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#### **SPECIAL ITEMS**

#### **ORIGINAL**

## **Using the mirror in the second stage of labor: evaluation by semantic differential**

## **Use of the mirror in the second stage of labor: evaluation by Means of semantic differential**

**Emilio José Becerra-Maya, Gloria Lapuente-Jambrina, Veronica Maria Alonso-Ortega <sup>1</sup>**

<sup>1</sup> Block Obstetric. University Hospital Alcorcón Foundation. Alcorcón, Madrid, Spain

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#### **SUMMARY**

**Objective:** To examine the attitude of the woman and her partner, on using the mirror in the second stage of labor. **Method:** Cross - sectional descriptive study, conducted at the University Hospital Alcorcón Foundation. From a pilot study conducted on a sample of 92 subjects, a 14 - item scale based on semantic differential technique was developed. A sample of 159 subjects completed the questionnaire scale and state-trait (STAI). **Results:** the acceptance rate was 90%. The mean scores exceed the neutral value in all items. 88.5% (95% CI 78.8 to 98.1) of women who experienced the experience felt that the use of the mirror stimulates bid versus 73.6% (95% CI: 62.7 to 84, 4) they expressed it as expectation. **Conclusions:** the use of the mirror during the second period is favorably valued by most women and their partners.

**Keywords:** Semantic Differential, second stage of labor, Biofeedback.

#### **ABSTRACT**

**Aims:** To know the attitude of the woman and her partner the use of the mirror in the second stage of labor.  
**Methods:** This descriptive cross - sectional study was Carried at University Hospital Foundation Alcorcón (Madrid, Spain). The data Were Collected Items using an 14 scale based on the semantic differential technique developed from a pilot study With 92 subjects. . A sample of 159 subjects completed the scale They, as well as the State Trait Anxiety Inventory (STAI) **Results:** The percentage of acceptance was of 90%. The mean score in the scale overcame the neutral value in all items. The 88.5% (95% CI: 78.8 to 98.1) of Women Who experienced the experience thought That the use of the mirror Stimulates to push versus 73.6% (95% CI: 62.7 to 84, . 4) before the delivery **Conclusions:** The use of the mirror During the second stage of labor is valued favorably by the majority of the women and her pairs.

**Key words:** Semantic differential, Second stage of labor, Biofeedback.

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## Introduction

The expulsive period is defined as that stage of labor that starts to reach its full cervical dilation and ends with the delivery of the fetus in the womb. Aderhold and Roberts, <sup>one</sup> identified in this period , three correlative phases: latent, and perineal descent phase. The presentation begins to be visible in the descent phase, first only during contractions and then also be in the intercontráctil pause, called crowning moment.

In the current obstetrical care, different forms of analgesia during labor which enjoys greater acceptance is the lumbar epidural analgesia. Among its effects on labor highlights the prolongation of descent and expulsion. It is accepted that the extension is due to the loss of stimulus to the efforts of thrust, along with the relaxation of the pelvic muscles due to the anesthetic block. <sup>2,3</sup> Usually women with epidural analgesia is led by the professional who attended the birth, during the second period, this address includes verbal expressions of support, instructions for improvement of pushing and relaxation in the intercontráctil period and maneuvers, such as finger pressure on the posterior wall of the vagina and perineum to teach women how and where to push. <sup>4</sup> it is proven that it is easier to issue and control a behavior if you have a hearty "feedback". They are regarded as biofeedback technique any technique that uses instrumentation to provide immediate, accurate and direct a person on the activity of their physiological functions, facilitating the perception of them by subjecting them to voluntary control. <sup>5,6</sup> In this study introduce a technique biofeedback, which following the definition stated above, uses a mirror as an instrument.

Current strategies of midwifery include a commitment not only to preserve but also to promote normal labor, as well as the active participation of women in the birth process, to the extent possible or from the perspective that women want. <sup>7</sup>

We have not found references in the literature on the use and evaluation of the mirror during the second period. Although its use is not widespread, itself has been included in some protocols of care delivery, as a support tool. <sup>8</sup> In all evaluation processes of health care, the most important contribution of patients is the description of benefits or undesirable effects on the administration of such care. In the systematic review by Ryan <sup>9</sup> on the different methods of assessing the preferences of health care, one of the described quantitative techniques is the Semantic Differential (SD). The DS is described by its authors Osgood and Tannenbaum <sup>10,11</sup> as a method for measuring the connotative, affective or subjective meaning that an object has to an individual by the ratings that the person make of that object on a set of scales bipolar adjectives .

That is why this paper has the following objectives: first know the proportion acceptance / rejection of the use of the mirror in the second stage and possible differences in demographic variables and state-trait anxiety of the different partners. Second examine the attitude of the woman and her partner, on using the mirror in the expulsive by building a DS-type scale. Third know the attributes assigned to that experience in the group that accepts and which refuses to see the delivery, with special emphasis on its impact on the reflection of the pushing and their contribution to the experience of childbirth as an intense personal experience. And finally know the differences between expectation and experience in those couples where the mirror was used during the second.

## Methodology

University Hospital Foundation Alcorcón (HUFA) is located in Area 8 of the Madrid and serves a population of

230,000 inhabitants. This cross-sectional descriptive survey study was conducted in the period between December 2008 and April 2009, with the approval of the Ethics Committee.

You were invited to participate all those pregnant, both primiparous and multiparous with gestational age ranging between 37 and 40 weeks gestation with epidural analgesia. pregnant women who did not know the Spanish language were excluded, they had limitations to understand and answer the questionnaire, had lived the experience in previous deliveries, as well as free not want to participate in the study.

The instruments used were: (1) Mirror in mobile support and tilting 120 x 60 cm. (2) Questionnaire demographic variables (age, sex, parity, level of study and attendance childbirth preparation). (3) Questionnaire state-trait anxiety (STAI), <sup>12</sup> a questionnaire comprising separate self - assessment scales that measure two independent concepts, anxiety as a state (E) and trait (R). State anxiety (A / E) refers to the emotional state of the moment. It can vary over time and fluctuate in intensity. Trait (A / R) anxiety states more or less stable person to perceive situations as threatening trend. (4) Semantic Differential (DS) Assessment Questionnaire attitudes.

By consecutive sampling were included pregnant women who were admitted to the obstetric in labor, they met the inclusion criteria. The invitation to the woman and her partner to participate in the work was carried out after epidural analgesia administered in a time when women find comfortable and relieved pain as possible. Participation in the study involved completing questionnaires whether the couple accepted or not see his birth. Then only those couples who accepted and could see his birth, returned to fill the same semantic differential.

For analysis it was used SPSS version 16.0 program. Quantitative variables were studied using Pearson correlation and Student t test when the assumptions of normality were met, and nonparametric Spearman Rho and Mann Whitney U tests. For comparison of proportions test we were used Chi square Pearson. statistical significance  $p < 0.05$  was considered.

*Pilot for the development of Semantic Differential Study* . In our work the pilot questionnaire consisted of 15 pairs of contrasting adjectives and a couple of verbs "stimulates-repressed". Some pairs of adjectives were selected from the 60 scales DS of the Spanish language, <sup>13</sup> adding others considered relevant by a group of professionals with the experience to appreciate. Adverbs accompanying intervals are fully, fairly, something and neither for the neutral range. The defined continuum between bipolar adjectives was seven intervals, the most negative attitude puntuándose 1 and the positive attitude 7 thus establishing the neutral point in the score 4. The directionality of bipolar adjectives was made randomly.

The participant in the pilot study sample consisted of 92 subjects of which 46 were women of which 56.5% were primiparous. With an average age of 31.63 (SD 4.05) years for women and 34.43 (3.66) years for men. The proportion of couples who rejected the experience was 12%. Sampling was consecutive cases with the same inclusion criteria that would then be used in the final study. After obtaining informed consent both members of the couple completed the semantic differential following the guidelines below . *"Below is a list of pairs separated by six spaces adjectives Look at each of them and think which of the two adjectives best describes its situation in response to the phrase. "SEE MY EXPERIENCE delivery, CONSIDERO ..." once you have chosen the adjective, assess the degree that reaches in his case (Full, Pretty, Something) and put X in the box "* . once the response of all subjects proceeded to select those pairs of adjectives to submit a correlation between the item and the total score in all not less than 0.4 scale. Of the 16 items consisting of the scale, 14 exceeded acceptance criteria and became part of the final questionnaire. Given that for a factorial analysis subjects the minimum requirement is 5 subjects per item. The sample needed was established in 160 subjects, 80 couples.

## results

A total of 173 subjects of 8 (4 couples) were recruited which refused to participate in the study and 6 (3 couples) were excluded due to poor filling of data. The definitive analysis carried out on a total of 159 subjects, of whom 80 were women, one of whom lacked partner. The use of the mirror was rejected by 10% of couples. The demographic characteristics of the sample compared between the group accepted and which rejected the stratified partner (mirror [Table 1](#) ), with no significant differences in any of the demographic variables.

Madres	n	Grupo aceptación n=72	Grupo rechazo n=8	p
Edad Me (R) <sup>a</sup>		31 (30-35)	30 (29-34)	0,11 <sup>b</sup>
Paridad				0,70 <sup>c</sup>
Primiparas	55	50 (69,4%)	5 (62,5%)	
Multiparas	25	22 (30,6%)	3 (37,5%)	
Nivel de estudios				1 <sup>c</sup>
Primarios	14	13 (18,1%)	1 (12,5%)	
Secundarios	16	14 (19,4%)	2 (25%)	
Universitarios	50	45 (62,5%)	5 (62,5%)	
Preparación al parto				0,42 <sup>c</sup>
Si	59	54 (75%)	5 (62,5%)	
No	21	18 (25%)	3 (37,5%)	
A/E Me (R) <sup>a</sup>		14,5 (10-20)	15,5 (11,25-22)	0,32 <sup>b</sup>
A/R Me (R) <sup>a</sup>		13,3 (7,25-19,75)	16,37 (9,21)	0,32 <sup>b</sup>
Actitud media Me (R) <sup>a</sup>		6,03 (5,41-6,35)	4,39 (4,28-5,46)	0,001 <sup>b</sup>
Padres	n	Grupo aceptación n=71	Grupo rechazo n=8	
Edad media Me (R) <sup>a</sup>		33 (30-37)	35 (30-37)	0,41 <sup>b</sup>
Nivel de estudios				0,52 <sup>c</sup>
Primarios	25	22 (31%)	3 (37,5%)	
Secundarios	25	24 (33,8%)	1 (12,5%)	
Universitarios	29	25 (35,2%)	4 (50%)	
Preparación al parto				0,19 <sup>c</sup>
Si	17	17 (15,3%)	0	
No	62	54 (55,7%)	8 (100%)	
A/E Me (R) <sup>a</sup>		12,6 (9-19)	17 (14-18)	0,04 <sup>b</sup>
A/R Me (R) <sup>a</sup>		11 (6,3-15)	15 (12-21,7)	0,02 <sup>b</sup>
Actitud media Me (R) <sup>a</sup>		6,21(5,5-6,6)	5,46(4,41-6,50)	0,08 <sup>b</sup>

<sup>a</sup> Mediana (Rango intercuartílico). <sup>b</sup> Prueba U Mann Witney. <sup>c</sup> Prueba Ji Cuadrado de Pearson. Estadístico exacto de Fisher.

**Tabla 1.** Características demográficas de las parejas que aceptaron o rechazaron ver su parto

The score of anxiety state and trait anxiety was higher in the group that the rejection of acceptance, however, only reached statistical significance in the parents ( [Table 1](#) ). Compared with the average attitude, defined as the mean of all items that make up the questionnaire, we find differences between the acceptance and rejection but only in mothers becomes significant ( [Table 1](#) ).

The Semantic Differential antepartum (pre) was completed by the total sample, while the Semantic Differential (post) only the filled in 97 subjects (52 mothers and 45 fathers). The reasons for the lack of completion were: 16 subjects (8 mothers and 8 fathers) rejected the mirror, in 14 subjects (7 mothers and 7 fathers) delivery was instrumental and finally in 32 subjects (13 mothers and 19 fathers) were considered lost. The characteristics of the missing cases are reflected in [Table 2](#) .

Madres	n	Perdidos n=13	Resto n=67	p
Edad Me (R.I)*		30 (28,5-31)	32 (30-35)	0,15 <sup>a</sup>
Paridad				0,12 <sup>a</sup>
Primiparas	55	11	44	
Multiparas	25	2	23	
Nivel de estudios				0,22 <sup>a</sup>
Primarios	14	2	12	
Secundarios	16	5	11	
Universitarios	50	6	44	
Preparación al parto				1 <sup>c</sup>
Sí	21	3	18	
No	59	10	49	
A/E Me (R.I)*		12 (7,5-20)	15 (11-21)	0,15 <sup>b</sup>
A/R media Me (R.I)*		14 (12-25)	13 (7-19)	0,05 <sup>b</sup>
Actitud media Me (R.I)*		5,85 (5,6-6,21)	5,92 (5,3-6,3)	0,33 <sup>b</sup>
Padres	n	Perdidos n=19	Resto n=60	p
Edad media Me (R.I)*		31 (29-37)	34 (31-37)	0,06 <sup>a</sup>
Nivel de estudios				0,67 <sup>a</sup>
Primarios	25	5	20	
Secundarios	25	5	20	
Universitarios	29	9	20	
Preparación al parto				0,74 <sup>a</sup>
Sí	62	16	46	
No	17	3	14	
A/E media Me (R.I)*		15 (11-21)	13,5 (9-18)	0,45 <sup>b</sup>
A/R media Me (R.I)*		13 (7-19)	12 (7-16)	0,22 <sup>b</sup>
Actitud media Me (R.I)*		6 (5,7-6,4)	6,2 (5,4-6,7)	0,28 <sup>b</sup>

Mediana (Rango intercuartílico):\*Prueba U Mann Whitney:<sup>b</sup>Prueba Ji Cuadrado de Pearson: Estadístico exacto de Fisher.

Tabla 2. Características de las pérdidas

The questionnaire responses were subjected to a principal component analysis. On the simple structure an orthogonal rotation (varimax method) was performed. The results of this analysis showed that the structure that best fit the data was composed of three main components accounted for 67.2% of the variance present. In *Table 3* the weight presenting the items specified, being omitted for clarity weights less than 0.40.

According to the results of principal component analysis, the attitude of the couples in our sample to the experience of seeing her delivery would be based on a dimension which alone accounts for more than 53% of the variance ( [Table 3](#) ). This large dimension corresponds to a generic assessment component of the experience, so some of the items with more cargo are "wonderful-awful", "positive-negative" or "ugly-pretty." A greater distance from this dimension are two other dimensions. The second dimension corresponds to an application component or functionality, as the items are more cluttering some as "repressed-stimulates", "ineffective-effective" or "unnecessary-necessary". Finally , the third component with high saturations could identify with the power or vividness of experience and groups the "weak-intense" and "emotional-cold" items.

Nº	Ítem	Componentes principales		
		I	II	III
1	Agradable-Desagradable	,731		
2	Inútil-Útil	,538	,506	
3	Reprime empujar-Estimula empujar		,700	,483
4	Maravillosa-Horrorosa	,820		
5	Perjudicial-Beneficiosa	,514	,584	
6	Satisfactoria-insatisfactoria	,720		
7	Innecesaria-necesaria	,537	,632	
8	Positiva-Negativa	,790		
9	Ineficaz-Eficaz	,463	,699	
10	Importante-No importante	,709		
11	Recomendable-No recomendable	,719		
12	Fea-Bonita	,747		
13	Débil-Intensa			,807
14	Emotiva-Fría			,695
Porcentaje de varianza total		53,3	7,64	6,23

Tabla 3. Saturaciones factoriales de los 14 ítems del cuestionario en los componentes principales extraídos en el análisis y porcentaje de varianza total correspondiente a estos componentes

Regarding the psychometric properties of the scale coefficient estimated by the statistical reliability Cronbach reached a value of 0.92 indicating an optimum level of reliability. The correlation of the items with the total

score is also high ranging from a lower limit of 0.43 for the pair "Weak-Intense" to an upper limit of 0.81 for the pair "Wonderful-Horrid".

With respect to the mean scores in the Semantic Differential (Pre), joint scores couple exceeds the neutral value in all item (remember that the neutral value was at 4) and the average minor (DE) 5.28 (1.23) corresponds to par "Restrained-stimulates" and the highest average 6.45 (0.95) the pair "Cold-Emotive". The joint average score (DE) of all items (mean attitude) was 5.86 (0.80). The mean differences studied using the Student t test between mothers and fathers are shown in [Table 4](#). Five pairs of adjectives reach significant differences, distributed three evaluative component ("Wonderful-Horrid", "Satisfactory-Unsatisfactory" and "Positive - negative") and two in the functional component ("Damage-Beneficial" and "unnecessarily Required").

Items	Sujeto que rellena el cuestionario	N	Media	DE	p
Agradable-Desagradable	madre	80	5,56	1,439	0,18
	padre	79	5,85	1,282	
Inútil-útil	madre	80	5,83	,952	0,37
	padre	79	5,96	1,006	
Reprime empujar-Estimula empujar	madre	80	5,40	1,239	0,20
	padre	79	5,15	1,231	
Maravillosa-Horrorosa	madre	80	5,85	1,148	0,03
	padre	79	6,23	1,062	
Perjudicial-Beneficiosa	madre	80	5,63	1,048	0,01
	padre	79	6,05	1,049	
Satisfactoria-Insatisfactoria	madre	80	5,79	1,064	0,02
	padre	79	6,16	1,018	
Innecesaria-Necesaria	madre	80	5,08	1,271	0,003
	padre	79	5,66	1,164	
Positiva-Negativa	madre	80	5,96	1,012	0,01
	padre	79	6,34	,875	
Ineficaz-Eficaz	madre	80	5,51	1,125	0,70
	padre	79	5,58	1,161	
Importante-No importante	madre	80	5,80	1,048	0,14
	padre	79	6,05	1,131	
Recomendable-No recomendable	madre	80	5,64	1,225	0,06
	padre	79	5,99	1,182	
Fea-Bonita	madre	80	5,99	1,097	0,28
	padre	79	6,18	1,130	
Débil-Intensa	madre	80	6,06	1,048	0,93
	padre	79	6,08	1,035	
Emotiva-Fria	madre	80	6,46	,885	0,89
	padre	79	6,44	1,035	

Tabla 4. Diferencias de medias en el cuestionario antes del parto entre madres y padres

In the Semantic Differential completed after delivery all items exceeded the neutral score, the average score (DE) of all items of 6.34 (0.72). The analysis of the differences between the scores before and after childbirth was performed using Student's t test for related samples ([Table 5](#)). In joint scores couple, all items on the questionnaire post had mean higher than in the pre questionnaire significantly. If we stratify by each partner, in mothers all items except for three significant differences.

Items	N	Medias(a, b)	dif	p
Agradable-Desagradable	52	*5,81	-0,654	0,002
Inútil-útil	52	*5,92	-0,462	0,002
Reprime empujar-Estimula empujar	52	*5,44	-0,654	0,005
Maravillosa-Horrorosa	52	*6,13	-0,288	0,104
Perjudicial-Beneficiosa	52	*5,73	-0,558	0,004
Satisfactoria-Insatisfactoria	52	*5,98	-0,346	0,049
Innecesaria-Necesaria	52	*5,13	-0,654	0,005
Positiva-Negativa	52	*6,13	-0,346	0,025
Ineficaz-Eficaz	52	*5,67	-0,423	0,051
Importante-No importante	52	*6,06	-0,288	0,034
Recomendable-No recomendable	52	*5,87	-0,635	0,000
Fea-Bonita	52	*6,21	-0,308	0,092
Débil-Intensa	52	*6,15	-0,308	0,038
Emotiva-Fría	52	*6,48	-0,269	0,042

\* Cuestionario antes del parto (pre) \* Cuestionario después del parto (post)

**Tabla 5.** Análisis pre-post mediante la t de Student para muestras relacionadas en madres

As for the item Restrain-Stimulates if recategorizamos seven intervals in three categories: Rebuke (groups adverbs something, pretty and totally), Neutral (or represses or encourages) and stimulates (groups adverbs something, pretty and totally). The questionnaire (pre) 73.6% (95% CI 62.7 to 84.4) of women who accepted the use of the mirror, consider that encourage them to bid, compared with 8.3% (CI 95% : 1.2 to 15.4) than repress them and 18.1% (95% CI 8.4 to 27.6) would consider neutral experience. After the experience the proportion of women who feel that view encouraged them to push birth was 88.5% (95% CI 78.8 to 98.1).

Regarding relations between the average attitude of the questionnaire (pre) and other variables, the Pearson linear correlation between the mean attitude and age proved to be practically nonexistent ( $r = 0.108$ ;  $p = 0.17$ ). a negative correlation between the average attitude (pre) and state anxiety reach statistical significance ( $p = 0.03$   $r = -0.241$ ) was observed.

## Discussion

The results show that the proposed Semantic Differential suitable as presents to assess the attitude toward the experience of seeing the childbirth psychometric qualities. The three components of our scale, correspond to the three dimensions of attitude that any semantic differential measures: Evaluation (main component I) Activity (main component II) and Power (main component III). Both in its construction and in its evaluation, it was used as reference the work of F. Villar Posada <sup>14</sup>

As for the results obtained, experience has a high level of acceptance. The fact that in both the rejection and the acceptance, the average attitude (pre) exceeds the neutral point in both partners, indicates favorable expectations for the experience, which are overcome when compared with the average attitude (post). So in assessing the mirror as a support tool in childbirth, if we consider the items that reached the highest differences from expectations, mothers consider that see the birth stimulates the pushing, is a beneficial, recommended experience and also necessary. The so high in the items of the third component in both the pre and post, averages show the enormous emotional burden for mothers it means see the birth of his son.

Childbirth and especially the expulsive period are considered stressful events. These differ from other events, certain common characteristics: they have a high intensity, are triggers intense emotions and perceived as uncontrollable. Avoiding being one of the most common coping strategies. <sup>15</sup> The rejection of the experience can be framed as an avoidance response to the stressful fact that for some people means seeing the childbirth.

Couples who rejected the mirror showed levels of anxiety state and trait anxiety, higher than those who accepted.

Special interest has, from the point of view obstetrical, the item Restrain-stimulates. Again, a significant proportion of women have far surpassed the expectation then that the use of the mirror in the second stage of labor would encourage them pushing. Probably the view of the presentation in the perineal phase provide women with information on the outcome of their efforts and strengthen the reflection of pushing, confirming the feedback mirror effect. It could be seen as a process of self-control, which emphasizes the active role that women should take to overcome loss of feeling involved pushing epidural analgesia.

One limitation of the study was the proportion of losses due to rejection, or instrumental deliveries. However, no significant differences in demographic variables, or results of the questionnaire STAI nor in the middle attitude (pre) lost between the group and the rest were found, stratified by partner. It would be of interest in future work to address this experience with qualitative methodology and determine their influence on overall satisfaction perceived by the woman and her partner in the process of delivery care.

In conclusion, the use of the mirror during the second period is favorably valued by most women and their partners. A significant proportion of women considered to see his birth stimulates the pushing. Its simplicity and low cost are aspects to consider in its evaluation as a support tool. The possibility of using the mirror could be offered to the couple in the second stage of labor.

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 **Mailing address:**

Emilio José Becerra Maya.  
Block Obstetric.  
University Hospital Alcorcón Foundation.  
C / Budapest s / n. Alcorcon  
28922 Madrid, Spain [ebm00002@telefonica.net](mailto:ebm00002@telefonica.net)

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