

# An investigation of birth environment in UK and Saudi Arabia

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**Abstract-** The purpose of this article is to compare the result of a questionnaire regarding mothers' reflection of the LDR environmental aspects in UK and Saudi Arabia. A survey was carried out to find out the reflections on physical environment of labor and delivery room (LDR) in the UK and Saudi Arabia. The survey was based on the study of Newburn & Singh (2003) who focused on the LDR in the UK. Saudi Mothers had more positive view in regard the environmental aspects of the LDR than UK mothers. The key highlights are: Prior research on Labor and delivery room (LDR) is limited in Saudi Arabia; The questionnaire was adapted from Newburn & Singh (2003) and then translated into Arabic; and importantly, the findings reveal that there is no significant difference on physical environment of LDR between Saudi Arabia and UK.

**Keywords – Birth environment; UK; Saudi Arabia**

## I. INTRODUCTION AND BACKGROUND

Evidence suggests that the physical environment affects mother's experience of labor [1-2]. In many cases, the labor rooms are designed similar to other hospital sick rooms, including the hospital bed in the center, medical equipment was in view, and limited privacy [3]. A study conducted by Pereda-Goikoetxea, Marín-Fernández, Liceaga-Otazu & Elorza-Puyadena to explore the most important needs in birth centers from the mothers' point of view. The main themes arise were: professional care, control, and hospital safety, presence of the partner and perception of observed feelings [4]. Pereda-Goikoetxea, Marín-Fernández, Liceaga-Otazu & Elorza-Puyadena also emphasized on the importance of the midwife's communication skills, including listening and providing accurate information [4-5]. Other factors to support mothers during labor are routine practices and policies related to the birth environment. For instance, freedom to move and the policies in regard the presence of support people of the mothers may enhance outcomes for women and infants [6].

In order to investigate what factors in LDR room design mattered to mothers, the study conducted Better Birth Environment Survey, which was designed by National Childbirth Trust NCT, UK. The survey was developed to find out:

- What aspects of the physical environment women considered important?
- To what extent women had a sense of control over their environment during labour (Newburn & Singh, 2001)

The survey was translated to Arabic (see Appendix 1) and given to mothers who meet the below criteria.

- Deliver a baby in a Saudi healthcare center
- The labor experience was during the last five years.

The survey consists of statements to be evaluated using likert-scale from 1 to 3, rating of environmental elements. The survey was distributed via email, and text messages. A number of 135 survey was completed by participants. The IRB approval was obtained from Prince Sultan University.

## II. EXPERIMENTAL DESIGN, MATERIALS, AND METHODS

The birth environment can support physiologic birth if the environment is calming and effective in reducing stress [7]. For instance, one study compared home-like settings for labor to conventional institutional settings and found out that the home-like settings were correlated with advantages such as lower medical interventions and higher maternal satisfaction [5]. However, the labor environment is not just a physical structure, it is also a culture, and the

care providers' philosophy, presence of a doula, and commitment of the nurses to provide support can impact the birth culture [7]. Another study found music therapy and breathing techniques correlate with higher PPI (Positive Presence Index questionnaire scores) [8].

To achieve the objective of the data article, the study has developed the following hypothesis under three models (UK and Saudi Arabia):

#### Model I:

Null hypothesis:  $H_0: \mu_1 - \mu_2 = 0$

Alternative hypothesis:  $H_1: \mu_1 - \mu_2 \neq 0$

Where,

$\mu_1$ : mean of physical environment of labor and delivery rooms in Saudi Arabia;

$\mu_2$ : mean of physical environment of labor and delivery rooms in UK;

Difference:  $\mu_1 - \mu_2$

The study used IBM SPSS Statistics 25 to analyze the data. Table 1 shows the results of the Wilcoxon signed ranks test. It provides the information about mean rank, the sum of ranks for the positive and negative sign of comparing data [9].

### III. RESULTS

Regarding the Test Statistics (see Table 1), the significance level of p value is 0.745. This means that there is a 74.5% chance of finding the observed difference if null hypothesis is true. Since p value is greater than the  $p > .05$  ( $p = 0.745$ ), and therefore the null hypothesis cannot be not rejected.

**Table 1. Wilcoxon Signed Ranks Test**

		N	Mean Rank	Sum of Ranks
SAUDI_ARABIA - UK	Negative Ranks	13 <sup>a</sup>	10.50	136.50
	Positive Ranks	9 <sup>b</sup>	12.94	116.50
	Ties	1 <sup>c</sup>		
	Total	23		
Z		-.325		
Asymp. Sig. (2-tailed)		.745		
a. SAUDI_ARABIA < UK				
b. SAUDI_ARABIA > UK				
c. SAUDI_ARABIA = UK				

**Table 2. Sign Test**

		N
SAUDI_ARABIA - UK	Negative Differences <sup>a</sup>	13
	Positive Differences <sup>b</sup>	9
	Ties <sup>c</sup>	1
	Total	23
Exact Sig. (2-tailed)		.523 (Binomial distribution used)
a. SAUDI_ARABIA < UK		
b. SAUDI_ARABIA > UK		
c. SAUDI_ARABIA = UK		

**Table 3. Marginal Homogeneity Test**

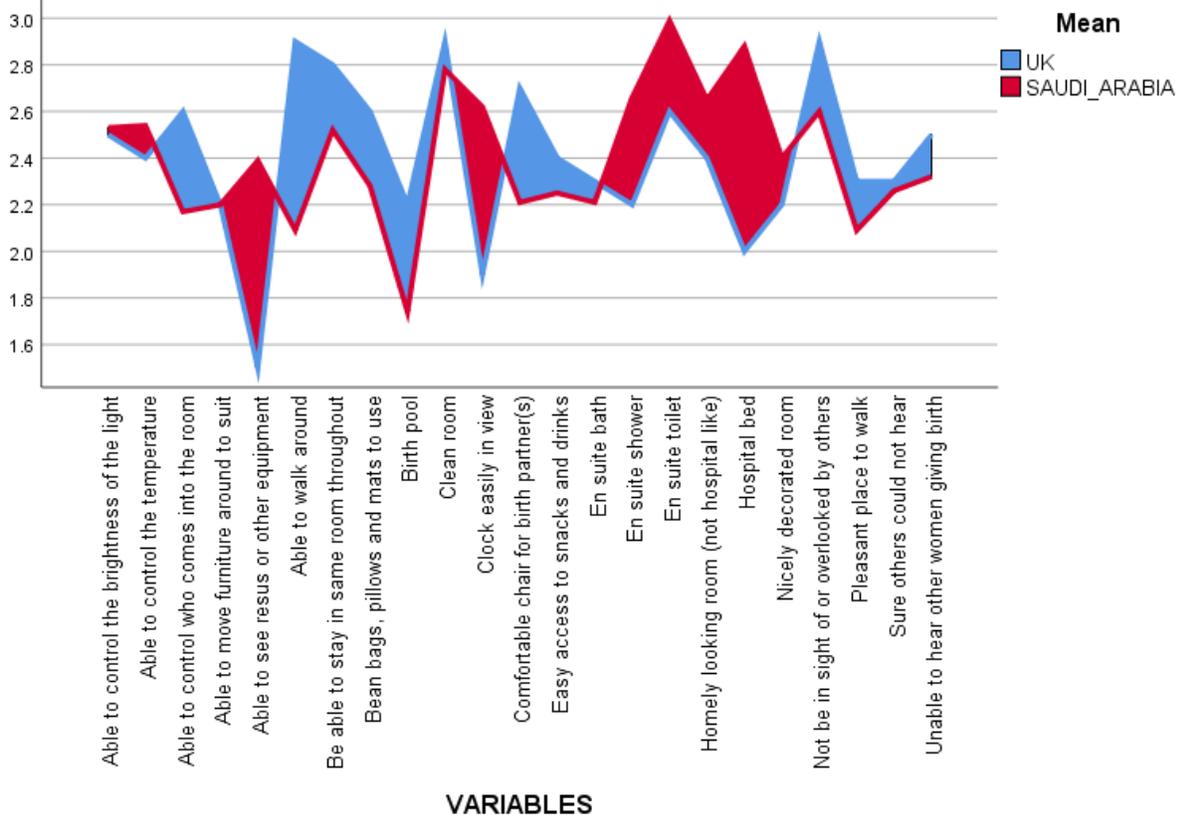
	UK & SAUDI_ARABIA
Distinct Values	29
Off-Diagonal Cases	22
Observed MH Statistic	53.100
Mean MH Statistic	53.140
Std. Deviation of MH Statistic	1.032
Std. MH Statistic	-.039
Asymp. Sig. (2-tailed)	.969

Table 2 also similar reports based on Sign Test. Since p value is greater than the  $p > .05$  ( $p = 0.523$ ), and therefore the null hypothesis cannot be not rejected.

Table 3 reports the marginal homogeneity test. Since p value is greater than the  $p > .05$  ( $p = 0.969$ ), and therefore the null hypothesis cannot be not rejected.

Figure 1 and 2 reports the mean rank comparison of physical environments between Saudi Arabia and UK. It is found that, the following areas were mostly highlighted by Saudi respondents (all of the items were rated above 2.5):

- En suite toilet
- Hospital bed
- Clean room
- En suite shower
- Homely looking room (not hospital like)
- Clock easily in view
- Not be in sight of or overlooked by others
- Able to control the temperature
- Able to control the brightness of the light
- Be able to stay in same room throughout



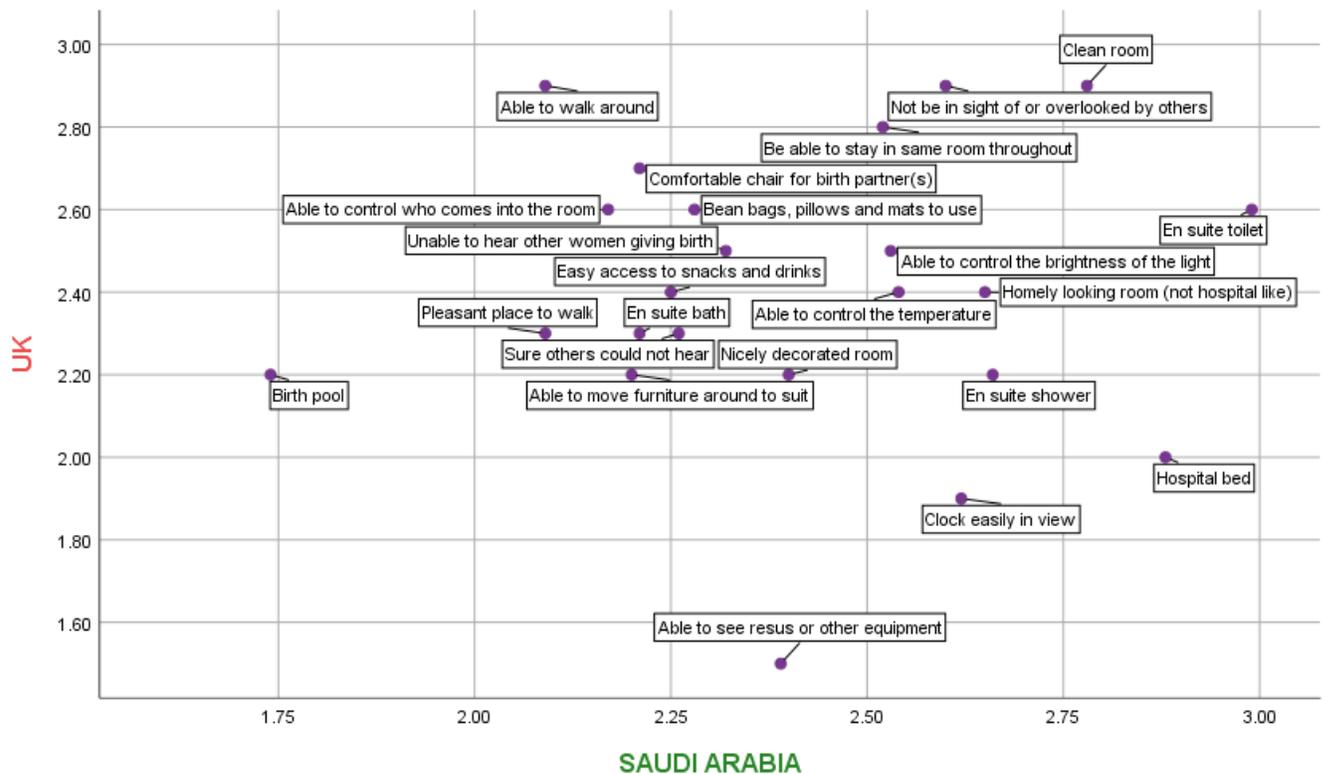
**Fig. 1. Mean Comparison between UK and Saudi Arabia.** The blue color indicates UK data. The red color indicates Saudi Arabian data. The Y axis represents the rating of survey from 1 to 3 Likert scale as indicated in Appendix 1.

The least highlighted area was Pleasant place to walk and Birth pool. On the other hand, the respondents from the UK highlighted the following areas (all of the items were rated above 2.5):

- Clean room
- Able to walk around
- Not be in sight of or overlooked by others
- Be able to stay in same room throughout
- Comfortable chair for birth partner(s)
- En suite toilet
- Able to control who comes into the room
- Bean bags, pillows and mats to use
- Unable to hear other women giving birth
- Able to control the brightness of the light

The least highlighted area was: Hospital bed and Clock easily in view

The findings are consistent with prior studies. For instance Shakibazadeh et al. found that both women and healthcare providers found that providing comfortable, clean, and soothing labor environments with restricted visiting hours were helpful to promote respectful maternity care RMC. In addition, women from different countries indicated the need for sufficient access to medical and non-medical technologies, in order to feel safe and encouraged [10]. On the contrary, women related their labor negative experiences to factors such as complications for mother or child, being seen or heard, and the pain experience and lack of control [11].



**Fig. 2. Items Comparison UK and Saudi Arabia.** The comparison indicates some items are very similar rating between UK and Saudi Arabia. Further some items are very unique to Saudi Arabia and UK. The rating between 1 to 3 as indicated in Appendix 1.

#### IV.CONCLUSION

The purpose of this study is to compare the result of a questionnaire regarding mothers' reflection of the LDR environmental aspects in UK and Saudi Arabia. Despite the cultural differences, the study reports an interesting finding that there is no significant difference between physical environment of LDR between Saudi Arabia and UK. Future studies should focus on more in-depth qualitative studies on the differences and policy implications. For example, prior research highlighted that a hospital to maintain an environment that supports physiologic birth, all levels of leadership must be supportive [7].

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