

Perception toward Non-Pharmacological Strategies in Relieving Labor Pain: An Analytical Descriptive Study

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Abstract

The study was conducted to determine the perception, actual practices and perceived barriers among health-care providers regarding non-pharmacological pain relief during labor as well as explore women's opinion towards their labor pain management experience. This was a cross sectional study of 88 health-care providers such as doctors, registered nurses and interns and 400 healthy puerperal women who experienced uncomplicated normal deliveries performed at Abha Maternity Hospital between December 2012 and April 2013. Data were collected using self-administered structured questionnaires and each participant was invited to share his/her experiences in a one-to-one interview format. Analysis of data obtained showed that participants on most of the pain relief methods samples reported that they knew of different types of non-pharmacological pain relief methods and expressed their agreement toward their different benefits. On the other hand, lack of time, regulatory issues, lack of knowledge, patient unwillingness and strong beliefs in analgesia were recorded as the highest barrier percentage, while women who went through childbirth reported moderate levels of satisfaction regarding their birth experience. Role and benefits of non-pharmacologic methods of pain relief during labor cannot be ignored. There are many barriers preventing non-pharmacological pain therapies from being used related to hospital regulations and policies. In addition, most women denoted that they were able to cope with labor pain through non-pharmacological management.

Keywords: non-pharmacological strategies, barriers, benefits, perception, health-care providers, labor pain, puerperal women

1. Introduction

Pain during labor is a physiological phenomenon. The evolution of pain during the first stage of labor is associated with ischemia of the uterus during contractions. In the second stage, pain is caused by the stretching of the vagina and perineum and compression of pelvic structures (Ralph, Yarnell & John, 2004). However, pain sensation is a response of the total personality to the birthing experience and is therefore a subjective phenomenon. Labor is not a permanent practice and pain relief in childbirth is subject to many social and cultural modifiers which are continuously changing. Today both modalities are available. In the former, the main emphasis of pharmacological methods is largely on the elimination of the physical sensation of labor pain; whereas in the latter, the non-pharmacological methods, the emphasis is largely on preventing suffering (Hodnett 2002). Narcotics and sedatives may be used during the first stage of labor to help the mother relax, while regional anesthesia lessens or completely blocks the pain in a specific area of the body (Paech et al. 2002). With either narcotic pain relief or regional anesthesia, the mother can stay awake and play an active role in the birth. Besides conventional approaches, many complementary or alternative methods have been used effectively; these methods emphasize the interaction between mind, body and environment (Leeman et al. 2003). In addition, positioning a woman in labor and providing her with support from a doula (i.e. doula is a nurse who provides continuous support to the laboring woman throughout the stages of labor, similar to a mid-wife) is considered an important part of natural pain relief methods (Tournaire & Theau-Yonneau 2007). In order to provide the best pain management available and obtain the best outcomes, nurses need to be able to combine non-pharmacological pain management as a complementary therapy. Many physicians believe that the main determinant of maternal satisfaction with childbirth is major pain relief during labor and invariably, pharmacological pain relief is resorted to as the only method known to us. Lack of emotional support and excessive medical intervention regarding parturient women care are factors that may be related to increased intensity of pain (Zwelling, Johnson & Allen 2006). The most important factor associated with increased maternal satisfaction was the degree of participation in decision-making among health-care providers during labor (Hodnett 2002). Therefore, health-care providers' attitudes and knowledge of non-pharmacological pain management therapies need to be assessed. At the same time, considering women's perceptions towards their birth experience provides health-care providers with directions to assist women in having empowered birth experiences.

2. Materials and methods

2.1 Study population

A cross sectional study conducted at Abha Maternity Hospital in Abha, Saudi Arabia from December 2012 to April 2013 using self-administered structured questionnaires developed by the researchers to determine the perception, actual practices and barriers among health-care providers regarding non-pharmacological pain relief during labor. In addition, delivered women were interviewed in the postpartum unit. They were asked to rank their satisfaction level and clarify the extent they perceived non-pharmacological pain relief management. The study population consisted of a total sample of 88 health-care providers known as doctors, registered nurses and interns along with a total sample of 400 delivered women. An approval was taken from the King Khalid University's Ethical Committee (REC # 2012-12-06) and the previously mentioned hospital to conduct the study. An informed written consent was secured from the participant.

2.2 Questionnaire interview

Data were collected using a self-administered structured questionnaire which involved two major parts. The first part was designed to examine health-care providers' perception related to non-pharmacological pain relief methods while the second part assessed women's birth experiences. The first part was divided into four main sections: the first section includes demographic data, the second section includes four main categories of non-pharmacological pain relief, the third section of the questionnaire reflects the health-care provider's opinion towards the benefits of non-pharmacological pain relief methods and finally, the fourth section of the questionnaire examines the subjects' opinions regarding barriers for using non-pharmacological pain relief methods using the four point likert scale (agree, strongly agree, disagree, strongly disagree).

2.3 Data collection procedure

All health-care providers were invited to share their experiences in a one-to-one interview format and were interviewed once in addition to the delivered women. A pilot study of ten intern nurses and forty delivered women was conducted during a two week period in order to examine the clarity of the questionnaire. The reliability coefficient was calculated and revealed Cronbach's alpha for the first part of the questionnaire = 0.82 and 77.0 for the second part of the questionnaire indicating good internal consistency. This study is grounded by the goal attainment theory which was developed by Imogene King in the early 1960s.

2.4 Statistical analysis

Data were coded, validated and analyzed using the Statistical Package for Social Sciences (SPSS). Frequency, percentage, arithmetic mean for describing the central tendency of observation for each variable studied and standard deviation for the measure of dispersion of results around the mean were used to present the data. Values of $P \leq 0.05$ were considered to indicate significant differences.

3. Results

A total of 88 health-care providers known as doctors, registered nurses and interns along with 400 delivered women were included in the present study.

3.1 Demographic characteristics

Table 1 shows demographic data as well as other characteristics of the study samples. The age of the 88 health-care providers ranged between 20 to 50 years of age with a mean age of 27.17 ± 8.66 years, 67 of which were aged between 20 and 30 years of age (76.1%). Staff ranks come in all medical categories and 40 are intern nurses (45.5%). The health-care providers' experience in the field amounted to over 15 years and about 60 subjects had a five-year-working experience (68.2%). As for the 400 delivered women, the mean age was 28.08 ± 5.68 years. The highest level of education recorded is university level in 160 (40.0%) cases. Three hundred thirty three respondents reported to having less than 5 children born to them (83.0%).

Table 1. Demographic characteristics of the study

Health-care providers characteristics			n=88
Age Range	No.	%	
20-30	67	76.1	
31-40	15	17.2	
41-50	2	2.2	
50+	4	4.5	
Age	Mean 27.17	±8.66 SD	
Staff categories			
Doctor	11	12.5	
Head nurse	4	37.5	
Staff nurse	33	4.5	
Intern nurse	40	45.5	
Years of experience			
0-5 years	60	68.2	
6-10 years	12	13.6	
11-15 years	3	3.4	
Above 15 years	13	14.8	
Delivered women characteristics			n=400
Age	Mean 28.08	± 5.68 SD	
	No.	%	
Newborn sex			
Male	204	51.0	
Female	196	49.0	
Level of education			
Illiterate	31	7.7	
Read and write	1	0.2	
Primary	35	8.8	
Intermediate	75	18.8	
Secondary	98	24.5	
University	160	40.0	
Parity			
Para < 5	333	83.0	
Para ≥ 5	67	17.0	

3.2 Utilization of non-pharmacologic pain relief methods

The utilization of non-pharmacological pain relief methods is shown in Table 2. Most of the samples reported that they knew different types of non-pharmacological pain relief methods. Data denoted that most of the methods were known but not used. The most widely known and used interventions were related to techniques that reduced painful stimuli and techniques of active birth. On the other hand, the techniques that were not known and not used were related to peripheral sensory receptors activation techniques.

Table 2. Utilization of non-pharmacological pain relief methods

Non-pharmacological pain relief methods	n= 88					
	Known & Used		Known but not used		Not known & Not used	
	No.	%	No.	%	No.	%
Techniques that reduce painful stimuli						
1.1. Movement and changes in position	68	77.3	18	20.5	2	2.2
1.2. Counter pressure	48	54.5	26	29.5	14	16.0
1.3. Breathing exercise	56	63.6	23	26.1	9	10.3
Techniques that activate peripheral sensory receptors						
2.1. Touch and massage	37	42.0	42	47.7	9	10.3
2.2. Reflexology	16	18.2	44	50.0	28	31.8
2.3. Acupuncture	0	0.0	56	63.6	32	36.4
2.4. Aromatherapy	16	18.2	35	39.8	37	42.0
2.5. Trans-cutaneous electrical stimulation	14	15.9	42	47.7	32	36.4
2.6. Water immersion	14	15.9	52	59.1	22	25.0
2.7. Intra-dermal injection of sterile water	0	0.0	59	67.0	29	33.0
2.8. Thermal regulation (heat & cold applications)	25	28.4	36	40.9	27	30.7
Techniques of active birth						
3.1. Avoid unnecessary routines e.g. shaving, enema, NPO, IVI	47	53.4	30	34.1	11	12.5
3.2. No intervention (e.g. artificial rupture of membranes, routine use of oxytocin)	42	47.7	33	37.5	13	14.8
3.3. Birth companion	0	0.0	64	72.7	24	27.3
3.4. Midwifery psychological support	47	53.4	41	46.6	0	0.0
3.5. Adjust room temperature	49	55.7	21	23.9	18	20.4
3.6. Minimizing noise	49	55.7	22	25.0	17	19.3
Techniques that enhance descending inhibitory pathway						
4.1. Hypnosis	0	0.0	59	67.0	29	33.0
4.2. Imagery	0	0.0	65	73.8	23	26.2
4.3. Relaxation	47	53.4	29	33.0	12	13.6
4.4. Distraction	37	42.0	28	31.8	23	26.2

3.3 Benefits of non-pharmacological pain relief methods

Table 3 shows the benefits of non-pharmacological pain relief methods. Most of the study samples expressed their agreement about different benefits of non-pharmacological pain relief methods. Absence of side effects (70, 79.5%) and an improved sense of patient self-control (78, 88.6%) are found to be of the highest benefits respectively, whereas the least benefit recorded was cost effective (51, 58.0%).

Table 3. Benefits of non-pharmacological pain relief methods

Benefits	n=88			
	Agree		Disagree	
	No.	%	No.	%
Absence of side effects	70	79.5	18	20.5
Improve sense of patient self-control	78	88.6	10	11.4
Postpone need of medications	59	67.0	29	33.0
Provide sense of comfort and relaxation	68	77.3	20	22.7
Cost effective	51	58.0	37	42.0
Available	61	69.3	27	30.7
Easy to use	69	78.4	19	21.6
Build trusting relationship	71	80.7	17	19.3

3.4 Barriers that interfere with the utilization of non-pharmacological methods

Table 4 illustrates the barriers that interfere with the utilization of non-pharmacological methods which are interrelated between the health-care system, health-care providers and patient related barriers. The highest percentages of agreement were recorded as lack of time (47, 53.4%), regulatory issues (49, 55.7%), lack of knowledge (60, 68.2%), patient unwillingness (50, 56.8%) and strong beliefs of analgesia (42, 47.7%) respectively.

Table 4. Barriers for using non-pharmacological pain relief methods

T Type of Barriers	n = 88			
	Agree	Strongly agree	Disagree	Strongly disagree
Health-care system related barriers				
Lack of time	47 (53.4)	20 (22.7)	21 (23.9)	0 (0.0)
Regulatory issues (policy)	49 (55.7)	28 (31.8)	9 (10.2)	2 (2.3)
Inadequate nursing staff numbers	33 (37.5)	23 (26.2)	26 (29.5)	6 (6.8)
Health-care provider related barriers				
Lack of knowledge	60 (68.2)	12 (13.6)	14 (15.9)	2 (2.3)
Difficult to apply	48 (54.5)	11 (12.5)	27 (30.7)	2 (2.3)
Dr./RN unwillingness	46 (52.3)	13 (14.8)	20 (22.7)	9 (10.2)
Patient related barriers				
Patient unwillingness	50 (56.8)	25 (28.4)	10 (11.4)	3 (3.4)
Sometimes not as concrete	38 (43.2)	34 (38.6)	11 (12.5)	5 (5.7)
Strong beliefs of analgesia	42 (47.7)	31 (35.2)	9 (10.2)	6 (6.8)

3.5 Delivered women's perception of their labor experience

Table 5 indicates delivered women's perception of their labor experience. The mean time the nurses spent with delivered women during the first stage of labor was 15.3 ± 10.8 minutes and the frequency of time that the nurses provided nursing care ranged between 2-7 times during the first stage of labor, while medical observations ranged between 4-5 times. Furthermore, the instruction most reported received by delivered women to cope with their pain was to take deep breaths with each uterine contraction (330, 82.5%). Three hundred sixty two (90.5%) women stated their satisfaction with their labor experience and only 38 (9.5%) were not satisfied. The mean degree of women's satisfaction is recorded as 6.2 ± 2.8 . Furthermore, 174 (43.5%) women preferred pharmacological methods of pain relief while 226 (56.5%) desired non-pharmacological methods. Finally, they reported a moderate degree of satisfaction related to their labor experience and 73 (18.3%) confirmed their need for psychological support.

Table 5. Delivered women's perception of their labor experience

	n=400	
	Mean	SD
Frequency of time the attending nurse provided service to the delivering woman	3.88	2.03
Mean time the nurse attended with the delivering woman (minutes)	15.32	10.87
No. of times the delivering woman was assessed by the attending doctor	2.29	1.58
Non-pharmacological methods the delivering woman received during the first stage of labor		
	No. (%)	No. (%)
	Yes	No
a) Movement and changes in position	264 (66.0)	136 (34.0)
b) Breathing exercises	330 (82.5)	70 (17.5)
c) Touch and massage	9 (2.2)	391 (97.8)
d) Bathing	8 (2.0)	392 (98.0)
e) Thermal regulation (heat and cold applications)	3 (0.8)	397 (99.3)
f) Positive feedback	294 (73.5)	106 (26.5)
g) Adjustment of room temperature	136 (34.0)	264 (66.0)
h) Noise minimization	120 (30.0)	280 (70.0)
i) Relaxation	140 (35.0)	260 (65.0)
Women's satisfaction with their labor experience	362 (90.5)	38 (9.5)
Degree of women's satisfaction recorded by visual analogue scale	Mean 6.22	± 2.85 SD
Women preferences related to methods of pain relief		
* Pharmacological methods	174	43.5
* Non-pharmacological methods	226	56.5

3.6 Factors that affect the mothers' choice of labor pain management

On multiple regression analysis, table 6 shows the factors that affect the mothers' choice of labor pain relief strategies. Maternal age, level of education, number of deliveries, number of medical observations and degree of

mother's satisfaction were found to be positive predictors (R^2) 98.3% when working in relation to each other. On the other hand, there was a weak negative correlation, and therefore not statistically significant between maternal choices of non-pharmacological pain and the total time spent by nurses during the first stage of labor.

Table 6. Factors that affect the mother's choice of labor pain management

Factors	R	P
Maternal age	0.12	0.0001*
Maternal education	0.09	0.0001*
No. of deliveries	0.24	0.0001*
Time spent by nurses in minutes	0.014	0.78
No. of medical observations and vaginal examinations	0.11	0.02*
Degree of mother's birth experience satisfaction	0.11	0.02*

*Level of significance ≤ 0.05

4. Discussion

Results of the present study demonstrated that health-care professionals are more or less familiar with several of the non-pharmacological methods presented in the survey. Managing labor pains using these methods are limited regarding many barriers. With regards to sample characteristics, it was noticed that different professional levels of health-care providers were shared in the present study. The conclusion is that all health-care providers' from different categories play an important role in guiding pain management during labor, especially during an emergency situation.

Most interventions known and used were related to techniques of active birth. On the other hand, most of the techniques not known and not used were related to peripheral sensory receptors' activation techniques. The present results are congruent with Jones et al. (2012) who reported that most methods of non-pharmacological pain management are non-invasive and appear to be safe for mother and baby, however, their efficacy is unclear, due to limited high quality evidence. Many non-pharmacological techniques need special training from expertise in fields such as imagery, hypnosis, biofeedback, relaxation, distraction and acupressure. In addition, there are other techniques that need special preparations in the hospital setting like aromatherapy and birthing pools for water births. Raybern (2010) stated that, an aroma therapist loves the challenge of creating a unique blend for each individual patient. Therapists' work environments include private practices and private settings in hospitals and care institutions.

Regarding benefits of non-pharmacological pain relief methods, the present study revealed that their most important action was absence of side effects, improved sense of patient self-control, building a trusting relationship and being cost effective. The present study is on the same line as the study conducted by Spiby et al. (2003) who reported that coping strategies during labor such as breathing techniques, postural changes, and relaxation techniques were effective in relieving labor pain among 121 women. In addition, Payan, et al. (2008) asserted that a wide variety of cognitive, behavioral and sensory interventions may contribute to parturient pain management and overall sense of comfort. Furthermore, Hoodent et al. (2002) added that the attributes of the benefits of non-pharmacologic pain techniques in labor are to be found in the fact that they are non-intrusive, non-invasive, low-cost, simple, effective, and without adverse effects. With regards to the factors that may interfere with applying non-pharmacological pain relief methods, results of the present study revealed that most barriers were interrelated. They were related to the health-care system in the hospital where inadequate nursing staff numbers in one shift may contribute to lack of time in providing adequate care. Indeed, lack of time is the most frequently cited barrier to effective pain management (Schafheutle, Cantrill & Noyce 2001). It is documented as an issue for emergency nurses and a possible contribution of oligoanalgesia (Ehrenberg, 2001). Hwang et al. (2006) suggested that during emergency situations, staff is likely to be less attentive and responsive to complaints of painful conditions.

Concerning health-care providers' barriers, nursing staff's knowledge and attitudes and upgrading their knowledge through continuous training programs as well as attending external conferences depend on their self-learning or hospital regulations which in turn may reflect on the quality and type of pain assessment and management. This result supports Fielding and Irwin's (2006) results who confirmed that inadequate knowledge remains a significant barrier to pain management because clinicians failed to recognize their own knowledge deficit and therefore also the need for change. On a more positive note, Sleutel et al. (2007) reported that nurses in their study also said that teaching hospital environments influenced nurses' ability to provide labor support techniques because more emphasis was placed on evidence-based care. As regards patient related barriers, in most hospital settings, women in labor were alone and often frightened by the intermittent appearance and disappearance of unknown people, including obstetricians, midwives, and nurses (Enkin, et al. 2000). During pregnancy, women should be told about the benefits and potential adverse effects of each method. Khaskheli & Baloch (2010) showed that antenatal knowledge of the birth experience, either self-acquired due to previous

deliveries or antenatal counseling, shows acceptable response towards medical staff instructions in the majority of cases 183 (69.3%). In the present study, with regards to delivered women's perception of their labor experience, it was reported that nurses spent little time with them during the first stage of labor. Abushaika et al. (2005) showed that emotional support, holding the patients' hands and being physically close to them made a difference during labor. Nurses' interpersonal skills are perceived as more important than technical skills for mother and baby. Labor support does not always occur because nurses tend to have coexisting responsibilities towards more than one woman in labor, spend large amounts of time managing technology or keeping records, and begin or end shifts in the middle of women's labors (Hodnett, et al. 2007). The present result supports Gagnon, Waghorn & Covell (1997) who demonstrated that labor nurses in some institutions spend as little as 6.1% of their time performing supportive activities for the women in labor who are in their care. Barnett (2004) calculated the actual time a nurse spent with a woman in the first stages of labor using a special computer program and concluded that nurses spent an average of 31% of the observed labors in the patients' rooms. Of that time, 63% was spent in the performance of other professional duties such as documentation and assessment of patient condition and 41% in supportive activities.

Besides, delivered women in the present study reported a moderate level of satisfaction related to their birth experience. This may be related to the type of supportive care they received, environmental factors such as noise or an unfamiliar environment which may be contributors to an increase in stress. Green & Baston (2003) suggested that childbirth satisfaction depended on various pre-delivery and intra-partum factors. The present results support Parsons, Bidewell, Griffiths (2007) who stated that noise, temperature of the labor room, light and the feeling of being observed are some of the main factors that can stimulate human neo-cortex. Furthermore negative experiences regarding hospital delivery were reported in the delivery room: women were compelled to adopt birthing positions according to existing policies, privacy is not well maintained and health-care providers are often rude, impatient and reluctant to listen to or solve their patients' concerns. All are factors which affect the satisfaction of their birth experience (Afsana & Sabina, 2001).

The present study shows that the instructions delivering women received the most to cope with their pain was to take deep breaths with each uterine contraction. We can interpret this result as being easy to perform as breathing techniques do not require a nurse to be present with each woman. This finding supports Hodnett's study (2002) who reported that relaxation, breathing techniques, positioning/movement, massage, hydrotherapy, hot/cold therapy, music, guided imagery, acupressure, and aromatherapy are some self-help comfort measures women may initiate during labor to achieve an effective coping level of their labor experience. Moreover, in the present study, delivered women reported their preferences for non-pharmacological methods. These results are similar to those of Khaskheli & Baloch's (2010) who asserted that many women are willing to experience some pain in childbirth, but don't want the pain to overwhelm them.

Finally, regarding factors that affect a mother's choice of labor pain relief strategies, data denoted that maternal age, level of education, number of deliveries were positive predictive variables that may contribute to increasing women's awareness levels toward risks and benefits of each pain relief strategies. In addition, there was a positive relationship between the mother's choices of non-pharmacological pain relief methods and the numbers of medical observations. We interpreted these results as women in labor needing companionship, empathy and help. Medical observations can be provided and guided by emotional, informational and physical support as well as advocacy in order to achieve maximum coping. On the other hand, there was weak negative correlation and, therefore not statistically significant, between maternal choices of non-pharmacological pain and the total time spent by nurses during the first stage of labor. These results are in line with Barnett (2004) who reported that the amount of time spent in the room did not significantly correlate with patient satisfaction. However, all cultures have their own ways of attending and coaching delivering women, some explain their customs to give a more logical explanation for the system they apply. The results of this study will help to approximate the point of views in order to modify the perception toward non-pharmacological pain relief strategies.

5. Conclusion

Medical practitioners are well oriented regarding different types of pain relief methods. Non-pharmacological pain management therapies have the potential to be extremely beneficial for labor pain management. There are many barriers preventing non-pharmacological pain therapies from being used related to hospital regulations and policies. Some traditional professional boundaries need revision in order to improve maternity care. In addition, most women denoted that they accepted labor pain as a physiological process, and were capable of coping with it through non-pharmacological management.

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