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EFFECT OF VISUAL DISTRACTION ON ANXIETY IN WOMEN DURING THE FIRST STAGE OF LABOR

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Abstract

The effect of visual distraction on the anxiety among women during labor has not been evaluated and remains largely unknown, which aroused an interest in the use of integrating visual distraction into a maternity ward. In this study, anxiety was measured by means of STAI(S-AI). Meanwhile, still images and dynamic images were tested separately, and the duration were also measured. Results of this study showed that visual distraction significantly lowered anxiety of women which provided evidence for the value of integrating visual distraction into a maternity ward.

Keywords: visual distraction, nature art, anxiety level

1 Motivation, specific objective

Labor pain may lead to emotional disorders, among which, anxiety is the most remarkable negative emotion that may possibly lengthen the stage of labor. In addition, anxiety may also contribute to a higher risk of emergency cesarean section (Ryding, Wijma, Rydhstrom,1998). It is suggested in research that visual distraction can reduce the anxiety among children during dental treatment, and mitigate the anxiety of PET/CT patients (Vogel, Renato et al., 2012) during the uptake phase before imaging. However, the effect of visual distraction on the anxiety among women during labor has not been evaluated and remains largely unknown, which has aroused an interest in the use of integrating visual distraction into a maternity ward.

This study aimed to explore whether visual distraction could induce any measurable effect on alleviating the anxiety of women during the first stage of labor, which might have clinical significance. Besides, this study also focused on determining the most effective visual distraction (still images, dynamic images) on anxiety in women during the first stage of labor

2 Materials and Methods

2.1 Participants

A total of 6 women participated into the current study. Taking into the particular account of the maternal pre-natal physical condition and safety, we took multipara who had delivery experience in the last 3 years as subjects instead of parturient women. Participates suffered from serious cardiac, pulmonary, renal, hepatic, neurological or psychiatric disorders were excluded.

The characteristics of the 6 subjects can be found in Table 1.

2.2 Visual distraction

One of the aims of this study was to identify whether the integration of visual distraction into the predelivery environment could induce changes in anxiety on expectant mothers. Past research has established the positive effects of nature art, which is representational depictions of nature on patients (Eisen, Ulrich et al., 2008). A preference study of hospital patients and design students concluded that nature art is appropriate for hospital settings because patients consistently preferred nature and realistic content over abstract or stylized content for their

rooms (Nanda, Eisen, & Baladandayuthapani,2008). In this study, we took a video (prevent the lens from moving for 1min) of trees, then converted it into two versions of images: GIF image and still image (the same scene).

Table 1 – Characteristics of the 6 subjects

Characteristic	Range
Age(y)	
25-30	17%
30-35	83%
Education	
University	100%
Delivery mode	
Eutocia	66%
Cesarean	17%
Both Eutocia and Cesarean	17%
Delivery times	
Once	50%
Twice	50%
Abnormal pregnancy	
Yes	33%
No	67%

Table 2 – Preference of lighting modes in two different positions

No	Position	Indirect lighting+ TV screen	Direct lighting+ TV screen	TV screen
1	Lying	***	**	*
	Sitting	***	**	*
2	Lying	***	**	*
	Sitting	***	**	*
3	Lying	***	**	*
	Sitting	***	**	*
4	Lying	***	**	*
	Sitting	***	**	*
5	Lying	***	**	*
	Sitting	**	***	*
6	Lying	***	*	**
	Sitting	***	**	*

* indicated the degree of preference

***: like the most

** the second

** the third

2.3 Procedure

The study was performed at the simulated predelivery room (Fig.1), Tongji University. The study comprised 3 successive stages.

In stage 1, three lighting modes (Mode 1.direct lighting with television screen, Mode 2.Indirect lighting with television screen, Mode 3.with television screen only) were evaluated by 6 participants (Fig.2)

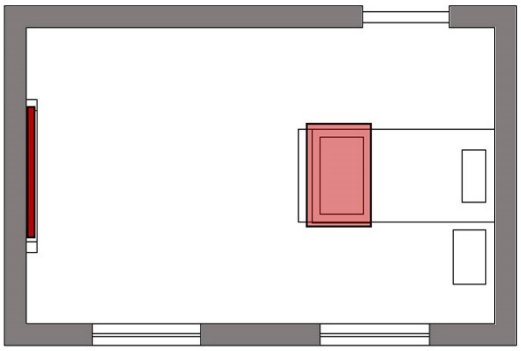

Figure 1 – Layout of the simulated predelivery room

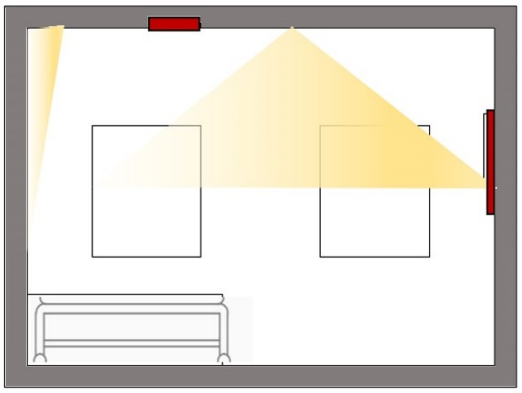

Figure 2 – Three lighting modes

In stage 2, still images and dynamic images were presented to participants in sequence (Fig.3,4). Participants were told to say stop when they got tired of viewing the same picture. The experimenter started the stopwatch as the picture was presented. Still image of tree and the maximum viewing time was recorded (Fig.5,6).

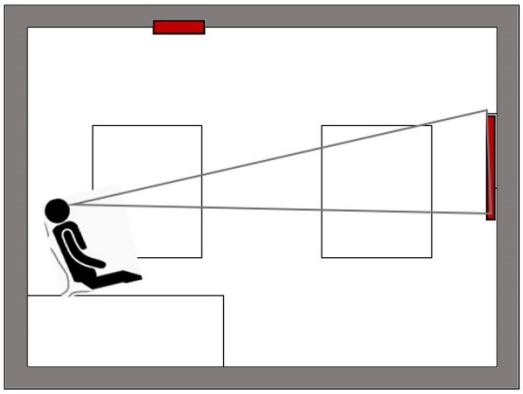

Figure 3 – Viewing images in sitting position.

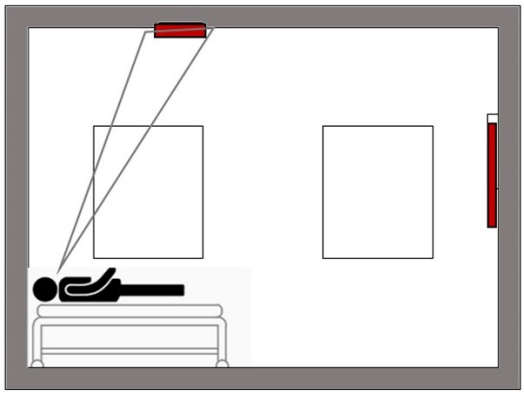

Figure 4 – Viewing images in lying position

Figure 5, 6 – Images of trees presented on television screens (still, dynamic version).

In stage 3, the picture which the participant liked the most in stage 2, was presented again through television screen for about 1min, a state anxiety questionnaire was taken both before and after the intervention (Fig.7,8).

Figure 7, 8 – Photographs during the experiment.

3 Results

The preferences of three lighting modes of each participant could be found in Table 2. Mode of indirect lighting + television screen got the highest degree of preference, while the TV screen only mode got the lowest. There was little difference in the degree of preference due to positions

The average maximum viewing time of still images (32s and 20s) were shorter than that of dynamic images (68s and 41.7s), and statistical differences between dynamic images and still images could be found in Table 3, Fig.9. ($p < 0.1$) There was one subject who had caesarean (the only subject who didn't have eutocia experience) preferred still images.

Table 3 – Maximum viewing time of different images and positions

Position	State	Mean	SD	SE	*P**(N=6)
Lying	Dynamic	68	47.28	19.30	0.029
	Still	32	28.99	11.83	
Sitting	Dynamic	41.67	34.49	14.08	0.054
	Still	20	19.41	7.92	

*Paired-samples t test.

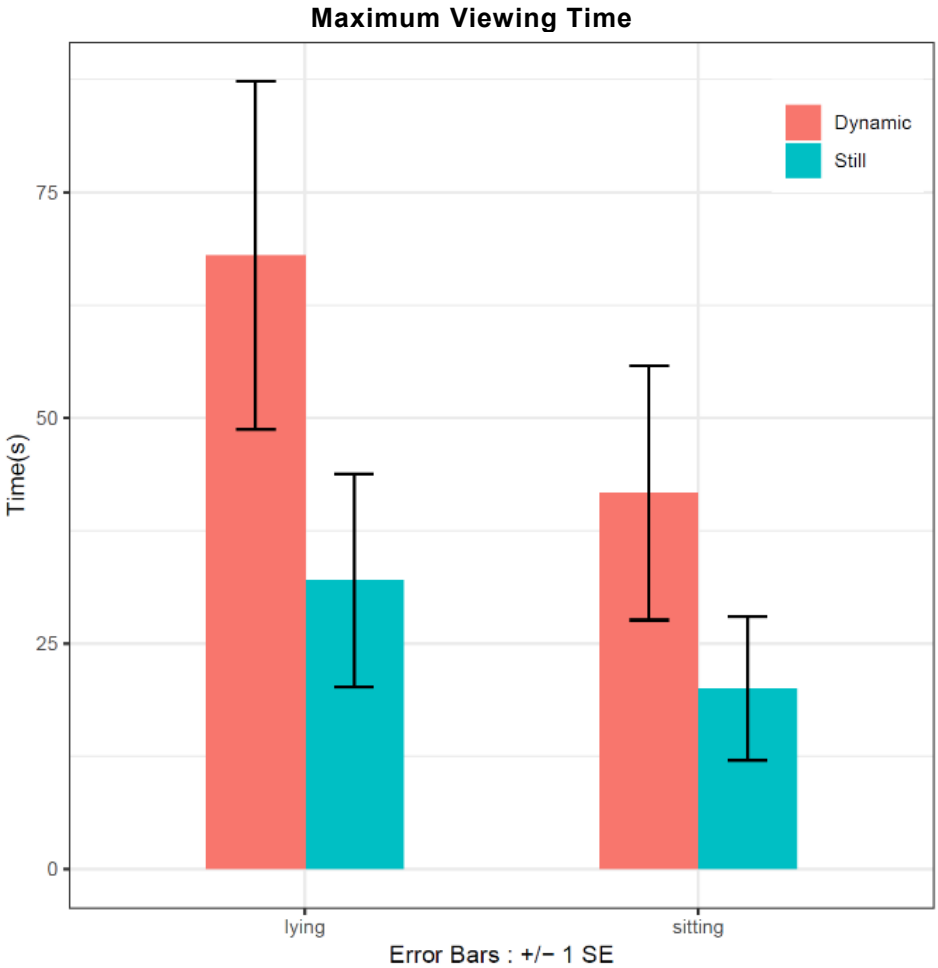

Figure 9 – Maximum viewing time of different images and positions

The average scores of STAI were lower after the visual distraction (Table 4，Fig.10). And significant differences could be found in Table 5.

Table 4 – Effect of visual distraction

	STAI			
Time	Mean	SD	SE	Range
Begin	53.5	13.63	5.57	42
End	37.17	10.53	4.3	26

Table 5 – Overall changes throughout the intervention

	STAI				
Variable	Mean	SD	SE	Range	*P**
STAI	-16.33	7.23	2.95	18	0.003

*Paired-samples t test.

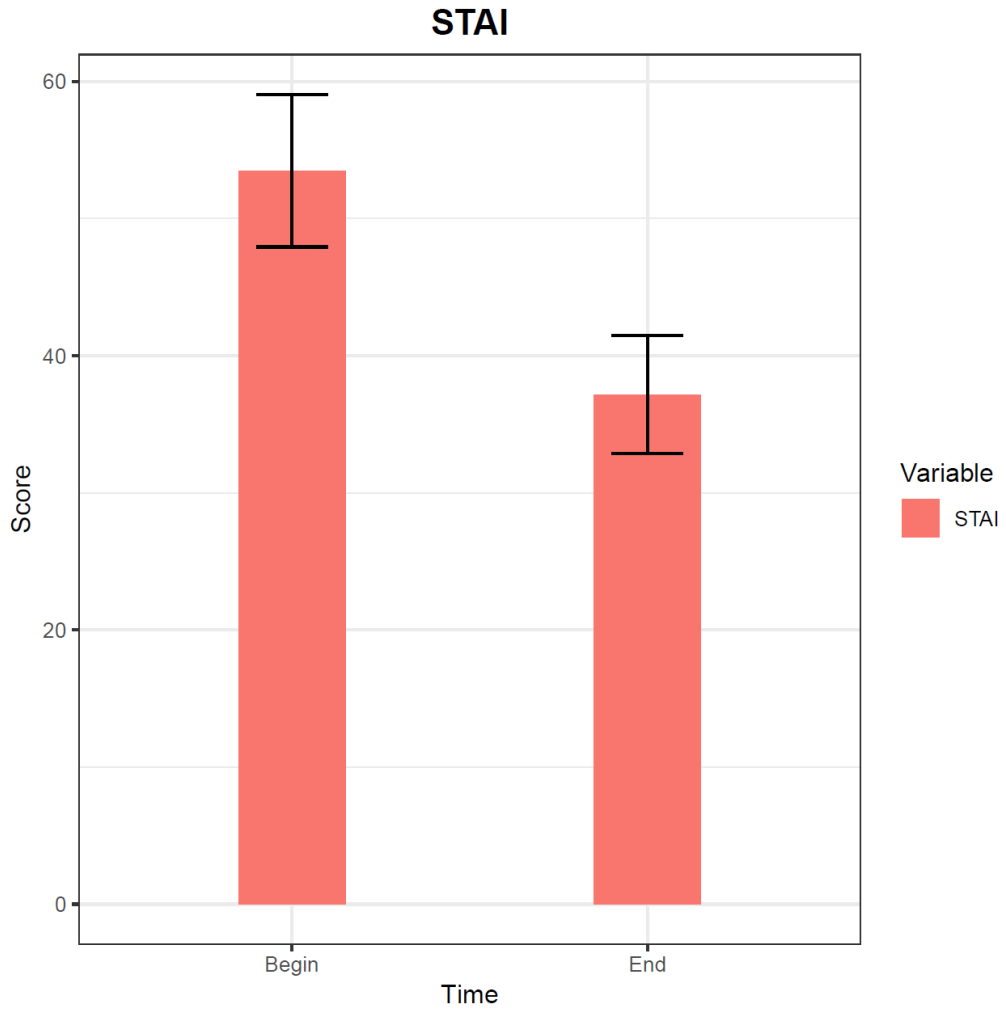

Figure 10 – Visual distraction significantly lowers anxiety.

4 Conclusion

Results of this study showed that visual distraction significantly lowered anxiety of women which provided evidence for the value of integrating visual distraction into a maternity ward, reducing the anxiety among women, creating a positive delivery experience and potentially reducing the costs of the hospitals.

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