usually begin one to two days before starts the period. Pain usually begins 1 or 2 days before or when menstrual bleeding starts, felt in the lower abdomen, back, and thighs. Pain lasts 12 to 48 hours and may be accompanied by nausea, vomiting, fatigue, and diarrhea

Risks of dysmenorrhea are; smoking, obesity, alcohol intake (alcohol tends to prolong menstrual pain), family history of painful menstrual cramps, pelvic infection, medical conditions, such as a sexually transmitted infection or

endometriosis, and women started menstruating before the age of 11 year, depression and anxiety. (*Sundell, et al., (2012)*).

Acupressure is an ancient Chinese method that involves applying pressure to certain meridian points on the body to relieve pain. The human body has fourteen "meridians" that carry energy throughout the body. These meridians start at the fingertips connect to the brain, and then connect to the organ associated with the specific meridian. Acupressure is based on traditional Chinese medicine. It teaches that health requires a balance in vital energy (Chi) that courses through the body. Chi energy takes two forms: positive (Yang) and negative (Yin). This energy circulates in the body along specific 12 paired interconnected body channels known as meridians. Along these 12 channels or meridians there are 360 acupressure points. These points affect specific organs, structure or body function. Pressure on these points stimulate the parasympathetic nervous system to increase the production of endorphins which counteracts the action of epinephrine So the acupressure is a way of accessing blocked energy center in the body and producing harmony in the body (*Belal, 2007*).

Acupressure is a safe technique, not need to physician, acupressure not applied to open wounds, swelling and inflammation. Areas of scar tissue, blisters, boils, rashes, or varicose veins. Also not used during pregnancy or heart disease. People taking blood thinners except under a doctor's supervision, avoid areas of broken skin or recent scars if present apply pressure on points on the opposite side of the body, or opposite limb, acupressure used as an additional part of normal

health routine (*National Acupuncture and Oriental Medicine Alliance*, ۲۰۱۰. <http://www.acuall.org>).

Nurse advises students about dysmenorrhoea as health educators or health visit. Students informed that dysmenorrhoea is a treatable condition and the prognosis is excellent (*Wolf and Schumann*, ۲۰۰۵). The nurse understands how the menstrual cycle works and is familiar with the anatomy and physiology of the reproductive system and its associated disorders. This enables nurse to give students a better understanding of their condition.

This study aimed to study the impact of SP⁴ Acupressure on reducing dysmenorrhea among medical and nonmedical oriented students.

Research design :

Quasi experimental design (An Intervention) Was used to achieve the aim of this study

Setting :

The study conducted at Benha university hosts which provide services to all students from benha city and its surround villages from different college as well as medical college as (Nursing – Medical and Science) and non medical college as (Education -Commerce –Arts and Low).

Sample:

A convenient sample of ۳۰۰ pregnant women were chosen among those attending the ante-natal clinic. The sample was divided into three groups: Acupressure group comprising ۱۰۰ pregnant women who applied acupressure wristband twice daily for one week , each time lasting for ۱۵-۳۰ minutes, Vitamin B^۶ group comprising ۱۰۰ pregnant women who used vitamin B^۶ capsule three times daily before meals

for one week and Control group comprising ۱۰۰ pregnant women who received no treatment. The studied sample was selected according to the following **inclusion criteria:** Pregnant women at first trimester with single fetus, suffer from morning sickness, free from medical, psychological and obstetrical problems, not receiving any drugs, age from (۲۰ – ۳۵ years), can read and write, accepted to participate in the study.

Tools of Data Collection:

۱. Structured interviewing questionnaire sheet:

It was designed by the researcher after reviewing related literature (*Chou et al.*, ۲۰۰۵; *Lacasse and Berared*, ۲۰۰۸) and under guidance of the supervisors. The sheet is written in simple Arabic language in the form of close and open ended questions. It consisted of four parts: personal characteristics of pregnant women e.g. : age, level of education, parity, previous abortions, first day of last menstrual period, expected date of delivery and usage of contraceptive methods, nutritional habits including number of meals per day, preferred type of foods, type of foods avoided during pregnancy and the necessity of taking certain foods and amount of foods during pregnancy and occurrence of nausea and vomiting in past pregnancies, practices done to overcome this problem.

۲. A visual analogue scale (VAS) : It was adopted from Salem, (۲۰۰۹) and conducted to assess morning sickness pattern described in terms of time, symptomatology, conditions that increase vomiting and nausea, coping methods and measures of it's intensity and duration.

VAS form would be modified by the researcher

Items	Symptoms	score
No problems	neither nausea and vomiting	1
Slight	morning nausea without vomiting	2
Moderate	day and night nausea without vomiting	3
Trouble some	morning nausea with vomiting	4
Severe	day and night nausea with vomiting	5

3- Follow up sheet: It was constructed for pregnant women to record symptoms according to intensity, duration and nature of nausea and vomiting per day for 7 days using VAS. At follow up visit, a five point Likert scale (much worse, worse, same, better, much better) was used to assess woman's subjective responses to treatment. Questions (50).

The actual field work was carried out from the beginning of April 2013 to the end of April 2014 covering twelve months. The study setting was visited three times/week started from 9Am to 12Pm. throughout two visits:-

1- The first visit:-

At the beginning of interview the researcher greeted the women, introduced herself to each woman, explained the purpose of the study, took oral consent to participate in the study, filled interviewing questionnaire sheet, assessed severity of nausea and vomiting by using visual analogue scale, Then all women in the three groups were instructed about diet during the study [split their meals into frequent small ones, rich in carbohydrates and low fat]. Also avoiding abstinence of food that may actually make nausea worse, try

to eat before or as soon as she feels hungry, eat dry bread or cookie on awaking, avoiding fried, odorous, spicy, greasy meals or gas forming foods, maintaining good posture, drinking cold, clear, and carbonated or sour fluids and also they were instructed not to take any other medications except the treatment advised by the researcher.

Each woman in acupressure group was given a pair of sea band (acupressure wristband) which had a protruding button made of plastic, approximately 1 cm in diameter, round in shape and protruded about 1 cm below the inside of the wristband which is used to apply pressure on the Neiguan point. An illustrated booklet was given to each woman which included explanation of how and when to use the acupressure wristbands. They were trained to use them twice daily each time lasting for 15-30 minutes for seven days in the appropriate place in both hands by the researcher, they were instructed to record changes on the daily chart record daily, and then the researcher took the telephone number of each woman to prepare for another interview for filling the follow up sheet to evaluate the effect of acupressure wristbands.

Each woman in vitamin B6 group received 21 vitamin B6 capsules 40 mg (with the brand named Vomistop made in Amoun manufacturing Pharmaceutical Company) for 7 days and daily 3 capsules. They were instructed to record changes on the daily chart record daily, and then the researcher took the telephone number from each woman to prepare for another interview for filling the follow up sheet to evaluate the effect of vitamin B6.

No intervention was performed for the control group during 7 days but they were instructed to record changes on the daily chart record daily. Then the researcher took the telephone number from each woman to prepare for another interview for filling the follow up sheet .

2- The second visit:

* The researcher greeted the women then collected the daily charts from them for final evaluation of the effect of acupressure and vitamin B₆ on alleviating pregnancy nausea and vomiting using visual analogue scale (VAS).

* The the researcher asked women to fill follow-up chart using five points Likert scale (much worse, worse, same, better, much better) to assess woman's subjective responses to treatment.

Results

I:- General characteristics

Table (1): Shows no statistically significant difference ($p > 0.05$) among the studied groups regarding personal characteristics (age, educational level, occupation, residence, family income, marriage age and duration of marriage).

2:- Complaint of nausea and vomiting among the studied groups in previous pregnancies

Figure (1): revealed that nearly half of the studied subjects (54%, 52%, 56%) in control, acupressure and vitamin B₆ groups respectively had history of nausea and vomiting in previous pregnancies.

3:- Distribution of the studied groups according to mean score at baseline and seven days of assessment.

Table (2):- Shows no statistically significant difference among mean score of the studied groups at

baseline, first and second days of assessment ($p > 0.05$). On the other hand there was highly statistically significant difference among mean score of the studied groups at third, fourth, fifth, sixth and seventh days of assessment ($p < 0.001$).

4:- Comparison of baseline mean score of the studied groups and each day mean score of seven days of assessment.

Table (3): Shows no statistically significant difference between baseline mean score and average 7days mean score in the control group ($p > 0.05$), highly statistically significant difference between baseline mean score and average 7days mean score in both acupressure and vitamin B₆ groups ($p < 0.001$), highly statistically significant difference between average 7days mean score among the three groups ($p < 0.001$) and no statistically significant difference when comparing baseline mean score among the three groups ($p > 0.05$).

5:- Frequency of symptoms grading as reported by women among the studied groups using five point likert scale .

Table (4): Shows that 82% of acupressure group reported symptoms improvement compared to 47% of vitamin B₆ group and 12% of control group. ($p < 0.001$). No change of symptoms among 60%, 43% & 16% of control, vitamin B₆ and acupressure groups respectively.

6:- Correlation coefficient between total nausea and vomiting score at the 7th day and personal characteristics of both acupressure group & vitamin B₆ group.

Table (5): shows non-significant positive correlation between total nausea and vomiting score of acupressure group at the 7th day and age, duration of marriage and body mass index.

Table (6): shows non-significant positive correlation between total nausea and vomiting score of vitamin B₆ group at the 7th day and age. While there was

insignificant negative correlation between total nausea and vomiting score of vitamin B¹ group at the ^Yth day and duration of marriage and body mass index.

Table (1): Distribution of studied sample regarding

Personal characteristics	Study group (N= 90)		Control group (N=60)		X ²	P-value
	No	%	No	%		
Age in years					0.818	>0.05
18-	38	42.2	27	45.0		
19-	30	33.3	28	46.7		
20-22y	17	18.9	0	0.0		
Mean ±SD	19.7833±1.08		19.7667±1.101		0.440*	
Residence					2.29	>0.05
Rural	02	02.2	42	70.0		
urban	38	42.2	18	30.0		
college					0.118	>0.05
Medical	00	00.0	30	50.0		
Non medical	40	44.4	20	33.3		
Academic year					4.00	>0.05
1 st	09	10.0	31	51.7		
2 nd	18	20.0	14	23.3		
3 rd	6	6.7	9	15.0		
4 th	7	7.8	6	10.0		
Anthropometric items						
Weight (kg)	74.3777±14.4		76.2167±14.3		.773*	>0.05
Height (cm)	163.8333±8.89		162.8889±8.00		.747*	>0.05
Body mass index (kg/cm ²)	28.048±0.74		28.416±0.77		.387*	>0.05

personal characteristics

Table (٤): Distribution of the studied sample according their information about acupressure technique.

Variable	Study group (N=٩٠)				Control group (N=٦٠)				X ^٢	P- value
	Correct		Incorrect		Correct		Incorrect			
	No	%	No	%	No	%	No	%		
Acupressure is a complementary and alternative medicine	٣٠	٣٣.٣	٦٠	٦٦.٧	٢٢	٣٦.٧	٣٨	٦٣.٣	٠.١٧٧	>٠.٠٥
Acupressure is useful in reducing menstrual pain	٢٩	٣٢.٢	٦١	٦٧.٨	٢٠	٣٣.٣	٤٠	٦٦.٧	٠.٠٢٠	>٠.٠٥
Acupressure can be applied at different points of the body	١٦	١٧.٨	٧٤	٨٢.٢	١١	١٨.٣	٤٩	٨١.٧	٠.٠٠٨	>٠.٠٥
Acupressure is safe for used.	١٠	١١.١	٨٠	٨٨.٩	٥	٨.٣	٥٥	٩١.٧	٠.٣٠٩	>٠.٠٥
Acupressure can be applied easily.	٥	٥.٦	٨٥	٩٤.٤	٥	٨.٣	٥٥	٩١.٧	٠.٤٤٦	>٠.٠٥
All previous together.	٨	٨.٩	٨٢	٩١.١	٥	٨.٣	٥٥	٩١.٧	٠.٠١٤	>٠.٠٥

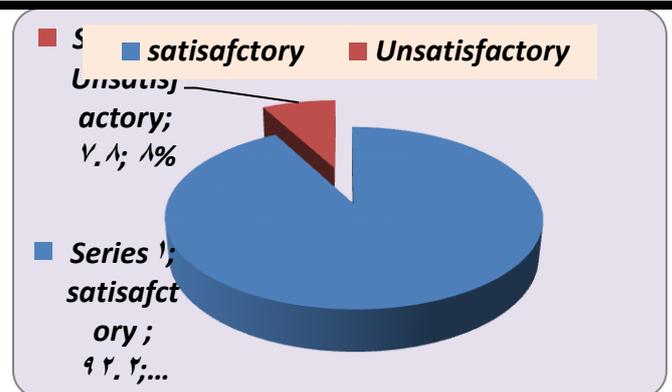
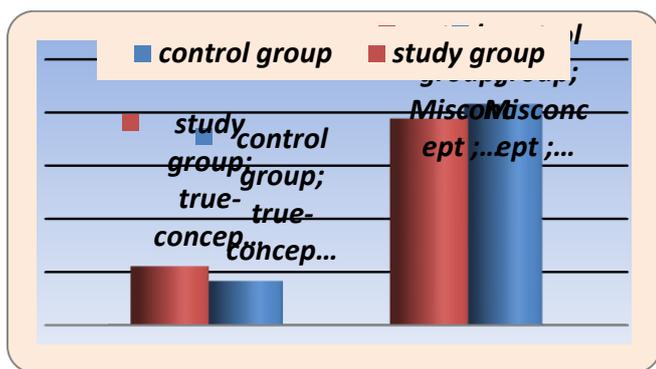


Table (٦): Distribution of studied sample regarding effects of dysmenorrhea on daily life activities after intervention. (n=١٥٠).

Variable	Study group (N= 90)		Control group (N=60)		X ²	P- value
	No	%	No	%		
	Menstrual pain effects on daily life activities					
No	74	82.2	16	26.7		
Yes	16	17.8	44	73.3		
Menstrual pain effects on absentism from college					38.22	<.001**
No	80	88.9	20	33.3		
Yes	10	11.1	40	66.7		
Menstrual pain effects on achievement					.142	
No	82	91.1	30	50.0		
Yes	8	8.9	30	50.0		

Discussion

Nausea is the common complaint of women in the first half of pregnancy period, and 80% of pregnant women experience it in early pregnancy. This symptom usually begins between the first and second missed menstruations, beats its peak at week 9, and continues until around week 14 to 16. (Maltepe & Koren, 2013). Nausea is more severe in the morning and may continue throughout the day, 80% of cases spontaneously recover until week 14 and 90% until week 22. At 73% of cases, there is a history of nausea in a previous pregnancy. (Piwko, Koren, Babashov, Vicente, & Einarson, 2013).

Regarding personal characteristics of the studied groups, the results of the present study cleared that there was no statistically significant difference among the studied groups regarding their personal characteristics (age, educational

level, occupation, residence and family income) ($p > .05$). This ensures homogeneity of the study population. This result agrees with *Saberi et al.*, (2013) who found in their study on use of acupressure and ginger to relieve nausea and vomiting in pregnancy no statistically significant differences in the baseline characteristics between the three groups. This result is supported by *Jamigorn & Phupong* (2007) who found in their study on acupressure and vitamin B6 to relieve nausea and vomiting in pregnancy that baseline characteristics of the patients (age, education, occupation) didn't demonstrate any statistical significant differences between the two groups. This result was also in agreement with *Chittumma et al.*, (2007) compared the effectiveness of ginger and vitamin B6 for treatment of nausea and vomiting in early pregnancy that there were no differences in the baseline demographics characteristics.

As regards complaint of nausea and vomiting in previous pregnancies among studied groups, the results of the current study revealed that nearly half of the studied subjects (54%, 52%, 56%) in control, acupressure and vitamin B₆ groups respectively had history of nausea and vomiting in previous pregnancies. This result is in agreement with *Jueckstock, Kaestner, & Mylonas (2010)* in their study entitled managing hyperemesis gravidarum : a multimodal challenge which reported that the incidence of NVP was higher in women with a history of nausea and vomiting in previous pregnancies. On the same line *Osman (2013)* mentioned that the majority of women had previous history of nausea and vomiting in pregnancy. Additionally *Rad et al., (2013)* reported that more than two thirds of the studied sample experienced nausea and vomiting in their previous pregnancies. In contrast with this finding, *Trogstad, Stoltenberg, Magnus, Skjaerven, & Irgens (2009)* in their study on recurrence risk in hyperemesis gravidarum found that woman in her first pregnancy shows high risk for nausea and vomiting more than women with subsequent pregnancies.

As regards baseline nausea and vomiting mean score and post treatment score, baseline mean score in control, acupressure and vitamin B₆ groups was 4.30±0.926, 4.16±0.939, 4.14±0.9037 respectively with no statistically significant difference between the studied groups at baseline (pre intervention) (p>0.05). This result is consistent with *Rad et al., (2013)* who reported that there were no significant differences in the intensity of nausea and frequency of vomiting in each group before entering the study. This is all expected finding, since there was no dif The

current study revealed no statistically significant difference in control group between baseline mean score and different days of assessment (p>0.05). While there was highly statistically significant difference in both acupressure and vitamin b₆ groups regarding comparison of mean score and different days of assessment.

In the acupressure group, post treatment nausea and vomiting mean score from day 1 to day 4 showed gradual decrease in nausea and vomiting mean score. This shows that acupressure is effective in improving nausea and vomiting during pregnancy. This finding goes in line with several studies that investigated the effect of acupressure on nausea and vomiting during pregnancy *Gurkano & Arslan (2004)* in their study on effect of acupressure on nausea and vomiting during pregnancy who found that acupressure appear to be effective in reducing the symptoms of nausea and vomiting during pregnancy. In the same line *Salem (2009)* reported that wristband acupressure was effective alleviating symptoms in more than three quarters of the intervention group compared to only third of the control group. Meanwhile *Lee & Frazier (2011)* in their study on the efficacy of acupressure for symptoms management reported that acupressure may be a useful strategy for the management of multiple symptoms in a variety of patient populations. Additionally *Shpritz S., (2013)* in his study on acupuncture point p₆ stimulation and the treatment of nausea and vomiting in early pregnancy reported that manipulation of point P₆ has been shown to reduce nausea and vomiting in pregnancy.

In the vitamin B⁶ group, the result show no statistically significant change comparing baseline mean score of vitamin b⁶ group with 1st to 3rd days mean score ($p > 0.005$) and highly statistically significant change with 3rd to 4th days ($p < 0.001$). This finding go in line with many studies that investigated the effect of vitamin B⁶ on nausea and vomiting during pregnancy e.g. *Chittumma et al* (2007) who found that both ginger and vitamin B⁶ were effective for treatment of nausea and vomiting in pregnancy. *Javadi et al.*, (2013) as well in their study titled comparing the effectiveness of vitamin B⁶ and ginger in treatment of pregnancy-induced nausea and vomiting reported that both ginger and vitamin B⁶ were effective for treatment of nausea and vomiting in pregnancy.

As regards frequency of reported changes in symptoms among the studied groups, the results of the current study revealed that there was highly statistically significant difference where 82% of women in the acupressure group reported an improvement compared with 47% of women in the vitamin B⁶ group and 12% of women in control group ($p < 0.001$). This result support the hypothesis of the study where pregnant women who used acupressure felt more comfort regarding nausea and vomiting in first trimester than those who used vitamin B⁶. This result is in agreement with *Salem* (2009) who found that slightly more than one third of the intervention group compared to only few of the control group their morning sickness completely stopped and slightly more than one quarter of the intervention group compared to the same percentage of the control group their morning sickness reduced.

As regards correlation coefficient between total nausea and vomiting score of acupressure group at the 4th day and personal characteristics (age, duration of marriage and body mass index), the results of the current study revealed insignificant positive correlation. This result is in agreement with *Chou et al* (2007) who found that the relationship among severity of nausea and vomiting, age of mother were significant. Additionally *Kallen B., Lundberg G., & Aberg A.*, (2008) in their study on relationship between vitamin use, smoking, and nausea and vomiting of pregnancy found that nausea and vomiting was significantly severe in women under 29 years old. This result disagree with *Osman* (2013) who found insignificant negative correlation between total score of nausea and vomiting severity and the age of the studied sample. This may be explained by the fact that older woman acquire more knowledge and experience and become mature enough to acquire information while young woman is less mature and less likely to acquire new technology like acupressure.

As regards correlation between total nausea and vomiting score of vitamin B⁶ group at the 4th day and age, duration of marriage and body mass index, the results of the current study revealed insignificant positive correlation. This result is in agreement with *Reham K.*, (2009) who found that women aged 30 years and older were more likely to use medications and herbs and less likely to change their lifestyles to alleviate nausea and vomiting during pregnancy than women in the younger age groups.

Conclusion

After implementation of the present study, a highly statistically significant difference was observed among both acupressure and vitamin B₆ groups and statistically insignificant difference among control group as regards baseline mean score and different days of assessment. However acupressure group was highly statistically significant compared with other groups.

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

- Periodic training program for nurses regarding ideal techniques of applying acupressure
- Acupressure management of nausea and vomiting should be included in the curricula of basic nursing education and continuing education in various nursing educational settings.
- Further multicenteric studies should be done with a large number of patients to produce a definite statement on the safety of acupressure and vitamin B₆ in pregnancy and accompanied by long term follow-up to detect uncommon complications .

Limitations of the Study

- There was limited number of pregnant women with nausea and vomiting attended to antenatal out patient clinic at Benha university hospitals.
- Fear of some women about using acupressure wristband as it is not popular and some of them fear of possible side effects on the fetus

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