

## The effect of personal space on blood pressure in the Turkish woman

Esin Cetinkaya-Uslusoy, Emel Tasci-Duran

### Abstract

**Objective:** To explore the effect of personal space on blood pressure using the Giger and Davidhizar transcultural assessment model.

**Methods:** The quasi-experimental study was carried out in a maternity hospital located in Isparta, Turkey, from March to July 2014, and comprised all the women hospitalised in the obstetrics and gynaecology clinic. The blood pressure measurements were performed by two nursing students; one male and one female. The questionnaire was composed by the researchers in reference to the sub-dimensions of the Giger and Davidhizar transcultural assessment model.

**Results:** There were 115 women with a mean age of  $26.50 \pm 4.86$  years. Overall, 81 (70.4%) patients were members of a nuclear family, and 43 (37.4%) were primary school graduates. There was no significant difference in the diastolic blood pressure values measured by female and male students ( $p > 0.05$ ), but systolic blood pressure values measured by the female and male students were significantly different ( $p < 0.05$ ).

**Conclusion:** Female patients had increased systolic blood pressure values when they were measured by male nursing students and the increase was correlated with ethnicity and income level.

**Keywords:** Blood pressure, Transcultural nursing, Personal space. (JPMA 68: 1238; 2018)

### Introduction

Nonverbal ingredient of communication and significant factors such as distance, space and touch can play an important part in therapeutic relationships.<sup>1</sup> The Giger and Davidhizar model proposes that culturally diverse nursing care takes into account six cultural phenomena; environmental control, biological variations, social organisation, communication, space, and time orientation.<sup>1-3</sup> Personal space includes the space and the objects within the space. The area included in personal space is an individual issue. The situation, and dimensions of the personal space comfort zone also vary from culture to culture.<sup>1</sup> There are four distinct zones of interpersonal space; one of these is personal space (0.46-1.22m).<sup>4</sup> Humans are similar to felines in that they wish to establish territoriality, and become disturbed when the territory is encroached upon. The amount of territorial space is based on the individual and their cultural preferences.<sup>3</sup> According to literature, in cardiovascular psychophysiology, heart rate reduction during exposure to stress is often a marker of alertness or of freezing. Acute stress, in general, elevates blood pressure and heart rate, synergistically raising the blood pressure.<sup>1,5-7</sup> Studies similar to the present one can neither be found in the Turkish nor in the international literature, and only a few studies have presented findings regarding the effects of certain circumstances on blood pressure.

The personal space perceptions of females and males in

.....  
Süleyman Demirel University, Turkey.

**Correspondence:** Esin Cetinkaya-Uslusoy. Email: esinuslusoy@sdu.edu.tr

their own cultural context are different.<sup>8</sup> The identification of the effects of gender and culture on blood pressure is of great importance<sup>9</sup> for healthcare professionals to provide appropriate care. In the Turkish culture, the fact that females hold themselves at a distance from males is due to their culture and upbringing.<sup>10</sup> Turkish study on the matter has reported that patients and their relatives are generally suspicious of being cared for by a male nurse and that such care delivery causes them to experience shyness and discomfort.<sup>11</sup> The literature on the matter is rather limited, and, therefore, the current study was planned to fill that gap. The study used Giger and Davidhizar's transcultural assessment model, and the focus was mostly on its personal space dimension.

### Subjects and Methods

The quasi-experimental study was carried out in a maternity hospital located in Isparta, Turkey, from March to July 2014, and comprised all the women hospitalised in the obstetrics and gynaecology clinic during the period.

These clinical departments were chosen in order to observe and keep the study under control. Those included in the study did not have any underlying reason for hospitalisation that could have an effect on blood pressure, were either high school graduates or had a lower educational status. Those who had already been diagnosed with a cardiovascular problem, who did not understand the Turkish language and who did not agree to participate in the study were excluded. The sample size was calculated by a prior power analysis using G\* Power

version<sup>12</sup> based on  $\alpha$  level 0.05, power of 0.99, and the assumed effect size being 0.53. Blood pressure measurements were performed by two nursing students; one female and one male. Generally, the clinics do not employ male nurses. Blood pressure measurements were made on the left arm using a sphygmomanometer and a stethoscope. Each participant was seated and rested for at least five minutes before measurements, and environmental noise was reduced during the measurement of blood pressure.

The blood pressure of each patient was measured by both the male and the female students three times a day at 9 am, 12 noon, and 3 pm with three-hour intervals in between using the same sphygmomanometer and stethoscope. Since it was necessary to wait for at least two minutes between the two measurements to ensure venous congestion, the second measurements were conducted at least five minutes after the first measurement.<sup>13</sup> The measurements throughout the study were performed by the same students. During the measurements, the closeness of the students to the patients was 0.3 m. Each of the three values obtained from the measurements were recorded in the data-collection form.

The data collection form was composed of a questionnaire that contained questions along with the blood pressure measurement form. The questions were generated by the researchers in reference to the sub-dimensions of the Giger and Davidhizar transcultural assessment model.<sup>1,4</sup> The questions addressed the participants' socio-demographics, cultural characteristics and their views on personal space and gender of the nurses.

The data-collection form was filled out after the blood pressure measurements were completed. The questionnaire was applied to patients by the students via face-to-face interviews. Permission was obtained from the institutional ethics committee, and verbal permission was obtained from all the subjects.

Statistical analyses involved the respective mean scores of the three measurements taken by the female student and by the male student for each patient. The data analyses involved mean scores, frequencies, independent-samples t tests, and repeated measure analysis of variance (ANOVA).  $P < 0.05$  was considered statistically significant.

### Results

There were 115 women with a mean age of  $26.50 \pm 4.86$

**Table-1:** Women's socio-demographic and cultural characteristics.

Socio-Demographic and Cultural Characteristics					
<b>Age</b>	<b>No.</b>	<b>%</b>	<b>Were you cared for by a male nurse?</b>	<b>No</b>	<b>%</b>
20-24	51	44,3	Yes	27	23,5
25-29	27	23,5	No	88	76,5
30-34	37	32,2	<b>What is your preference of nurse gender for your care?</b>		
<b>Family type</b>			Female	108	93,9
Nuclear family	81	70,4	Male	7	6,1
Extended family	34	29,6	<b>How much distance should be between you and male nurse?</b>		
<b>Education status</b>			Half a meter	34	29,6
Not literate	11	9,6	One meter	59	51,3
Primary school education	43	37,4	More than One meter	22	19,1
Secondary school	16	13,9	<b>What do you do if a male nurse is close to you while being cared for?</b>		
High School	39	33,9	I will withdraw	48	41,7
University graduates	6	5,2	I stayed in my place	67	58,3
<b>Incomes</b>			<b>What do you feel if you are accompanied by one more person while being cared for by a male nurse?</b>		
479-800*	33	28,7	Relaxed	63	54,8
801-1200*	38	33,0	Does Not Affect	41	35,7
1201* and ↑	44	38,3	Disturbed	11	9,5
<b>Ethnic origin</b>					
Türk	100	87,0			
Other	15	13,0			
<b>Communication with the members of the opposite sex</b>					
Easy	78	67,8			
Distressed	37	32,2			

\*: Turkish currency (Turkish lira).

**Table-2:** Comparison of the mean blood pressure values measured by the female student and the male student (n=115).

Blood pressure	Female student Mean±SD	Male student Mean±SD	Statistical Difference
Diastolic Mean Value	65.53±7.4	66.24±7.4	t=-1.250 p= 0.213
Systole Mean Value	102.68±8.49	114.84±9.0	t= -5.730 p= 0.001

Significant at p &lt; 0.05.

years. Overall, 81(70.4%) patients were members of a nuclear family, and 43(37.4%) were primary school graduates. All the participants (100%) were Muslims.

Of the subjects, 78(67.8%) indicated feeling comfortable in communication with any male. In addition, 108(93.9%) participants reported they wanted to be taken care of by female nurses; 59(51.3%) believed that a male nurse should stay at a distance of at least one meter; and 48(41.7%) asserted that they would withdraw if a male

**Table-3:** Comparison of the mean systolic blood pressure values according to women's Socio-Demographic and Cultural Characteristics (n=115).

Socio-Demographic and Cultural Characteristics	Mean systolic blood pressure values measured by the female student* Mean±SD	Mean systolic blood pressure values measured by the male student* Mean±SD	Statistical Difference
<b>Age (years)</b>			
20-24	102.58±8.8	114.58±9	F=0.089
25-29	100.86±6.9	101.44±7.8	p=.915
30-34	104.14±9	116.20±9.7	
<b>Family type</b>			
Nuclear family	103.16±9	115.00±9.7	F=0.801
Extended family	101.51±6.9	114.44±6.9	p=.373
<b>Education status</b>			
Not literate	100.30±6.9	112.93±8.4	
Primary school education	103.29±8.3	115.58±8.5	F=1.016
Secondary school	102.81±8.2	115.47±7.1	p=.467
High School	101.66±9.3	112.71±10	
University graduates	108.88±8.4	117.05±4	
<b>Incomes</b>			
479-800 λ	100.80±7.2	114.90±8.0	
801-1200 λ	104.56±8.5	117.24±9.0	F=4.481
1201 λ and ↑	102.46±9.1	112.71±9.3	**p=.013
<b>Ethnic origin</b>			
Türk	102.63±8.7	114.35±8.7	F=2.108
Other	103.00±6.5	118.11±10	**p=.049
<b>What is your preference of nurse gender to care for you?</b>			
Female	102.73±8.6	114.77±9.1	F=0.721
Male	101.90±6.69	115.90±6.2	p=.398
<b>Communication with the members of the opposite sex</b>			
Easy	103.24±8.5	115.17±9.3	F=0.723
Distressed	101.48±8.4	114.13±8.3	p=.397
<b>Were you cared for by a male nurse?</b>			
Yes	101.54±6.3	113.07±6.7	F=0.397
No	103.03±9	115.38±9.5	p=.530
<b>How much distance should be between you and male nurse?</b>			
Half a meter	101.27±8.1	112.18±9.1	F=1.150
One meter	103.55±8.8	116.09±9.2	p=.320
More than One meter	102.50±8.0	115.59±7.5	
<b>What do you do if a male nurse is closer you while being care for you?</b>			
I will withdraw	101.77±8.5	115.28±10	F=4.454
I stayed in my place	103.33±8.4	114.52±8.2	**p=.037
<b>What did you feel if you are accompanied by one more person while being cared for by a male nurse?</b>			
Relaxed	102.67±9.3	115.08±9.9	F=0.598
Does Not Affect	103.08±7.9	114.52±8.4	p=.552
Disturbs	101.21±4.6	114.60±5.3	

\*mmHg \*\*Significant at p &lt; 0.05.

λ: Turkish currency (Turkish lira).

nurse approached them too closely while being taken care of (Table-1).

The mean diastolic blood pressure value measured by the female student was  $65.53 \pm 7.49$  mmHg, and that by the male student was  $66.24 \pm 7.47$  mmHg ( $p > 0.05$ ). However, the mean systolic blood pressure value measured by the female student was  $102.68 \pm 8.49$  mmHg and that by the male student was  $114.84 \pm 9.00$  mmHg ( $p < 0.05$ ) (Table-2).

A comparison was done of the mean systolic blood pressure values measured by the female student and the male student according to women's socio-demographic and cultural characteristics (Table-3). The other socio-demographic and cultural characteristics did not lead to a difference in systolic blood pressure values ( $p > 0.05$ ).

## Discussion

In this study, whereas there was not a statistically significance difference between the diastolic blood pressure values measured by the female and male students, a statistically significant difference existed between the systolic blood pressure values measured by the female and male students ( $p < 0.05$ ). In fact, the systolic blood pressure measurements varied depending on the gender of the person who took the measurements, and the measurements taken by the male student yielded higher values.

The fact that the participants' systolic blood pressure values were higher when they were measured by the male nursing student suggested that the participants, under the influence of cultural norms of personal space and gender, found it normal when they were approached by the female nursing student but viewed the same approach by the male nursing student as an attack on their personal space.<sup>1,9,14,15</sup> Moreover, some women acknowledged that it is a sin for women to be approached by unknown men in Islam.<sup>10</sup>

In the present study, participants who said that they would withdraw if a male nurse approached them too closely had significantly higher blood pressure values ( $p < 0.05$ ). Exploring the changes in blood pressure values during the violation of personal space, a study reported that shorter interpersonal space led to changes, though insignificant, in blood pressure levels as well as increases in anxiety and tension.<sup>7</sup> Similarly, in some studies found that people experienced significant increases in their systolic blood pressure values when they suffered from psychological stress.<sup>5,6,16</sup> In the present study, the participants might have regarded it as a threat when their blood pressure was measured by the male student, for they did not know him. As described in the Giger and

Davidhizar transcultural assessment model, space is one of the six cultural phenomena in the model which refers to the distance between individuals when they interact, and all communication occurs in the context of space.<sup>4</sup> In particular, level of comfort depends on personal space - feeling at ease in conversation, proximity to others, body movements and how the intimate space is perceived. It may be regarded as disturbing by some individuals when their personal space is attacked by strangers.

In this study the significant increase in the systolic blood pressure values were observed among those women who were not of Turkish origin, who had a low income level, and who were secondary school graduates. An Iranian study reported that Kurdish women would rather have more inter-personal space while they were sitting or walking than Northern (Mazanderani) women.<sup>17</sup> Women play a pioneering role in the survival of ethnic groups and in the maintenance of their traditions.<sup>18</sup> Religious values, beliefs and roles are closely intertwined with culture and ethnic origin. In social organisation which is another cultural phenomenon in the Giger and Davidhizar transcultural assessment model, it is asserted that cultural heritages are conveyed under the influence of religion and ethnic backgrounds during the process of socialisation.<sup>19</sup>

In the present study, those women who had a lower income level and had higher systolic blood pressure values could be assumed to experience such feelings more frequently than others. Furthermore, it can be argued that women with a lower socioeconomic status are more likely to maintain their cultural traditions. This idea is supported considering that the sample of the present study was entirely composed of women participants. According to another study, socioeconomic inequalities in hierarchical societies cause people to feel shy, aggressive and hopeless.<sup>20</sup> Shyness is felt as a combination of fear, attention, tension, and desirability. Physiologically, the feeling is accompanied by an increase in the heart rate and blood pressure.<sup>21</sup> Results of the study could represent the status of women in Turkish culture. The study should be replicated in different cultural settings. All the participants being Muslim could be a limitation.

Nurses should remember that the anxiety level of patients is already increased during hospitalisation. By eliminating certain communication problems, a nurse can easily lower a patient's tension and anxiety. If there is a measurement of abnormal blood pressure, male nurses should make female nurses measure the blood pressure again. Moreover, male nurses should take certain cultural values

into account and avoid invading personal space unless necessary.

### Conclusion

Female patients had increased systolic blood pressure values when they were measured by a male nursing student and the increase was caused by the discomfort of another gender invading their personal space which was correlated with ethnicity and income levels.

**Disclaimer:** None.

**Conflict of Interest:** None.

**Source of Funding:** None.

### References

- Giger JN, Davidhizar RE. Transcultural nursing/assessment and intervention, chapter. Introduction to transcultural nursing. St Louis Missouri/USA: Mosby Elsevier, 2008.
- Hitchcock J, Schubert PE, Thomas SA. Spiritual and cultural perspectives, Community Health Nursing. U.S.A: Pelmar Publishing, 2003.
- Dayer-Berenson L. Cultural competencies for nurses impact on health and illness impact on health and illness. U. S. A: Jones & Bartlett Publisher, 2010.
- Davidhizar R, Giger JN. The giger and davidhizar transcultural assessment model. J Transcultural Nurs 2002; 13: 185-8.
- Chida Y, Steptoe A. Greater cardiovascular responses to laboratory mental stress are associated with poor subsequent cardiovascular risk status: a metaanalysis of prospective evidence. Hypertension 2010; 55: 1026-32.
- Low CA, Salomon K, Matthews KA. Chronic life stress, cardiovascular reactivity, and subclinical cardiovascular disease in adolescents. Psychosom Med 2009; 71: 927-31.
- Sawada Y. Blood pressure and heart rate responses to an intrusion on personal space. Jpn Psychol Res 2003; 45: 115-21.
- Sammons A. Personal space. [Online] [Cited 2015 Oct 10]. Available from: URL: www.psychotron.org.uk.
- Gallace A, Spence C. The Science of interpersonal touch: an overview. Neurosci. Biobehav Rev 2010; 34: 246-59.
- Erol M. The effects of gender on attitudes. C.Ü. Soc Sci J 2008; 32: 199-219.
- Tezel A, Akpınar BA, Yurttaş A, Celebioglu A. Will Patients Accept the Male Nurse? Türkiye Klinikleri J Med Ethics 2008; 16: 13-8.
- Faul F, Erdfelder E, Lang AG, Buchner A. G\*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. Behav Res Methods 2007; 39: 175-91.
- Craven R, Hirnle C, Jensen S. Fundamentals of nursing: human health and function. China: Lippincott Williams & Wilkins, 2012.
- Martin B. A stranger's touch: effects of accidental interpersonal touch on consumer evaluations and shopping time. J Consumer Res 2012; 39: 174-84.
- Webb A, Peck J. Individual differences in interpersonal touch: on the development, validation, and use of the "comfort with interpersonal touch" (CIT) scale. J Consumer Psychol 2015; 25: 60-77.
- Lambiasea MJ, Dorna J, Chernegaa NJ, McCarthy TF, Roemmich JN. Excess heart rate and systolic blood pressure during psychological stress in relation to metabolic demand in adolescents. Biol Psychol 2012; 91: 42-7.
- Gharaei FMN, Rafieian M. Enhancing living quality: cross-cultural differences in personal space between kurkish and northern women in Iran. Procedia - Soc Behav Sci 2012; 35: 313-20.
- Mengüloğul G. Differences, gender and urban migration, identity experiences of second-generation immigrant women [Dissertation]. Ankara: Ankara University, Social Sciences Institute., 2006.
- Tortumluoğlu G. The implications of transcultural nursing models in the provision of culturally competent care. ICUS Nursing Web J 2006; 25: 1-11.
- Roy JP. Socioeconomic status and health: a neurobiological perspective. Med Hypotheses 2004; 62: 222-7.
- Henderson L, Zimbardo P, Carducci B. Shyness. Corsini Encyclopedia of Psychology 2010; 1-3.