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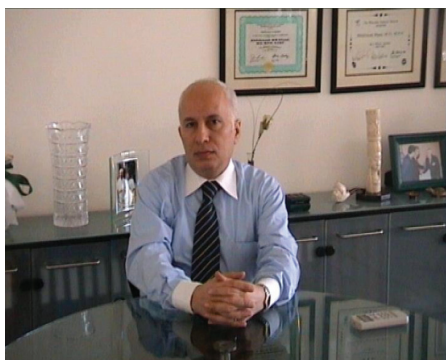
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With the inaugural issue of the Middle East Journal of Nursing we look forward to making the journal the leader in its field. This will be achieved with the help of the editorial board, the production team, readers and authors.

The Middle East Journal of Nursing is a new peer-reviewed journal designed to meet the needs of nurses, scientists, policymakers, and the patients and communities in the Middle-East. The Journal will begin publication, online, in February 2007, and shortly thereafter in hard copy. The frequency will be initially once every 3 months for the first year then once every two months.

The Mission of the Journal is to promote the field of nursing in the Middle East. The journal will publish original clinical and educational research of interest to the nursing field, practicing nurses, nurses in

training and others involved in the nursing field and nursing education. The journal also publishes special articles and commentaries about the fundamental concepts of nursing education, as well as book reviews and international reports. It will foster the basic and applied sciences of nursing practice.

The aim of the journal is to lift the standards of nursing in the Middle East. In addition to providing academically sound, clinically practical information for nurses in the promotion of the specialty of the nursing field in the Middle-East Region.

Following the success of the previous medical journals Middle East Journal of Family Medicine (MEJFM) and the Middle East Journal of Age and Ageing (ME-JAA), the publishers are pleased to announce this new resource for the region.

In this issue Dr Yousif T et al, discussed the importance of the development of professional midwifery skills. This can be achieved through well-designed curriculum, stressing acquisition, training and assessment. The author stressed that training of local women to become midwives is a cost effective approach to the provision of such skilled attendant care.

A study from Jordan tried to identify and investigate the knowledge and practice of breast self-examination (BSE) with the influencing factors on the compliance of (BSE) among female nurses. The study included

80 nurses from Prince Rashid Military Hospital. The study revealed positive correlations between nursing work experience and their practice in BSE as working nurses.

A study by Majaly R evaluated the efficacy of a method where antiseptic was merely painted on to the operation site without scrubbing it. Patients were randomized into Group A: wherein skin preparation was done by traditional methods, and Group B: in which the site was prepared by painting and the same antiseptics were allowed to remain for about two to three minutes before being wiped off. The author concluded that simple painting of the operation site is as effective as the old traditional ritual of scrubbing for ten minutes.

A study from Iran investigated the effect of discharge planning on physical status of mothers. A total of one hundred and eighteen women (mean age =21.64 years) participated in this study. The authors stressed the beneficial effects of conducting discharge planning on reducing maternal complications in the postpartum period.

Taavoni S et al, reported on the effect of personal characteristics on vaginal delivery Vs C-Section. The author compared data from 289 C/S case notes with 301 V/D case notes. They concluded that most cases of C/S section were due to primigravida and young age.

BREAST SELF-EXAMINATION AMONG FEMALE NURSES

ABSTRACT

Introduction: In the past 20 years, breast cancer incidence in the world has had a dramatic increase of 50-100%, which strongly supports the need for breast cancer prevention, and screening programs. The purpose of this study was to identify and investigate the knowledge and practice of breast self-examination (BSE) with the influencing factors on the compliance of (BSE) among female nurses.

Methods: A study was conducted between January and December 2002. Female nurses (80) from Prince Rashid Military Hospital constituted the study population. The questionnaire contained items on the demographic characteristics of the respondents' knowledge of breast cancer, attitudes toward BSE and questions regarding the practice of BSE. The analysis included descriptive statistics to examine the association between BSE and medical history, knowledge of BSE and attitudes toward BSE.

Results: The results of the study indicated that 52% of the sample performs BSE. Approximately 30% of those who perform BSE said they learned information regarding BSE during their work experience. A significant relationship was found between higher levels in work experience and BSE practice. Except for age, no significant relationship was found between the socio-demographic factors and BSE practice. The sample showed strong belief in breast lumps as a causing factor of breast cancer and had significant correlation with BSE practice.

Conclusion: Positive correlations were found between nursing work experience and their practice in BSE as working nurses. Studies like these can enhance the knowledge regarding BSE among nurses and other medical professionals.

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Introduction:

T Breast Cancer is easier to treat the earlier it is found. For that reason, some experts recommend that women over age 20 perform a monthly breast self-examination to look for new lumps and other changes. The self-exam has limitations, however, and is not a substitute for regular breast examinations from your doctor or screening mammogram.

Breast self-examination is a simple, very low cost, non-invasive adjuvant screening method for the detection of early breast cancer in women. Its purpose is important in the case of a prompt reporting of breast symptoms which are important early detection messages for women of all ages, and to make women familiar with both the appearance and the feel of their breasts as early as possible. There is evidence that women who correctly practice Breast self-examination monthly are more likely to detect a lump in the early stage of its development, and early diagnosis has been reported to influence early treatment and to yield a better survival rate.⁽¹⁾ Evidence suggests that clinical breast examination detects most breast cancers found by mammograms, and also some that mammograms miss, particularly in younger women. If you do perform monthly examination, do it 3-5 days after your period, when your breasts are the least tender and lumpy. Recent estimates suggest that screening by breast examination has a sensitivity of about 54% and specificity of about 94%, in some countries. The cost of screening mammography is considered to be high and policy makers are considering implementing screening programs based on clinical breast examination rather than mammography.⁽²⁾ It is known that breast cancer in general affects up to one in 11 women during life.

It was found that mortality had fallen by 31% after 6 years for women aged 40-70 at the beginning of the trial⁽³⁾. Unfortunately despite the benefits of regular Breast self-examination, few women actually examine themselves; in fact, the majority do not even know how to do Breast self-examination⁽⁴⁾. Although opinions conflict about the value of BSE⁽⁵⁾, there is no uniform agreement for breast screening methods.

Methods:

A study was conducted between January and December 2002, of female nurses, (80) in number, working at Prince Rashid Military Hospital. The nurses who were conducting regular breast examination were 52%(42), and with non-compliant or irregular breast self-examiners were 48%(38).

The study was designed to provide a description of the knowledge and practice of performance of BSE. The socio-demographic factors, medical history and the interrelationships between these variables were studied, including knowledge of breast cancer, attitudes toward BSE and questions regarding the practice of BSE.

Results:

Participants in this study ranged in age from 18-40 years, with mean age of 29 years and their average BMI was 24. Single women made up to 60%(48) of the sample and 40%(32) were married (Table 1). The results of the study indicated that 52% (42) of the sample performs BSE. Approximately 30% (13) of those perform BSE regularly. Only 5% (4) of the subjects had a positive family history of Breast Cancer and 85% (68) showed a regular menstrual cycle. Out of the total sample, 25 (31%) nurses reported pain in their breasts.

A significant relationship was found between higher levels in nursing work experience and BSE practice. 60-80% of subjects believe that presence of masses (breast lumps), family history of breast cancer (Table 2), nipple discharge, frequent mammograms and smoking are the causative factors for breast cancer. 10 % (8 nurses) of subjects believe that, usage of contraceptives, wearing of a Nylon bra, using breast creams; direct sun exposure, obesity and ovarian pain are breast cancer causing factors.

In this present study sample (Table 3), pregnancy at an early age and breast feeding are believed to be the least believed causative factors of breast cancer. The significant correlation was seen between large breast lumps and BSE.

The most frequently endorsed steps (Table 4) were examining breasts in front of a mirror, or during a bath, examining breasts while lying down, and feeling for a lump, hard knots, nipple discharge, or breast thickening. The least frequently endorsed steps were looking at breasts in the mirror with hands on thighs. Overall the majority of subjects knew most of the recommended steps.

In our study 52% perform BSE, which encompasses awareness of reporting breast symptoms as an early detection activity for all females in the study and in the population in general who will benefit from this study group.

Discussion:

To date, the etiology of breast cancer is uncertain and adequate primary prevention is not possible. Thus early detection measures remain the first priority. More than 50% of the total breast cancers diagnosed annually is found in premenopausal patients, creating the need to initiate breast cancer screening programs in this population. These measures include BSE, which is a screening behaviour of relevance for women's health.

Method: First, lie on your back. Place your right hand behind your head. With the middle fingers of your left hand, gently yet firmly press down using small circular motions to examine the entire right breast. Then, while

sitting or standing, examine your armpit (commonly skipped) because breast tissue extends to that area. Gently squeeze the nipple, checking for discharge. Repeat the process on the left breast.

Although, some women find it easier to do the examination in the shower, when the skin is soft and wet, you are more likely to examine all of the breast tissue if you are lying down. Breast self examination is a unique procedure in many ways:

- it is inexpensive, non-invasive, involves little time and physical energy,
- it is simple and doesn't depend on professional help.

However, the effectiveness of BSE remains controversial. It is argued that significant numbers of women find masses when they are bathing or dressing, and BSE once a month may contribute to a women's heightened awareness of what is normal for her. (6) The justification for this position is laid out in the discussion with a call for additional research. Despite the demographic and economic challenges posed by the aging of the population and the increasing incidence of breast cancer with age, we have to continue screening in older women who have few competing causes of mortality, and who would be candidates for treatment, if breast cancer was identified. The chronological age alone may be a difficult way to determine the utility of screening procedures, and that competing causes of mortality, as well as other factors, should perhaps also influence future recommendations (7)

In one study, it was shown that 81% of women first noticed symptoms themselves (8).

The evidence of primary cancer prevention is slowly growing; its strategies cannot yet be implemented in clinical prevention programs, therefore, secondary prevention, early detection of cancer, remains the main focus for reducing breast cancer mortality. This is especially true because of the proven relationship between mortality, and size of the primary tumor, as well as the status of the axilla.

Thus one may argue that if women are finding most breast cancer

themselves, as occurred in our study. About 36 nurses felt a sort of self awareness of breast etiology and abnormalities during their course of study, would assist. Normal breast tissue is present in both males and females of all ages. This tissue responds to hormonal changes and therefore, certain lumps can come and go. Breast lumps may appear at all ages: - infants may have breast lumps related to estrogen from the mother -young girls often develop breast buds that appear just before the beginning of puberty -teen age boys may develop breast enlargement and lumps because of hormonal changes, which are considered a normal variation of breast tissue; fibroadenomas are non cancerous lumps. Like fibrocystic disease of the breast, they occur most often during the reproductive years and the only way for definitive diagnosis is by taking a biopsy. Other types of lumps might be milk cysts, lipomas, papillomas. Breast cancer, treatment of a breast lump depends on the cause.

It is possible that by knowing how to do a more thorough BSE women could find breast cancers of smaller sizes, which in turn may lead to an improved prognosis. Medical professionals have knowledge of the causes of diseases and have learned to recognize the warning signs of the disease when present in their patients. It seems, however, that these professionals don't always recognize the signs of their own illness (9).

Nursing profession is one in which it is very important for self-awareness, to be able to recognize the signs of their own illness. Breast self examination is an examination that should be perfect for nurses. They have the knowledge of the clinical signs of breast cancer and of the examination technique; nurses can promote monthly BSE by supporting realistic beliefs about screening and cancer as well as demonstrating BSE, especially among married women. And they can do it themselves without consulting a physician. Furthermore, they are especially aware of the importance of the early detection of breast cancer for a successful treatment. It has been shown that confidence in one's BSE ability is strongly correlated to BSE practice in the general population.

Patient Advice Sheet:

Call your doctor if:

- You find a new breast lump during your monthly self-examination.
- You have bruising on your breast but did not experience any injury.
- You have nipple discharge, especially if bloody or pinkish (blood tinged).
- The skin on the breast appears dimpled or wrinkled (like the peel of an orange).
- Your nipple is inverted (turned inward) but normally is not inverted.
- If you are over the age of 20, consider doing a monthly breast self examination
- If you are over 40, you have to complete breast self-examination in addition to the examination by a doctor every year.
- If you are over the age of 50, get a yearly screening mammogram.

In one study, Budden (10) reported that 96% of nursing students performed BSE during a year but only 46% had practiced as regularly as once per month.

Haji-Mahmoodi et al (11), reported from a cross sectional study among female health care workers that, more than 70% of subjects had knowledge regarding BSE and also had strong belief in its beneficial affects, but only 6% of them was performed BSE regularly. It is well documented that beliefs and behavior surrounding breast cancer vary with several factors such as

ethnicity, age, education and socio-economic status (12). Initially, breast cancer screening programs depended on breast self-examination, however, marital status, family monthly income and family history of Breast cancer showed no significant association with BSE practice. Similar results were reported by Budden, that, no significant relationship was found between a family history of BC and regular BSE practice. Self-efficacy theory and behavioral self-regulation theory suggest that the most important predictor of a highly specific behavior (such as BSE) is the individual's own confidence in performing the behavior (13).

A more optimistic attitude would appear to increase the likelihood of greater self efficacy in performing BSE. In other words, women who anticipated favorable outcomes in general were more confident in their breasts. Our study showed that there is a strong belief that breast mass is a causative factor of breast cancer, which was reflected in its significant correlation with BSE practice.

Conclusion:

Breast cancer mortality in the US has been increasing by 0.6% per year since 1987. This increase in mortality is occurring despite screening. In a move to reduce the number of deaths from breast cancer, we have to emphasise breast awareness in addition to breast self-examination.

Initially, breast cancer screening programs depended on breast self-examination,

The prompt reporting of breast symptoms are important early detection messages for women of all ages.

Factors recommended for female patients regarding breast pathology are to do exercises regularly, reduce fat intake and to eat a lot of fruits, vegetables and other high fiber foods.

A Canadian breast mammographic screening study showed no difference between breast examination, BSE and five annual screenings with mammography compared with a single breast examination and BSE alone regarding the mortality in breast cancer. Nurses have a vital role to play in encouraging women to become more breast-aware. Their health promotion activities in this area can have an important impact on the uptake of breast screening initiatives.

Biopsy is the only way to determine if tissue is benign (non-cancerous) or malignant (cancerous).

The result of this study suggest that, for nurses, if more emphasis of BSE occurs in the work place and in undergraduate and postgraduate courses, nurses' teaching of BSE to clients may be increased. Also, the provision of BSE educational programs is necessary to increase nurses' knowledge, confidence, performance, and teaching of BSE.

Table 1: Characteristic of the study population.

Characteristic	frequency	(%)
Marital status:		
Married	32	40
Unmarried	48	60
BSE	42	52
Learned about BSE by work experience as a nurse	24	30
Family history of BC	5	6.3
Regular menstrual cycle	68	85
Feeling breast pain	25	31

Table 2: Results of variables with BSE practice

Variables	frequency	(%)
Marital status:		
Married	32	40
Unmarried	48	60
BSE	42	52
Learned about BSE by work experience as a nurse	24	30
Family history of BC	5	6.3
Regular menstrual cycle	68	85
Feeling breast pain	25	31

Table 3: Breast cancer beliefs and its significance for practicing BSE.

Factors	Frequency (%)
Family history of breast cancer	4(5)
Breast mass	56 (70)
Nipple discharge	40 (50)
Breast pain	20 (25)
Ovarian pain	16 (20)
Smoking	10 (8)
Frequent mammogram	10 (8)
Contraceptive usage	5 (4)
Using cream on breasts	2 (2.5)
Obesity	17 (21)
Sun-light exposure	6 (7.5)
Consumption of fatty foods	11 (13.7)
Consumption of spicy foods	5 (6.3)
Pregnancy at early age	2 (2.5)
Breast feeding	1 (1.25)

References:

1. American Cancer Society. Cancer statistics. CA: Am Cancer J Clin 2002; 52: 10-11.
2. Jatoi I. Screening clinical breast examinations. Surg Clin North Am. 2003 Aug; 83 (4): 789-801.
3. nystrom L. How effective is screening for breast cancer? BMJ 2000; 32:647-649.
4. Al-Abadi N. Factors influencing BSE practice among Jordanian nurses. Unpublished master's (thesis). Irbid (JO): Jordan U University of Science and Technology; 2001.
5. Gehrke AW (2000). Breast self-examination: A mixed message. J National cancer institute 2000; 92:1120-1121.
6. Larkin. M. Breast self examination does more harm than good, says task force, Lancet 2001; 357:2109-2110.
7. Judy E. Garber. Breast Cancer Screening: A Final Analysis? CA Cancer J Clin 2003; 53:138-140.
8. Levchin V, Fedichkina T, Droggachih V. The experience of breast cancer screening (abstract) Eur J Cancer 1998; 34: 95-96.
9. Studemire A, Rhoads JM. When the doctor needs a doctor: Special considerations for the physician - patient. Annals of Int Med 1983; 98:654-659.
10. Budden L. Registered nurses' breast self-examination practice and teaching to female clients. J Comm. Health Nur 1998; 15:101-112.
11. Haji-Mahmoodi M, Montazeri A, Jarvandi S, Ebrahimi M, Haghigat S, Harirchi F. Breast self-examination: knowledge, attitudes, and practice among female health care in Tehran, Iran. Breast 2002; 4:222-225.
12. Madan AK, Barden CB, Beech B, Fay K, Sintich M, Beech DJ. Socio-economic factors not ethnicity predict breast self-examination. Breast 2000; 6:20-26.
13. Scheier MF, Carver CS. Dispositional optimism and physical well being: the influence of generalized outcome expectancies. J Pers 1987; 55:169-210.

Table 4: Frequency and percentage distribution of performance of BSE steps

Breast self examination steps in nurses with regular BSE	Frequency (%) 52% (42 nurses)	Z Value	P Value
Examining breasts at end of menstrual period	37 (87.5%)	7.35	0.001
Look at breasts in mirror with arms at sides	16 (37.5%)	1.67	/
Look at breasts in mirror with arms raised over the head	15 (35%)	2.04	0.021
Look at breasts in mirror with hands on thighs	13 (41%)	2.66	0.016
When Looking at breasts in mirror, looking for swelling, dimpling of skin, or changes in nipple.	40.94%	12.01	0.001
Examine breast while lying down, place a towel or pillow under shoulder before examining breast on the side	21 (49%)	0.13	0.87
Use right hand to examine left breast and left hand to examine right breast	41 (97.5%)	19.72	0.001
Examine one breast at a time	42 (100%)	unknown	0.000
Examine breasts in a circular, clockwise motion moving from outside in.	36 (85%)	6.35	0.001
When examining breast, feel for lumps, hard knots, or thickening, Red or hot skin, orange peel skin, Dimpling or puckering, changes in nipple axis, itch or rash, especially in nipple area	36 (86%)	6.72	0.001
Squeeze the nipple of each breast to look for discharge, bloody or spontaneous discharge	27 (65%)	2.04	0.021

VAGINAL DELIVERY AND CESAREAN SECTION: COMPARATIVE STUDY OF PERSONAL CHARACTERISTICS

ABSTRACT

Introduction: The major duty of the physician and midwife is to identify a normal vaginal delivery from a complicated delivery, because when there is no reason for Cesarean Section, Vaginal Delivery (V/D) is safer than Cesarean Section (C/S).

Aims: (1) Identifying the reasons of C/S, and comparing personal characteristics in C/S and V/D groups according to Dystocia, in one of the non-educational hospitals connected to Iran University of Medical Sciences in the year 2000-2001. Data was finalized in. (2) Identify the reasons for cesarean section and compare the personal characteristics of client's with Vaginal Delivery and Cesarean Section in the public General Hospital of Karaj city.

Methodology: This is a case-control study (retrospective). In this research we compared data from 289 C/S case notes with 301 V/D case notes. These case notes were selected randomly from entire case notes of the only public general hospital of Karaj city, which is near to Tehran, capital of Iran, in the year 2000-2001. (Systematic sampling) The descriptive and inferential statistics (X², T test, and Mann-Withny) were used.

Results: In this study the main reason for C/S was Dystocia (58.1%). 7% of C/S did not have acceptable or clear reasons such as Tubectomy. There were significant differences between mothers' average of: gravidity ($P=0.043$), parity ($P=0.007$), abortion ($P=0.038$), and number of children ($P=0.005$).

Conclusions: Dystocia was more common in this study as a reason for C/S. The most cases were primigravida in young age. Due to performance of this study in one center a definite conclusion from this study is difficult. We recommend a multicenter study for more precise conclusions.

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Key Words: Cesarean Section, Vaginal Delivery, Personal Characteristics, Dystocia.

Introduction:

One of the special problems in obstetrics is extraordinary increase of the Cesarean Section (C/S) rate! (1) Some of the obstetricians increasingly worry that the fetus will die or be born with a severe handicap unless they intervene. In addition, less experience in operative vaginal delivery has been a side effect of this trend while on the other hand; the skill in performing C/S has possibly become better. Also C/S on demand was the other reason. In one of the private clinics in Brazil, 60-70% of all deliveries are by C/S. This indicates that the operation is no longer done for medical reasons, but instead has become commercialized on demand. (2) Weinstein et al (1996) said that C/S should be performed to protect the mother or the fetus. However there is increasing concern that C/Ss are being performed for maternal or fetal conditions that may not actually require operative delivery. (3), Therefore the major duty of physician and midwife is to identify a Normal vaginal delivery from complicated delivery. The four most frequent indications for Cesarean delivery are: repeat cesarean, Dystocia or failure to progress in labor, Breech presentation, and those performed out of concern for fetal well-being. (4) A report from a maternity hospital in Riyadh, Saudi

Arabia, documented a rise in the C/S rate from 3.9% in 1979 to 9.9% in 1984. (1) Saglamtas et al said the rate of C/S in Zekei Tahir Burak Women's hospital in Turkey was 7.5% between 1980 and 1985, and 16.5% between 1990 and 1992. (5) Weinstein et al said: in the US, C/S has become the most common surgical procedure with 24.7% of all births in 1998, and rising to about 30% in the early 1990s. (3) Cunningham et al said that Labor Dystocia is the most frequent indication for cesarean delivery in the United States. (4) Kambo et al had done a study in 30 medical colleges/teaching hospitals in India. They showed that the overall rate of C/S increased from 21.8% in 1993-1994 to 25.4% in 1998-1999, and among the 7,017 C/S cases, 42.4% were primigravidas and in 18% the surgery was elective. Major indications for cesarean section included Dystocia (37.5%) (6)

According to rises in C/S rates in Iran, and high rates of it in public general hospital of Karaj city (60%) we decided to identify the reasons of cesarean section and compare the personal characteristics of clients with Vaginal Delivery and Cesarean Section in the public General hospital of Karaj city.

Methodology: This is a case-control study (retrospective) and with the aims of identifying the reasons of C/S,

also comparing personal characteristics in C/S and V/D groups according to Dystocia, in one of the non-educational public hospitals connected to Iran University of Medical Sciences in the year 2000- 2001. A checklist with two main parts of personal characteristics and reason for C/S were used.

Duration of study: Data collection was in year 2000-2001, and had been finalized in 2002.

Place of study: The study was conducted in the only public general hospital of Karaj city, which is near to the capital of Iran.

Setting: According to other studies and using sample formula ($\alpha = 0.05$) the number of samples for each group was found to be 280. In this research by systematic sampling we selected case notes randomly from entire case notes of one of the non-educational public hospitals of Iran University of Medical Sciences, in the year 2000-2001. Due to the approximately 15000 cases, who were admitted in the maternity wards of the mentioned hospital for delivering of babies, during 2000-2001, we chose 20 as interval of case notes. For finding the real reason for C/S we excluded the group with the history of previous C/S. From 750 cases, 160 were excluded due to repeat C/S. In some of the cases in this research, multiple reasons were found for C/S, but only the first mentioned reason was indicated in this study. All patient data was extracted from medical records.

Analysis:

Descriptive (Means and standard division of variables) and inferential statistics (X², T test, and Mann-Whitney) were used by the SPSS program. P value of 0.05 was considered statistically significant.

Results:

590 cases were included (289 primary C/S versus 301 V/D). 58.1% of C/S had been performed for dystocia; 7% of C/S had been performed for no clear reason such as request of patients for doing tubal ligation; 6.3% for Post date. The reasons for C/S are shown in Table 1.

The lower C/S rate belongs to ages over 36 years old (6.3%), which

is more than V/D in the same age (2.7%). The highest C/S rate belongs to age group 21-25, which is close to control group (34.9%). Average age in the C/S group was 25.4 years (SD: ± 5.6), and in the V/D group were 25 years (SD 5.4). There were no significant differences between averages of age. (Table 2) The highest rate of C/S was in G1 (52.7%) and G2 (2.5%), and in the V/D was in G1 (40.5%) and G2 (25.6%). Average of G in C/S group was 2 ± 1.4 , and in V/D group was 2.2 ± 1.4 . There were significant differences between averages of Gravidity. (Table 3) There were significant differences between mothers' average of: parity, abortion, number of children and mothers' weight. (Table 4)

The lowest weeks of pregnancy in V/D was 22-28(2.9%), in C/S was 29-36 weeks (1.1%) and highest week was 41-43 in both groups (7.3% in V/D, 11.1% in C/S) There were no significant differences between weeks of pregnancy in the two, groups. (Mann-Whitney tests were used) According to babies' gender, rates of girls and boys were the same in V/D (50%), but in C/S rates of boys was 50.9%. There was no significant difference between two groups (X² test were used).

Discussion:

Due to the results of other studies, which showed that the main factor responsible for the increasing rate of C/S was previous C/S (5) (7)(8) in this study, because we wanted to control the effect of this variable; we collected our samples from groups without previous history of C/S. In this study the highest reasons for C/S was Dystocia, like other studies, but its rate in comparison with other studies is so high. 469 Cunningham et al said that Labor Dystocia is the most frequent indication for cesarean delivery in the United States. In 1990 rate of C/S was: in Norway 12.8% with 3.6% Dystocia, in Scotland 14.2% with 4% Dystocia, in Sweden 10.7% with 1.7% Dystocia, in Canada 20.3% with 4.5% Dystocia, and in United States 23.6% with 7.1% Dystocia. (4) Also according to the Kambo et al study, which was done in 30 medical

colleges/teaching hospitals in India, the overall rate of C/S increased from 21.8% in 1993-1994 to 25.4% in 1998-1999, and among the 7017 C/S cases, 42.4% were primigravidas, and in 18% the surgery was elective. Major indications for cesarean section included Dystocia (37.5%). (6) In Manitoba and Quebec of Canada the overall C/S rate increased from 18.0% in 1994-95 to 22.1% in 2000-01. The primary C/S rate increased from 12.7% to 16.3%. Most of the increase in primary C/S was due to increases for Dystocia, which increased from 6.9% in 1994-95 to 9.2% in 2000-01. (10)

In our study, rate of Dystocia was 58.1%, even more than Khawaja et al study in Pakistan (28.2%) (11) and Kambo et al study in India (37.5%)(6)

In our study rate of meconium aspiration was 4.9% and fetal distress rate was 2.8% of entire C/S which was less than the Kambo et al study, in which fetal distress with or without meconium aspiration rates, was 33.4%. (6) It was also less than the Khawaja et al study in Pakistan (22.18%). (10)

We found 7% of C/S did not have acceptable or clear reasons, such as Tubectomy, by demand. This indicates that the operation in some cases is no longer done for medical reasons like the study in Brazil. (2)

In our study there was significant difference due to Gravidity among two groups. Primigravida was more common among the C/S group. In contrast to other studies there was no significant difference according to age of mothers. (Table 2)(4) These results are confusing. We had three suggestions for them. (1) In this city Young mothers are more prone to Dystocia. (2) In some cases Dystocia was diagnosed incorrectly. (3) Due to fear of complication of Dystocia C/S were performed.

Conclusion:

Dystocia was more common in this study as a reason of C/S. The most cases were primigravida in young age. Due to performance of this study in one center, forming definite conclusions from this study, is difficult. We recommend a multicenter study for more precise conclusions.

Table 1: Reasons of C/S and its' Rates

Reasons	No.	%
Dystocia	166	58.1
Postdate	18	6.3
Meconium	14	4.9
Decreasing of Fetal movement	13	4.6
Previous history of infertility for long time	12	4.2
Fetal Distress	8	2.8
Abruption Placenta	6	2.1
Placenta previa	2	0.7
Others + No Clear reason	26+ 20= 46	16.2
TOTAL	285*	100

* In 4 case notes the reasons for C/S was not mentioned.

Table 2: Frequency of type of delivery according to age

Type of delivery	V		C/S	
Age	No.	%	No.	%
15-20	64	21.3	58	20.4
21-25	105	34.9	100	35.1
26-30	81	26.9	77	27.0
31-35	43	14.3	32	11.2
+36	8	2.7	18	6.3
Total	301	100	285*	100
X+_SD	25=_5.4		25.4+_5.6	
* Missing Data: 3 T test results: 0.92 (NS)				

Table 3: Frequency of type of delivery according to Gravidity

Type of delivery	V		C/S	
Gravidity	No.	%	No.	%
1	122	40.5	149	52.7
2	77	25.6	58	20.5
3	55	18.3	35	12.4
4	24	8.0	30	10.6
5	13	4.3	5	1.8
6	9	3.0	2	0.7
7	1	0.3	0	0
8	0	0	4	1.4
Total	301	100	283*	100
X+_SD	2.2+_1.3		2+_1.4	
* Missing Data: 6 T test results: 2.02 Significant (P: 0.043)				

Table 4: Variables and significant test results

Variable	Mean of C/S	SD of C/S	Mean of VD	SD of VD	Test Results
Gravidity	2	+ _1.4	2.2	+ _1.3	t= 2.02, P value=0.043
Parity	0.8	+ - 1.2	1.1	+ - 1.3	t= 2.70, P value= 0.007
Abortion	0.2	+ - 0.5	0.1	+ - 0.4	t=2.07, p value= 0.038
No. of children	0.8	+ - 1.2	1	+ - 1.2	t= 2.82, P value= 0.005
Mothers' weight (Kg)	71.6	+ - 11.3	66.2	+ - 10	t= 6.024, P values≤ 0.001

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References:

1. Shehata A I, Hashim T J, Decrease in perinatal mortality and increase in C/S rates, *International J. GY & OB.* 48. 1995. 261-267.
2. Bergsjö Per, The Cesarean Epidemic, *Proceeding book of the first Emirates International Congress on Perinatology*, 9- 12 Nov. Abu Dhabi, 1998.192-195.
3. Weinstein D, Et al, Vaginal birth after C/S current opinion, vaginal birth after C/S, *International J. GY & OB.* 53. 1996. 1-10.
4. Cunningham. F. Gary, Macdonald. Panl. C, Gant. Norman. F, Williams obstetrics, 20th edition, 1997. 509- 511, 513.
5. Saglamtas et al, Rupture of the uterus, *International J. of GY & OB* 49. 1995. 9-15.
6. Kambo I et al, A critical appraisal of cesarean section rates at teaching hospitals in India, *Int J Gynaecol Obstet.* 2002 Nov; 79(2):151-8.
7. Soltan MH et al, Sequel of repeats C/Ss, 52.1996. 127-132.
8. Murphy MC, Harvey SM. Choice of a childbirth method after cesarean. *Women Health.* 1989; 15 (2): 67-85.
9. Tampakoudis P et al, Cesarean section rates and indications in Greece: data from a 24-year period in a teaching hospital. *Clin Exp Obstet Gynecol.* 2004; 31(4): 289-92.
10. Liu S et al, Recent trends in caesarean delivery rates and indications for caesarean delivery in Canada. *J Obstet Gynaecol Can.* 2004 Aug; 26(8):735-42.
11. Khawaja NP, Yousaf T, Tayyeb R. Analysis of caesarean delivery at a tertiary care hospital in Pakistan. *J Obstet Gynaecol.* 2004 Feb; 24(2):139-41.

THE EFFECT OF DISCHARGE PLANNING ON PHYSICAL STATUS OF IRANIAN MOTHERS IN THE POSTPARTUM PERIOD

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Key words: Discharge Planning, Mothers, Physical Status, Postpartum Period.

ABSTRACT

Objective: To investigate the effect of discharge planning on the physical status of mothers.

Participants: One hundred and eighteen women (mean age =21.64 years) participated in this study. They were divided into control and experimental groups randomly. The inclusion criteria were primiparous, normal vaginal delivery, early discharge (during 24 hours), singleton pregnancy, and breastfeeding. The exclusion criteria were premature labour, abnormal neonate, lack of enthusiasm, and lack of accurate address.

Interventions: Discharge planning included mother face to face interview, training in hospital and following up by home visits 2-3 days after discharge, for physical examination and training. They were also visited at the end of the first, third, fourth, fifth, and sixth weeks, and followed up by telephone call at the end of the second week. Main outcome measures were demographic questionnaire (24 questions), and physical status check lists (26 questions).

Results: There were significant differences between the 2 groups in postpartum complications (Spontaneous perineal wound opening; $p=0.02$, abnormal perineum; $p=0.01$, abnormal lochia; $p=0.02$, abnormal vaginal bleeding $p=0.00$, constipation; $p=0.04$, anemia; $p=0.00$), and in performing post partum exercises ($p=0.00$), and using contraception methods($p=0.00$).

Conclusions: The findings suggest beneficial effects of performing discharge planning on reducing maternal complications in the postpartum period.

Introduction:

The postpartum period is an exciting, dynamic time in a woman's life, and the professional health care givers play an important role in promoting a smooth transition through this period. They can ensure quality postpartum care through a thorough and consistent approach to medical and psychological conditions. The postpartum period begins one hour after delivery of the placenta and generally lasts six weeks. The World Health Organization (WHO) points out that although there is no official definition, the traditional six-week duration is consistent with the 40-day period commonly observed in many countries.(1,2) Many mothers are exposed to the risk of sudden changes as well as early and late complications during the postpartum period. The complications include infection, depression, mastitis, urinary tract infection (UTI) and hemorrhage.(3)

Adequate protection for mothers and neonates by health professional health care givers could play an effective role in mothers and infants adaptation and prevents physiologic complications following delivery.(3)

Postpartum follow up by health professional health care givers has been recommended by the American National Association of Nurses in the framework of a written and precise discharge program for all mothers who are discharged during the first 48 hours after delivery. WHO also recommends a schedule of postpartum care for mother and child.(4) .The discharge planning program that was conducted was based on several reasons: First, it reduces mother complications in the postpartum period. Second, it causes maternal and neonatal rehospitalization rate reduction during the postpartum period. Third, it also reduces neonatal complications in the postpartum period.

This program is begun in hospital and is continued at home. It consists of the following:

1. A criterion to guarantee the discharge of only healthy people.
2. Mother's health care during pregnancy period.
3. Mother's participation in training classes at the first 24 hours following delivery.
4. Telephone calls and at least one visit at home.
5. Following the programs of third trimester of pregnancy, hospitalization in postpartum period, advice about warning signs, vaccination times and family planning. (4)

Iranian mothers have been discharged early (during 24 hours after delivery); however, they haven't been followed up by discharge programs. This survey has been conducted to indicate the effect of implementing programs regarding discharge planning that detect and control complications in women, and that might improve quality of life after giving birth.

Methods:

Participants included one hundred and eighteen women (mean of age =21.64y, SD=3.13) by presenting sampling. They were divided into control and experimental groups randomly, according to odd and even days of infants' birth. The inclusion criteria were primiparous, normal vaginal delivery, early discharge (during 24 hours), singleton pregnancy, breastfeeding, resident in Qom city, and Persian language. The exclusion criteria were premature labour, abnormal neonate, lack of enthusiasm and lack of accurate address for follow up.

Procedure: After the study was explained to interested mothers, written informed consent was obtained from volunteers.

Discharge planning included mother face to face interview, training in hospital and following up by home visits. They were visited at home 2-3 days after discharge during which physical examination was performed, and training needs of mothers were determined and recorded. Then, theoretical as well as practical training was conducted. They were also visited at the end of the first, third, fourth, fifth, and sixth weeks, and followed up by telephone call at the end of second week. Routine discharge was carried out for the control group (without any program).

Data was collected by demographic questionnaire - 24 questions (Attachment 1), and physical status check lists - 26 questions (Attachment 2). The demographic and obstetric questions were developed by researchers in Persian language and gathered information by interview about the program. To establish the reliability of questions, a random sub sample of 16 mothers were asked, and coefficient correlation calculated 80% by using a Chronbach and to establish the validity of questions, using a content validity method; evaluation of questionnaire by 10 faculty members of nursing and medicine schools that were experienced in obstetric or neonatal care.

Data were analyzed using descriptive and inferential statistics. Descriptive statistics were used for demographic data as well as to describe the sample. Analytic descriptive statistics including tables of relative frequency distribution and charts were used to compare the two groups. Groups were compared using parametric (Chi-square and T test) and non-parametric (Mann-Whitney test) statistics as appropriate. Differences were considered significant at $p = 0.05$ (Confidence Interval=95%).

Results:

All subjects were married and had normal vaginal delivery. As can be seen in Table 1, the average age of the total participants was 21.64 years ($SD=3.13$). There were no significant differences between the 2 groups in the following: age, occupation and education of mothers and their husbands, family income, housing condition. Table 2 shows history of mothers before delivery. As can be seen in Table 2, there were no significant differences between the 2 groups in, history of systemic diseases and abortion, being

supported, regular referral to prenatal care centers, use of iron and folic acid supplements, episiotomy and unwanted pregnancy rates and any other prenatal problems.

Table 3 presents mothers' physical condition during the postpartum period. Scores on some related items, showed significant decreases in the experimental group as compared to the control group ($P\text{-value}<0.05$). Furthermore there are significant differences in perineal complications, abnormal lochia (foul smelling), abnormal vaginal bleeding, constipation, performing post delivery exercises, anemia and using pregnancy prevention methods at week. (6)

However, in Table 3 no significant differences were observed in some other complications, such as abnormal nipple, nipple fissure, abnormal uterine size, dysuria, frequency and incontinence of urine, chronic fatigue and sleep disorders, and mothers' re-hospitalization rate at sixth week.

Discussion:

According to the results of this study, the incidence of anemia was less in the experimental group. There is a good agreement between our results and the results of the study of Mara and et al.(5) They recommend flat administration of iron to all women after spontaneous delivery for prevention of postpartum anemia. Postpartum substitution with iron should last at least three months because of long-lasting sideropenia. Bodnar and et al, showed the high prevalence of postpartum anemia among low-income women and this highlights the importance of anemia screening at 4 to 6 weeks postpartum.(6)

As table 3 shows, mothers are informed better about contraception methods and applied them more by implicating discharge program. Martinson and et al also indicated that without postnatal care, mothers have little information about contraception methods.(3) Blenning and Paladine's study showed that whether breastfeeding or not, postpartum women have unique contraceptive needs.(2) Although evidence suggests delay in resumption of ovulation in breastfeeding women, contraception should be addressed before the traditional six-week postpartum visit to prevent unintended closely spaced pregnancies. Breastfeeding

women also may use the lactational amenorrhoea method, alone or with other forms of contraception, for the first six months postpartum. For this method to be effective, the woman must be breastfeeding exclusively on demand, be amenorrhoeic (no vaginal bleeding after eight weeks postpartum), and have an infant younger than six months. The failure rate is less than 2 percent if these criteria are fulfilled.(7, 8, 9)

According to the results of this study foul smelling lochia (and probably puerperal infection), opening of the episiotomy, abnormal perineum and abnormal uterine size were seen less in mothers in the discharge program group. The study results support the results of the Gropp study.(10) He indicated that re-hospitalization of mothers due to puerperal infections and mastitis was less in mothers who had been followed up. Blenning and Paladine's study also showed that a structured approach to the postpartum visit ensures that relevant conditions and concerns are discussed and appropriately addressed. They showed common medical complications during this period included persistent postpartum bleeding, endometritis, urinary incontinence, and thyroid disorders.(2)

In this study, the training needs of mothers were determined and recorded individually, and then theoretical as well as practical training was conducted. Mac Arthur's study indicated that common and persistent maternal problems such as backache, perineal pain, urinary and bowel incontinence, sexual problems, hemorrhoids, depression, or exhaustion were not addressed by routine postpartum care programs, so it may be beneficial to base postpartum care on woman's individual needs rather than on routine, but this must be investigated in order to advise proper guidelines and distinguish the roles of various health professionals.(11) Walker and et al showed multidisciplinary, multi-sector committees, institutions and agencies have developed programs for appropriate discharge practice and improved postnatal follow-up.(12)

In general, in this study, a nurse-led discharge program in reducing postpartum complications was effective. The result of Martinson's study emphasized the significant role of nurses in planning and performing a discharge program which is useful for mothers after delivery.(3)

Table 1: Demographic criteria in 2 groups

Groups - Variables	Case N=59		Control N=59		Test	Significant Level
	Number	Percent	Number	Percent		
Mother's age (15-25yr)	50	84.75	53	89.83	T	0.7
Husband's age (19-29yr)	50	84.75	48	81.36	T	0.2
Mother's job (House wife)	56	94.9	57	96.6	X2	0.31
Husband's job (self-employment)	30	50.8	27	45.8	X2	0.8
Mother's education (high school education)	44	74.6	41	69.5	X2	0.86
Husband's education (high school education)	38	64.4	42	71.2	X2	0.42
Family income (200\$/month)	36	61	34	57.6	X2	0.65
Housing condition (tenant)	24	40.7	31	52.5	X2	0.35

Table 2: History of mothers before delivery in 2 groups.

Groups - Variables	Case N=59		Control N=59		Test	Significant Level
	Number	Percent	Number	Percent		
Systemic diseases	2	3.4	2	3.4	X2	1
Abortion	7	11.9	6	10.2	X2	0.37
To be supported	58	98.37	57	96.6	X2	0.55
Regular referral to prenatal care centers	55	93.2	53	89.8	X2	0.11
Use of iron & folic acid supplements	47	81.4	48	79.3	X2	0.55
Unwanted pregnancy	1	1.7	0	0	X2	0.31
Episiotomy	55	93.2	57	96.6	X2	0.67
Any other prenatal problems	8	13.6	9	15.3	X2	0.76

Table 3: Physical status of mothers in 2 groups.

Groups - Variables	Case N=59				Control N=59				test	Significant level
	+		-		+		-			
	number	percent	number	percent	number	percent	number	percent		
Nipple fissure	4	6.8	55	93.2	9	15.3	50	84.7	X2	0.23
Abnormal nipple	2	3.4	57	96.6	6	10.2	53	89.8	X2	0.27
Abnormal perineum	8	13.6	51	86.4	20	33.9	39	66.1	X2	0.01
Perineal wound opening	2	3.4	57	96.6	10	16.9	49	83.1	X2	0.02
Bad odor lochia	8	13.6	51	86.4	19	32.2	40	67.8	X2	0.027
Abnormal vaginal bleeding	8	13.6	51	86.4	26	44.1	33	55.9	X2	0.000
Abnormal uterus size	1	1.7	58	98.3	0	0	59	100	X2	1
Dysuria	3	5.1	56	94.9	5	8.5	54	91.5	X2	0.7
Frequency & incontinence of urine	0	0	59	100	1	1.7	58	98.3	X2	1
Constipation	3	5.1	56	94.9	11	18.6	48	81.4	X2	0.04
Chronic fatigue & sleep disorders	2	3.4	57	96.6	2	3.4	57	96.6	X2	1
Performing post delivery exercises	54	91.5	5	8.5	5	8.5	54	91.5	X2	0.00
Anemia	1	1.7	58	98.3	17	28.8	42	71.2	X2	0.00
Using contraceptive methods	48	81.4	11	18.6	22	37.3	37	62.7	X2	0.00
Rehospitalization	7	11.9	52	88.1	14	23.7	45	76.3	X2	0.1

Attachment 1: Demographic Questionnaire

1. First Name
2. Last name,
3. Mother's age
4. Husband's age
5. Mother's job
6. Husband's job
7. Husband's education
8. Family income
9. Housing condition (tenant,...)
10. Systemic diseases (hypertension, diabetes mellitus, infections convulsions, cardiovascular diseases, others)
11. Abortion
12. To be supported
13. Regular refer to prenatal care centers
14. Any other prenatal problems
15. Unwanted pregnancy
16. Episiotomy
17. Spontaneous rupture of perineum during delivery
18. Use of iron & folic acid supplements
19. Neonate's birth weight
20. Neonate's sexuality
21. Neonate's Apgar score (1 min)
22. Neonate's Apgar score (5 min)
23. Prenatal mother's weight
24. Neonatal nutrition (breast feeding)

Attachment 2: Physical status of mothers' Check List

1. Nipple fissure
2. Abnormal nipple
3. Abnormal perineum (redness, pain, infection)
4. Perineal wound opening
5. Bad odor lochia
6. Abnormal vaginal bleeding
7. Abnormal uterus size
8. Dysuria
9. Frequency
10. incontinence of urine
11. Gastrointestinal disturbances
12. Hemorrhoid
13. Constipation
14. Chronic fatigue & sleep disorders
15. Thrombophlebitis
16. Performing post delivery exercises
17. using nutrition principles
18. Using ferrous and folic acid tablets
19. Symptoms of anemia
20. Re-hospitalizations in treatment centers
21. Mother's weight at 6th week
22. Mother's systolic blood pressure at 6th week
23. Mother's diastolic blood pressure at 6th week
24. Mother's temperature at 6th week
25. Using contraceptive methods
26. What's the contraceptive methods

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References:

1. World Health Organization, Defining the postpartum period. In: Department of Reproductive Health and Research, World Health Organization. *Postpartum care of the mother and newborn: a practical guide.* (1998a), Accessed online July 29, 2005, at: http://www.who.int/reproductive-health/publications/msm_98_3/
2. Blenning CE, Paladine H. "An approach to the postpartum visit. ", *American Family Physician.* 2005; 15, 72 (12):2491-6.
3. Camacho Carr K. Home care of the new family. In: Martinson IM, Widmer AG, Portillo CJ. *Home health care nursing, Philadelphia (PA): WB Saunders; 2002. p. 209-229.*
4. World Health Organization, Care and service provision in the postpartum period. In: Department of Reproductive Health and Research, World Health Organization. *Postpartum care of the mother and newborn: a practical guide.* (1998b), Accessed online, July 29, 2005, at: http://www.who.int/reproductive-health/publications/msm_98_3/
5. Mara M, Zivny J, Eretova V, Kevasincka J, Kuzel D, Umlaufova A, Marova E. "Changes in markers of anemia and iron metabolism and how they are influenced by antianemic in postpartum period." *Acta Obstetric and Gynecology Scan.* 2001; 80(2): 142-8.
6. Bonader LM, Scanlon KS, Freedman DS, Siega-Riz AM, Cogswell ME. "High prevalence of postpartum anemia among low-income women in the United States. ", *Am J Obstetric & Gynecology.* 2001; 185(2):438-43.
7. Campbell OM, Gray RH. "Characteristics and determinants of postpartum ovarian function in women in the United States.", *Am J Obstetric & Gynecology.* 1993; 169:55-60.
8. Kennedy KI, Visness CM. "Contraceptive efficacy of lactational amenorrhea.", *Lancet.* 1992; 339:227-30.
9. World Health Organization, Task Force on Methods for the Natural Regulation of Fertility. *The World Health Organization multinational study of breast-feeding and lactational amenorrhea. III. Pregnancy during breast-feeding. Fertil Steril.* 1999; 72:431-40.
10. Gropp Phelan J, Taylor JA, Daris RL. "Early newborn hospital discharge after delivery: A comment on cost-effectiveness.", *Arch. Pediatrics Adol. Me.* 1999; 153.
11. Mac Arthur C. "What does postnatal care do for woman's health?", *Lancet.* 1999; 30, 353(9150): 343-4.
12. Walker CR, Watters N, Nadon C, Graham K, Niday P. "Discharge of mothers and babies from hospital after birth of a healthy full-term infant: developing criteria through a community-wide consensus process." *Can J Public Health.* 1999; 90(5): 313-5.

DEVELOPMENT OF PROFESSIONAL MIDWIFERY SKILLS: ACQUISITION, TRAINING AND ASSESSMENT

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Introduction:

The provision of skilled care for pregnant mothers during their pregnancy, delivery and post partum period as well as for the newborn infant, stands as the most important move towards reduction of maternal and infant mortality rates (1). Training of local women to become midwives is a cost effective approach to the provision of such skilled attendant care. In planning for such a midwifery education program that allows them to work in the field as well as in the clinic, one must review the educational approaches that can be used in such a program in view of the local health needs, and the available resources of the university and the country.

Educational View:

Professional skills development for health care providers involves the development of good communication and physical examination skills, the ability to solve problems and make decisions, and competence in practical procedures. The educational approach to any curriculum is determined by the educational philosophy behind it. At least three major educational philosophies are determining three common educational approaches: The behaviorist, the cognitive and the constructivist approach (2). The behaviorist approach is based on the stimulus response principle (S-R), and considers learning as a change in behavior, gives the teacher the main responsibilities in the learning process, and relies on psychomotor tests to assess the achievement of the behavioral outcomes. Both the cognitive (structure of the discipline) and constructivist approach considers learning as development of the mind, and gives learners the main responsibility in learning. In

the cognitive approach, learning is based on providing the students with the fundamental principles of the discipline, and then the students build on these principles through the process of inquiry according to the scientific methods the scholars follow. While in the constructivist approach, students learn, through authentic tasks, problem solving and social experience. These educational approaches were extensively tested in practical situations and through research in learning of factual knowledge. Learner centered models have gained wide popularity and were adopted by many medical educational institutes in the learning of factual knowledge. However, there has not been a similar shift in the methodologies behind teaching and learning of clinical skills, except the published Evans-Brown model "A constructivist model for learning clinical skills" (3). Although this model seems tempting, rewarding and worth trial for medical students, yet, in a training program like the 'midwifery local project', where the participants are women from the local community, and the program is mainly vocational, A Competency Based educational program based on the behavioral assumptions in skills training but meanwhile utilizing the constructivist approach to facilitate the development of problem solving skills and decision making through the use of authentic tasks seems the most appropriate for achieving the goal of the project. Competency Based Training (CBT), is the training based upon achieving the participant's ability to demonstrate attainment or mastery of clinical skills performed under certain conditions to specific standards (The skills then become competencies). (4)

Competency based training programs are characterized by the following (5):

1. Competencies are carefully selected
2. Supporting theory is integrated with skill practice.
3. Detailed training materials are keyed to the competencies to be achieved and designed to support acquisition of knowledge and skills.
4. Methods of instruction involve mastery learning.
5. Learning should be self-paced
6. Flexible training approaches using variety of methods.
7. A variety of support materials including print, audiovisual and simulations (models) keyed to skills being mastered.
8. Satisfactory completion of training is based on achievement of all specified competencies.
9. Assessment of achievement is done by psychometric tests using checklists.

In order to achieve competency in performing clinical skills and procedures, it is now agreed upon that the students or trainees need to practice such skills in a safe and controlled environment. The classical apprenticeship model with learners' training done exclusively during clerkships on patients is not considered any more the proper environment for achieving competency in clinical skills. The patient's acceptance of being a passive, uninformed participant in medical education- a situation which was present in the past- no longer exists. There are global changes in health care practice, increased consumerism and increasing student numbers. This together with the increasing identification of core skill curricula and outcome objectives which mandates mastering of the skills and assessment of achievement of competency, makes the need for clinical skills centers, and the

use of models and simulators, appear particularly attractive (6,7). Furthermore, models and simulators are used extensively in CBT Courses (4). However, it is to be borne in mind also, that although clinical skills centers offer a panacea for clinical skills teaching, yet, it is important to consider the cultural aspects of the medical education which should differ from country to country. Medical education systems in some of the developing countries try to adopt not to adapt western curricula and teaching and learning methods, and because of this may fail to meet the needs of the individual health care systems and cultural norms. Furthermore, it is not appropriate to transfer the model wholesale to medical and health care schools in the developing countries. The capital cost of setting up a clinical skills center may be far in excess of the local budget. Even if the problem is overcome by outside funding, several obstacles still exist. These include:

1. The purchase of the equipment and manikins requires foreign currency
2. Long delivery time for replacement parts.
3. Local unavailability of the consumable supplies
4. Culturally unacceptable equipment

Once set up and equipped, the maintenance and running costs may prove prohibitive in the long term (7)

Accordingly, to establish the Midwifery educational program in rural areas, on a competency based approach, we must think of an alternative way that enables the participants to practice the core clinical skills till they achieve the required competencies in a safe and controlled environment without the need of a full clinical skills training center, in a way that does not overwhelm the restricted resources of the country, while being culturally acceptable, easy to maintain and to be run. The modified model suggested by Stark & Fortune (7) is a good option. Key manikins only will be purchased. Those include: simple child birth model (pelvis and infant dummy can suffice), a pelvis model for examination and IUD insertion, and a neonatal resuscitation model (face and mask resuscitation). In time, some

locally developed manikins can also be produced similar to the experience we had in Iraq, where the undergraduates' students have fabricated from cheap locally available pieces of sponge and cloth, a model for suturing a perineal tear. Other clinical skills will be practiced in the MOH primary health care centers, the university outpatient department and delivery ward. To ensure equitable training, standardized teaching and feedback, methods can be applied through the establishment of competency based training tools including learning guides and checklists. Widespread staff development in the clinical teaching areas is an essential part and this will be the main task of the enthusiastic educators who have been selected to run the various parts of the curriculum. Assessment will be based on psychomotor tests were participants will be asked to perform the clinical skills while being observed by a tutor who fills a standardized checklist. For assessment of complex skills of problem solving and decision-making, objective written exams with problems (real or structured) will be administered.

Curriculum Blue Print:

A Competency - Based Midwifery Training Program for local women in Rural areas.

Goal:

The aim of this program is to provide the chosen women with the knowledge, skills and attitudes that enables them to carry the tasks of midwifery services including caring of women during pregnancy, delivery, initial care of the neonates after birth, helping the mother and child to establish and sustain breast feeding, as well as identifying life threatening and emergency conditions, with proper initial management and referral to specialized health facilities.

Objectives:

By the end of the program the participants will acquire the following knowledge, skills & attitudes:

1. **Communication skills:** The participants will be able to communicate with the mothers and their families and counsel them on a culturally accepted method and

using a simple understandable language to provide health information about pregnancy, delivery, child nursing, common STDs, as well as family planning.

2. **History taking skills:** This includes all relevant data about the present and past pregnancies, children's conditions, socioeconomic status, medical diseases and conditions that might affect the pregnancy or delivery.
3. **Physical examination skills:** Assessment of vital signs, diagnosis of pregnancy, assessment of fetal position, diagnosis of stages of labor, detection of high risk pregnancies, diagnosis of common complications, assessment of new born at birth, diagnosis of common breast feeding problems.
4. **Practical skills:** Management of normal delivery, performing and suturing of episiotomy, and repair of simple perineal tear, provision of emergency first line measures for pregnancy and delivery complications, stabilization of patients for referral, neonatal resuscitation, assisting mother and baby for breast feeding, insertion of IUD, use of hygienic and antiseptic measures.
5. **Attitudes:** Support of mothers and families during stressful situations related to pregnancy and delivery, adoption of ethical rules when facing conflicting/ethical dilemmas, insuring privacy of patients' information.
6. **Problem solving and decision making:** Interpretation of data of patients' history, physical examination to reach a diagnosis, ability to differentiate uncomplicated from complicated pregnancy and labor, with proper decision-making about when to refer, and what must be done before referral.

Instructional strategies:

The program is aiming at achieving competence in the selected midwifery skills, and is based mainly on the behavioral perspective, and uses techniques of mastery learning approach whenever possible. Theory will be integrated as introductory mini lectures with various illustrations to explain the basis, and the steps of performing

the skills. Development of intellectual skills will be facilitated through small group problem solving sessions, using real or structured problems.

For the development of clinical skills the participants will be given enough chances to practice the skills after initial demonstration, till they achieve competency. A variety of instructions will be used including role plays, demonstrations using AV aids, and tutor performance, repeated practice with feedback on available models for management of stages of labor, pelvic examination and neonatal resuscitation. The remaining skills will be observed then practiced on real patients, under close supervision of trained clinical tutors.

Venue:

The training program will be conducted in the following areas;

1. Mini lectures and small group discussions, role-play: Class rooms of area schools of medicine.
2. Physical examination and practical skills training:
3. Class rooms of School of Medicine for communication skills and role play in small groups, Class rooms and/or available rooms teaching in clinical areas of the school of medicine for training on models (pelvic examination, child birth, neonatal resuscitation, and IUD insertion, manikins/models)

4. Primary health care centers (MCH, Family health care centers of MOH) for observation, then practice with real patients for antenatal care, delivery of uncomplicated pregnancies, episiotomy and suturing)
5. Delivery suite of Medical school for observation and practice on initial management of complicated/emergency deliveries)
6. Home visits (field work) for postnatal care and breast-feeding assistance, counseling, health education, for STD and family planning.

Participants assessment:

Formative assessment:

Regular feedback by tutors on performance of clinical and practical skills using learning guides.

Summative assessment:

1. Objective structured clinical tests using structured and real patients, and models. Assessment is based on standardized clinical checklists.
2. Objective written exams (MCQ, true false, extended matching questions and problem solving questions) will be used to assess reasoning and decision making skills.
3. Participants who fail to achieve the required skills up to the defined standards will be offered a remedial course.

References:

1. A joint statement by WHO, ICM and FIGO. Making pregnancy safer: the critical role of the skilled attendant. World Health Organization 2004:1-24
2. Posner GJ: Concepts of curriculum and purposes of curriculum study. In: Posner GJ (Ed). *Analyzing the Curriculum*. (3rd ed) NY: McGraw Hill, 2004: 2-32.
3. Evan D. A constructivist model for learning clinical skills. Master Thesis MHPE: 2005. Universiteit Maastricht.
4. Sullivan R. The competency -based Approach to Training. JHPIEGO Strategy Paper 1995: 1-10.
5. Foyester J. Setting to grips with competency based Training and Assessment. TAFE National Centre for Research and Development. Leabrook, Australia; 1990.
6. Bradley P, Postlethwaite. Setting up clinical skills facility. *Medical Education* 2003; 37(S1): 6-12.
7. Stark P, Fortune F. Teaching clinical skills in developing countries: Are clinical skills centers the answer? *Education for Health* 2003; 16(3): 298-306.

THE EFFICACY OF METHOD OF SCRUBBING OF OPERATIVE SITE ON POST-OPERATIVE WOUND INFECTION

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Key words: scrubbing, wound, antiseptics, infection.

ABSTRACT

Objective: to evaluate the efficacy of a method where the antiseptic was merely painted on to the operation site without scrubbing it.

Patients and methods: 68 patients undergoing elective and emergency operations in a single surgical unit have been included in this study. Patients were randomized into two groups:

Group A: wherein skin preparation is done by traditional methods, i.e.; scrubbing the site for a full ten minutes with a solution containing 0.75% chlorhexidine and 1.5% cetrimide followed by wiping the area dry and the application of 1% iodine in 70% spirit.

Group B: in which the site was prepared by painting the same antiseptics, which were allowed to remain for about two to three minutes before being wiped off. This was followed by the application of 1% iodine in 70% spirit.

Results: The mean age and sex distribution of patients was not significantly different between the two groups and when compared to the total. Out of 68, forty-six patients had a clean procedure, 11 underwent clean contaminated procedures and in 11, the procedures were for frankly contaminated conditions. The proportion of the type of procedures was not significantly different between the two groups. There were a total of 7 patients who showed evidence of post-operative wound infection (8%). Of these, 4 belonged to group A (8.82%) and 3 to group B (7.42%). The overall infection rate in the two groups when compared was not significantly different. Therefore, the proportion of different procedures getting infected in the two groups was not significantly different.

Conclusion: Simple painting of the operation site is as effective as the old traditional ritual of scrubbing for ten minutes.

Introduction:

Mechanical skin preparation is a daily nursing procedure in general surgery. (1) Bathing or showering cleans the skin by mechanical removal of bacteria shed on corneocytes. Bacterial counts are at least as high or higher after bathing or showering with a regular soap than before. Frequent bathing has aesthetic and stress-relieving benefits but serves little microbiologic purpose. Mild, non-antimicrobial soap should suffice for routine bathing. Bathing with an antimicrobial product reduces rates of cutaneous infection and could be beneficial when skin infections are likely or before certain surgical procedures.(2)

The trend toward more frequent washing with detergents, soaps, and antimicrobial ingredients needs careful reassessment in light of the damage done to skin and resultant increased risk for harboring and transmitting infectious agents. More washing and scrubbing are unlikely to be better and may in fact be worse. The goal should be to identify skin hygiene practices that provide adequate protection from transmission of infecting agents while minimizing the risk for changing the ecology and health of the skin and increasing resistance in the skin flora. (3)

The traditional method of pre-operative skin preparation generally consists of scrubbing the part vigorously for seven to ten minutes with a solution containing an antiseptic detergent, the excess detergent being removed by a dry swab. This is followed by the application of an alcohol-based antiseptic. It is quite possible to achieve satisfactory reductions in the number of skin organisms by merely painting an antiseptic on to the operation site and allowing it to act for a short time.

In this prospective randomized study, we evaluate the efficacy of a method where the antiseptic was merely painted on to the operation site without scrubbing it.

Materials and methods:

The sample of this prospective study was carried out in Queen Alia hospital. All patients undergoing elective and emergency operations in a single surgical unit have been included in this study.

Anorectal operations, abscesses and day care procedures were excluded from the study. All the patients for elective surgery were admitted a day prior to surgery. Hair removal was done on the night before surgery by shaving. Patients had a bath with no medicated soap and water on the morning of the operation and were issued freshly laundered clothes.

They were then randomized into two groups:

- 1. Group A:** wherein skin preparation done by traditional method, i.e.; scrubbing the site for full ten minutes with a solution containing 0.75% chlorhexidine and 1.5% cetrimide followed by wiping the area dry and application of 1% iodine in 70% spirit.
- 2. Group B:** in which the site was prepared by painting the same antiseptics, which were allowed to remain for about two to three minutes before being wiped off. This was followed by the application of 1% iodine in 70% spirit.

The antibiotic policy in both groups was identical i.e. no antibiotics in clean cases, three dose peri-operative antibiotics for clean contaminated cases and antibiotics for three to five days in frankly contaminated and dirty cases. All patients who underwent a clean procedure and did not need intravenous fluids and those not having a drain were discharged the next day to be followed up in the out-patient department to check dressings. Those patients needing hospitalization had to check dressing done on the third day. All wounds were checked for any evidence of infection and discharge, which was cultured. Wound infection was defined as wound showing

redness or swelling of surrounding area or had a discharge irrespective of whether any organisms were grown in the discharge. Specific antibiotic therapy was instituted in patients who showed evidence of infection.

Results:

A total of 68 patients were included in the study (52 males and 16 females). Patients were equally randomized to group A (scrub group) and group B (paint group) and each group consisted of 34 patients.

The mean age and sex distribution of patients was not significantly different between the two groups and when compared to the total.

Out of 68, forty-six patients had a clean procedure, 11 underwent clean contaminated procedures and in 11, the procedures were for frankly contaminated conditions. The proportion of the type of procedures was not significantly different between the two groups.

There were a total of 7 patients who showed evidence of post-operative wound infection (8%). Of these, 4 belonged to group A (8.82%) and 3 to group B (7.42%). The overall infection rate in the two groups when compared was not significantly different. Of 4 patients in group A were infected, one had clean procedures, 2 clean contaminated, and one frankly contaminated procedure. Of 3 incidences of infections in group B, one followed clean procedures, one followed a clean contaminated procedure and one followed frankly contaminated procedures.

Therefore, the proportion of different procedures getting infected in the two groups was not significantly different.

Discussion:

The current concepts of preparation of the patient's skin and surgeons' hands are based on the pioneering work done by Lister and others in the middle of the last century. However, in 1961, Lowbury (4) stated "Although skin disinfection has been the subject of interest and research over hundred years, there is no generally accepted procedure for use either at the operation site or in the hands

of surgeons and nurses. Moreover, many discrepancies in the evaluation of individual antiseptics have been due to the differences and deficiencies in the techniques of testing."

Extensive studies of showering and bathing conducted since the 1960s demonstrated that these activities increase dispersal of skin bacteria into the air and ambient environment (5-7), probably through breaking up and spreading of microcolonies on the skin surface and resultant contamination of surrounding squamous cells. These studies prompted a change in practice among surgical personnel, who are now generally discouraged from showering immediately before entering the operating room. Other investigators have shown that the skin microflora varies between persons but is remarkably consistent for each person over time. Even without bathing for many days, the flora remains qualitatively and quantitatively stable. (8-10)

In 11 studies reviewed by Keswick et al. (11), use of antimicrobial soaps was associated with substantial reductions in rates of superficial cutaneous infections. Another 15 experimental studies demonstrated a reduction in bacteria on the skin with use of antimicrobial soaps, but none assessed rates of infection as an outcome.

It has been shown that the mere application of an antiseptic on the operation site will cause a 99% reduction in the colony counts of organisms on the skin and that this reduction persists for two hours or more (12). Dineen (13) has shown that a five minute scrub is as effective as a ten minute one in effectively reducing the number of microorganisms on the hands. However, in a survey of 113 hospitals in the United Kingdom it is seen that the time for antiseptic application varied from between less than one minute to more than ten minutes (14). It is difficult to opine as to the optimal contact time needed to get a relatively germ free operation site.

For surgical or other high-risk patients, showering with antiseptic agents has been tested for its effect on postoperative wound infection rates. Such agents, unlike plain

soaps, reduce microbial counts on the skin (15-17). In some studies, antiseptic preoperative showers or baths have been associated with reduced postoperative infection rates, but in others, no differences were observed (18-20). Whole-body washing with chlorhexidine-containing detergent has been shown to reduce infections among neonates (21), but concerns about absorption and safety preclude this as a routine practice. Several studies have demonstrated substantial reductions in rates of acquisition of methicillin-resistant *Staphylococcus aureus* in surgical patients bathed with a triclosan-containing product (22,23). Hence, preoperative showering or bathing with an antiseptic may be justifiable in selected patient populations.

It is generally believed that control of all variables in a clinical setting is difficult in attempts to assess relative efficacy of methods of skin degerming. However, in our trial, the two groups were uniform with regards to the age, sex and the type of procedures performed. The overall infection rate and the proportion of different procedures showing post-operative infections were similar in the two groups. As a matter of fact, the organisms grown in the discharge in patients undergoing clean contaminated and frankly contaminated procedures showed Gram negative organisms which had earlier been isolated in bile or the peritoneal fluid and the wound infection in these patients was probably as a result of contamination during surgery. The cause of post-operative wound infection in clean procedures (2 in this study) was due to infection in subcutaneous haematomas. We have been unable to prove that the old traditional method of scrubbing vigorously for long periods has any advantage over a more simplified method of simply applying antiseptic on the operation site.

Conclusion:

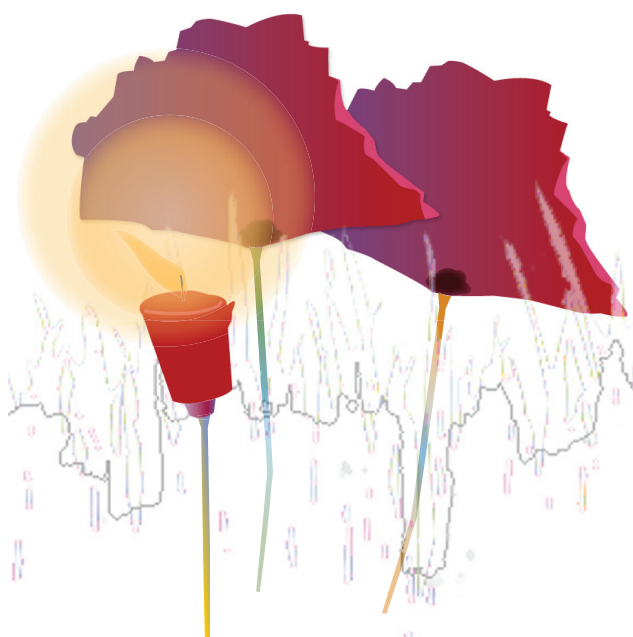
Simple painting of the operation site is as effective as the old traditional ritual of scrubbing for ten minutes.

The old method of prolonged scrubbing the operation site can safely be omitted to a more simplified version.

References:

1. Duron JJ, Holzheimer RG. Preoperative skin preparation in abdominal surgery. *J Chir (Paris)*. 1998; 135(5):207-11.
2. Larson E. A causal link between hand washing and risk of infection? Examination of the evidence. *Infect Control Hosp Epidemiol* 1988;9:28-36.
3. Meers PD, Yeo GA. Shedding of bacteria and skin squames after handwashing. *J Hyg (Camb)* 1978;81:99-105.
4. Lowbury EJJ. Skin disinfection. *J Clin Pathol* 1961; 14:85-90.
5. Speers R, Bernard H, O'Grady F, Shooter RA. Increased dispersal of skin bacteria into the air after shower-baths. *Lancet* 1965;1:478-83.
6. Hall GS, Mackintosh CA, Hoffman PN. The dispersal of bacteria and skin scales from the body after showering and after application of a skin lotion. *J Hyg (Camb)* 1986;97:289-98.
7. Ulrich JA. Dynamics of bacterial skin populations. In: Maibach HI, Hildick-Smith G, editors. *Skin bacteria and their role in infection*. New York: McGraw-Hill; 1965. p. 219-34.
8. Evans CA. Persistent individual differences in the bacterial flora of the skin of the forehead: numbers of propionibacteria. *J Invest Dermatol* 1975;64:42-6.
9. Leyden JJ, McGinley KJ, Nordstrom KM, Webster GF. Skin microflora. *J Invest Dermatol* 1987;88:65s-72.
10. Hartmann AA. Daily bath and its effect on the normal human skin flora quantitative: and qualitative investigations of the aerobic skin flora. *Arch Dermatol Res* 1979;265:153-64.
11. Keswick BH, Berge CA, Bartolo RG, Watson DD. Antimicrobial soaps: their role in personal hygiene. In: Aly R, Beutner KR, Maibach H, editors. *Cutaneous infection and therapy*. New York: Marcel Dekker, Inc.; 1997. p. 49-82.
12. Davis J, Babb JR, Ayliffe GAJ, Wilkins MD. Disinfection of the skin of the abdomen. *Brit J Surg* 1978; 65:855-858.
13. Dineen P. An evaluation of the duration of the surgical scrub. *Surg Gynaecol Obstet* 1969; 129:1181-1184.
14. Graham GP, Dent CM, Fairdough JA. Preparation of skin for surgery. *J Royal Coll Surg (Edin)* 1991; 36:264-266.
15. Paulson DS. Efficacy evaluation of a 4% chlorhexidine gluconate as a full-body shower wash. *Am J Infect Control* 1993;21:205-9.
16. Kaiser AB, Kernodle DS, Barg NL, Petracek MR. Influence of preoperative showers on staphylococcal skin colonization: a comparative trial of antiseptic skin cleansers. *Ann Thorac Surg* 1988;45:35-8.
17. Byrne DJ, Napier A, Cuschieri A. Rationalizing whole body disinfection. *J Hosp Infect* 1990;15:183-7.
18. Mackenzie I. Preoperative skin preparation and surgical outcome. *J Hosp Infect* 1988;11(Suppl B):27-32.
19. Rotter ML, Larsen SO, Cooke EM, Dankert J, Daschner F, Greco D, et al. A comparison of the effects of preoperative whole-body bathing with detergent alone and with detergent containing chlorhexidine gluconate on the frequency of wound infections after clean surgery. *J Hosp Infect* 1988;11:310-20.
20. Ayliffe GAJ, Noy MF, Babb JR, Davies JG, Jackson J. A comparison of pre-operative bathing with chlorhexidine-detergent and non-medicated soap in the prevention of wound infection. *J Hosp Infect* 1983;4:237-44.
21. Meberg A, Schoyen R. Bacterial colonization and neonatal infections. Effects of skin and umbilical disinfection in the nursery. *Acta Paediatr Scand* 1985;74:366-71.
22. Tuffnell DJ, Croton RS, Hemingway DM, Hartley MN, Wake PN, Garvey RJ. Methicillin resistant *Staphylococcus aureus*; the role of antiseptics in the control of an outbreak. *J Hosp Infect* 1987;10:255-9.
22. Bartzokas CA, Paton JH, Gibson MF, Graham F, McLoughlin GA, Croton RS. Control and eradication of methicillin-resistant *Staphylococcus aureus* on a surgical unit. *N Engl J Med* 1984;311:1422-5.

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