

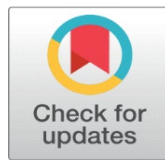


# THE IMPORTANCE OF INFORMING THE PATIENTS RECEIVING PHYSICAL THERAPY AND REHABILITATION SERVICES FOR CERVICAL DISC HERNIA ABOUT HEALTHY LIFESTYLE BEHAVIORS: A SAMPLE STUDY FROM TURKEY

Nuran Unaler <sup>1</sup>, Nurdan Kirimlioglu <sup>2</sup>

<sup>1</sup> Retired Medical Technician, Nurse, Nuran Unaler Aydınlar District, Aydınlar Street, Mehmet Akif Ersoy Buildings No.18/4, 42320, Eregli, Konya, Turkey

<sup>2</sup> Eskisehir Osmangazi University Faculty of Medicine, Department of History of Medicine, And Medical Ethics, 26480, Eskisehir, Turkey



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## Corresponding Author

Nuran Unaler,  
[salemnuran7@gmail.com](mailto:salemnuran7@gmail.com)

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## ABSTRACT

**Background:** Considering the risk factors of cervical disc hernia, morbidity can be reduced, and the recurrence of the disease can be prevented by the acquisition of Healthy Lifestyle Behaviors (HLSB).

**Aim:** The aim is to evaluate the relationship between the cause of the disease and the risk factors, knowledge, attitudes, and behaviors of the patients, who received physical therapy and rehabilitation (PTR) service upon the diagnosis of cervical disc hernia, regarding HLSB with ethical information.

**Method:** Data were obtained from 222 patients at the Department of PTR at Eskisehir Yunus Emre State Hospital (EYEDH) in Turkey. The Healthy Lifestyle Behavior Scale II (HLSBS II) was administered to the participants by using a questionnaire form. Descriptive statistics, Chi-square Test of Independence, Unpaired T Test were used to evaluate the data.

**Results:** There was a significant difference between the general scale and sub-scale scores of HLSBS II of the participants and the state of knowing the cause of the disease ( $p < 0.05$ ). There is a significant difference between informing the participants about their diseases, treatments, medical treatments as an alternative to PTR (surgical, medical), and the risk factors and reflecting such information to their behaviors ( $p < 0.05$ ). It is observed that the participants informed have changed their behaviors.

**Conclusion:** It can be seen that the participants consider the information provided and try to carry out their actions, are willing to learn about HLSB, are open to behavioral changes, and want to receive training on this matter.

**Keywords:** Informing, Healthy Lifestyle Behaviors, Cervical Disc Hernia, Physical Treatment and Rehabilitation

## 1. INTRODUCTION

Positive social, physical, and biological environment and taking care of the personal precautions provide to ensure the protection of health [Khaghanyrab and](#)

[Ozlu \(2014\)](#) In the WHO Bangkok Declaration (2005), the concept of health improvement is defined as learning the factors affecting their health, gaining control over their health status, and thus, being healthy at the highest level [World Health Organization \(WHO\) \(2009\)](#)

Today, when it comes to health protection and promotion, the understanding that they are related to not only health centers but also the lifestyle of health conditions of individuals has started to be adopted [Ozvaris \(2012\)](#) In conjunction with this, acquisition, and practice of HLSB is required to maintain and improve health.

HLSB includes taking the health responsibility of the individual, eating habits, stress management, physical activity, spiritual development, and interpersonal relations.

Individuals, who practiced HLSB, have less risk of developing chronic diseases, have their immune systems strengthened, have a more positive perspective, and can have a more qualified life period [Simsekoglu and Mayda \(2016\)](#)

Cervical disc hernia, which is one of the diseases of the musculoskeletal system, is also common due to the adverse effects of current living conditions on health in all aspects and the development of dangerous conditions for health.

PTR practices, prioritizing preventive medicine in all kinds of diseases and are carried out with a holistic and ethical approach, are accepted as a treatment method with a strong effect on the individuals in order to provide an independent and quality life in the treatment of cervical disc hernia [Delisa et al. \(2007\)](#) [Beyazova and Kutsal \(2016\)](#)

In PTR, a custom treatment plan is developed, and preventive approach is prioritized than treatment via training. Although many factors affect the understanding of the disease and health concepts, HLSB can be achieved with appropriate health training [Yalcinkaya et al. \(2007\)](#)

Cervical disc hernia is a common disease that can even recur after various treatments and surgical procedures. When the risk factors are considered, morbidity can be reduced, and the recurrence of the disease can be prevented by the acquisition of HLSB. The positive health perception of this group, with a wide range of patients, and their ability to realize HLSB can only be possible in case the health professionals provide information that can be understood by the individual from an ethical point of view.

Informing, which is accepted as a fundamental patient right, has some specific differences in every medical discipline. The only aim is not to eliminate the symptoms of the disease in the patients, who received PTR treatment for cervical disc hernia. The expectation from informing is to direct the patients to HLSB and help them to adapt to the treatment, to give independent decisions, to prevent repeated hospitalizations by improving their life quality [Uzun \(2007\)](#) to control the problems caused by the disease and the treatment, to improve the communication of the patient, and to help the patients to conduct the activities as before the disease [Karadag and Lafci \(2015\)](#) Thus, informing in the PTR process is a dynamic process aiming to create a change in the behaviour rather than simply informing.

Standardization of the healthy lifestyle behaviours with scientific and medical data and practice of them according to the individuals is the issue of [World Health Organization \(WHO\) \(2020\)](#)

The patient perspectives regarding HLSB constitute an important information source on HLSB that aims to improve and maintain public health. Also, evaluation of

the patient perspectives and use them in clinical studies can contribute to the values, experiences, and beliefs of both healthcare professionals and patients. Since approaching patient perspectives or the results obtained with a critical point of view will provide insight into practice in an ethical sense, it can also contribute to establishment and maintenance of a morally acceptable health policy that can provide public support with a comprehensive approach [Vanstone et al. \(2018\)](#)

In the current study, the aim is to evaluate the relationship between the cause of the disease and the risk factors, knowledge, attitudes, and behaviours of the patients, who received PTR services upon the diagnosis of cervical disc hernia, regarding HLSB with ethical information.

## **2. METHOD**

### **2.1. TYPE OF THE STUDY**

The current study, which is descriptive, cross-sectional, and analytical among the observational studies, takes place in the group of structured questionnaires.

### **2.2. RESEARCH GROUP**

The study was conducted by the participation of volunteers, who were diagnosed with cervical disc hernia and were accepted to the on-patient and in-patient PTR program at the Department of PTR of EYEDH in Turkey, between May 01, 2019, and September 30, 2019. The aim of the study was explained to the patients and their consent was obtained. As the population of the study, 523 patients, who received treatment in the six-month period between July 01 and December 31, 2018, of the previous year, were included, and the sample consisted of 222 patients.

### **2.3. DATA COLLECTION TOOLS**

A questionnaire form, which includes HLSBS II and the socio-demographic information of the patients, has no scoring, and was specially prepared by reviewing the literature related to the subject and purpose of the study, was used in the study.

HLSBS II Scale was developed by [Walker et al. \(1987\)](#) revised by Walker et al. in 1996 and adapted to Turkish by Nihal Esin. The cronbach alpha coefficient of the scale, of which the Turkish validity and reliability was conducted by Bahar et al., was 0.92. The scale consists of 52 items in total and includes the sub-scales of health responsibility, physical activity, nutrition, spiritual development, interpersonal relationships, and stress management.

All the items of the scale are positive. The overall score obtained from the scale shows the HLSB score. The scale is a 4-point Likert-type scale in the form of never (1), sometimes (2), often (3), regularly (4). The lowest score that can be obtained from the scale is "52", while the highest score is "208" [Bahar et al. \(2008\)](#)

### **2.4. STATISTICAL METHODS USED IN DATA ANALYSIS**

The data obtained from the study were evaluated at 95% confidence interval and a significance level of  $\alpha=0.05$  by using the appropriate statistical package programs. Cronbach's alpha coefficient for general reliability is calculated [Ozdamar \(2015\)](#)

In the study in which descriptive statistics were used, Shapiro-Wilk Test was used to determine the compatibility of the data with the central limit theorem, since the sample size was  $7 < n \leq 2000$ . Although the test result data did not show a normal distribution ( $p < 0.05$ ), the data were considered as normal, because the kurtosis and skewness values, which are other assumptions of the normal distribution, were between  $\pm 2$ .

Unpaired t-test was used to determine whether the difference between two independent groups was significant. Chi-square independence test was used to determine whether there was a significant difference between the variables of the study [Ozdamar \(2015\)](#) [George and Mallery \(2010\)](#)

## 2.5. ETHICAL CONSIDERATIONS

For the study, ethics committee approval (numbered 4 and dated 19.02.2019) from Eskisehir Osmangazi University Non-invasive Ethics Committee and permission from Eskisehir Provincial Directorate of Health on 24.04.2019 were obtained.

## 3. RESULTS

[Table 1](#) shows the socio-demographic characteristics of the participants.

The Cronbach's alpha coefficient of reliability for all the questions in HLSBS II is = 0,92 and the questionnaire is reliable.

**Table 1**

Table 1 Distribution of the Participants in terms of their socio-demographic characteristics			
		$\bar{X} \pm S.S.$	
Age average		45.7 $\pm$ 2.38	
		n	%
Gender	Female	145	65.3
	Male	77	34.7
Age	34-years-old and under	31	14
	35-44	53	23.9
	45-54	43	19.4
	55-64	52	23.4
	65 years old and over	43	19.3
Marital status	Married	175	78.8
	Single	47	21.2
Have a child	Yes	179	80.6
	No	43	19.4
Education	Primary school and under	72	32.3
	Secondary school	20	9
	High School and equivalent	53	24
	Higher Education	77	34.7
Employment Status	Employee group (Managers, professional groups, technicians, technicians, auxiliary staff, office workers, craftsmen and related jobs, service and sales staff, qualified agriculture and water workers, plant machine operators, installers, workers in jobs that do not require qualifications and others).	88	39.6
	Unemployed group (housewife, retired)	134	60.4

	Professional occupational groups	25	11.2
Occupational Status	Technician, auxiliary staff	14	6.3
	Office personnel	18	8.1
	Other	31	14
	1800 TL and less	39	17.5
Income status	1801-2800 TL	75	33.8
	2801-4300 TL	66	29.7
	4300 TL and more	42	19
	City Center	129	58.1
Area of residence	County town	76	34.2
	District (village)	17	7.7
Total		222	100

The highest score that the participants got from HLSBS II is 184 and the lowest score is 75. The mean score of the scale is  $123.55 \pm 18.54$ , and the highest mean score in sub-scales belongs to spiritual development with  $23.57 \pm 4.06$  and the lowest average score belongs to the physical activity with  $16.19 \pm 4.36$ .

There was a significant difference between the general scale and sub-scale scores of HLSBS II of the participants and the state of knowing the cause of the disease ( $p < 0.05$ ). It can be seen that the difference is in favour of the participants, who know the cause of the disease in the nutrition and spiritual development sub-scales [Table 2](#)

**Table 2**

**Table 2 Relationship between the HLSBS II General Scale and Sub-Scale Scores of the Participants and Knowing the reasons of the disease and the risk factors of the disease**

HLSBS II General Scale and Sub-Scale Scores									
		n	Health Responsibility	Physical Activity	Nutrition	Spiritual Development	Interpersonal Relations	Stress Management	Total
			$\bar{X} \pm S.S.$	$\bar{X} \pm S.S.$	$\bar{X} \pm S.S.$	$\bar{X} \pm S.S.$	$\bar{X} \pm S.S.$	$\bar{X} \pm S.S.$	$\bar{X} \pm S.S.$
Knowing the reason of the disease	Yes	111	$20.27 \pm 4.23$	$16.41 \pm 4.55$	$22.45 \pm 3.16$	$24.13 \pm 4.17$	$23.41 \pm 3.80$	$18.59 \pm 3.74$	$125.26 \pm 18.79$
	No	110	$20.47 \pm 4.12$	$15.97 \pm 4.16$	$21.46 \pm 3.51$	$23.02 \pm 3.90$	$22.90 \pm 4.05$	$18.00 \pm 3.19$	$121.83 \pm 18.20$
	T; p		-0.360; 0.719	0.753; 0.452	<b>2,200; 0,029*</b>	<b>2,041; 0,042*</b>	0.974; 0.331	1.252; 0.212	1.380; 0.169
Knowing the Risk Factors of the Disease	Yes	89	$20.58 \pm 4.50$	$17.53 \pm 4.65$	$22.71 \pm 3.32$	$24.21 \pm 4.59$	$23.75 \pm 4.16$	$19.11 \pm 4.04$	$127.90 \pm 20.75$
	No	132	$20.23 \pm 3.94$	$15.30 \pm 3.91$	$21.45 \pm 3.31$	$23.14 \pm 3.62$	$22.76 \pm 3.73$	$17.74 \pm 2.94$	$120.62 \pm 16.32$
	T; p		0.624; 0.533	<b>3,854; 0,000***</b>	<b>2,757; 0,006**</b>	1.931; 0.055	1.858; 0.064	<b>2,749; 0,007**</b>	<b>2,780; 0,006**</b>

Unpaired t-test, \*( $p < 0.05$ ), \*\*( $p < 0.001$ ), \*\*\* ( $p < 0.0001$ )

There was a significant difference between the general scale and sub-scale scores of HLSBS II of the participants and the state of knowing the risk factors of the disease ( $p < 0.05$ ). It is seen that the difference is in favour of the participants who have information about the risk factors of cervical disc hernia in the physical

activity, nutrition, stress management sub-dimensions, and the overall average scores of the scale [Table 2](#) It is required that the participants should learn about the risk factors of the disease and control their physical activities, nutrition, and stress.

The rates of informing the participants about their diseases, treatments, alternative treatments (surgery, medical), and risk factors ranged from 53.2% to 75.7%, and the rates of behaviour changes after being informed varied between 81.8% and 90.7% [Table 3](#) It can be seen that the participants consider the information provided and try to realize them in their actions, and that informing has a positive effect on the behaviours of the individuals Of the participants, 184 (82.9%) stated that the information provided was clear and understandable, 191 (86%) stated that their permission was obtained for the operations to be carried out in the PTR process and signed the informed consent form.

**Table 3**

<b>Table 3 Informing the Participants about their Diseases (risk factors, type of treatment, outcomes of the treatment etc.) Distribution of Reflecting Such Information to Their Behaviors</b>					
	<b>n (Yes)</b>	<b>%</b>	<b>n (Yes)</b>	<b>%</b>	<b>n (No answer)</b>
Have you been informed about your disease by the doctor?	168	75.7	52	23.4	2
If yes, has this information been effective in changing your behaviors?	141	83.9	27	16.1	0
Have you been informed about the risk factors of your disease by the doctor?	118	53.2	98	44.1	6
If yes, has this information been effective in changing your behaviors?	103	87.3	15	12.7	0
Have you been informed about the alternative treatments (surgical, medical) for PTR by your doctor?	132	59.5	86	38.7	4
If yes, has this information been effective in changing your behaviors?	108	81.8	20	15.2	4
Have you been informed about the type, method, urgency, and duration of the treatment to be applied to you by the doctor?	151	68	70	31.5	1
If yes, has this information been effective in changing your behaviors?	135	89.4	16	10.6	0
Have you been informed about the Chance of Success, Benefits, Risks, and Outcomes of PTR by the doctor?	144	65	76	34.1	2
If yes, has this information been effective in changing your behaviors?	127	88.2	17	11.8	0
Have you been informed by the healthcare professionals about the treatment process and the precautions you should take after the treatment in order to prevent the recurrence or worsening of your disease?	162	73	56	25.2	4
If yes, has this information been effective in changing your behaviors?	147	90.7	15	9.3	0

Among the participants, 39 (17.6%) of them stated that they received training about HLSB, and 171 (77%) believed that HLSB training would be beneficial in living a healthy life.

There is a significant difference between informing the participants about the diseases, risk factors of the disease, medical treatments (medical and surgical) alternative to PTR, medical practices, type of procedures to be performed, method, chance of success, benefit, risks and results of PTR, treatment by healthcare professionals to prevent recurrence or worsening of the disease, and the measures to be taken afterwards, and reflecting such information to their behaviours ( $p < 0.05$ ). It was observed that the participants, who were informed by the doctors and other healthcare professionals, reflected such information to their behaviours [Table 4](#)

**Table 4**

<b>Table 4 Informing the Participants about their Diseases (risk factors, type of treatment, outcomes of the treatment etc.) Relationship between Informing and reflecting the information in their behaviors</b>				
Have you been informed about your disease by the doctor?	Yes	No	Chi-Sq	p
	168	52	57.453	<b>0,000***</b>
Has this information been effective in changing your behaviors?	Yes	No		
	141	27		
Have you been informed about the risk factors of your disease by the doctor?	Yes	No	Chi-Sq	P
	118	98	103.092	<b>0,000***</b>
Has this information been effective in changing your behaviors?	Yes	No		
	103	15		
Have you been informed about the alternative treatments (surgical, medical) for PTR by your doctor?	Yes	No	Chi-Sq	P
	128	86	9.982	<b>0,002***</b>
Has this information been effective in changing your behaviors?	Yes	No		
	108	20		
Have you been informed about the type, method, urgency, and duration of the treatment to be applied to you by the doctor?	Yes	No	Chi-Sq	P
	151	70	29.812	<b>0,000***</b>
Has this information been effective in changing your behaviors?	Yes	No		
	135	16		
Have you been informed about the Chance of Success, Benefits, Risks, and Outcomes of PTR by the doctor?	Yes	No	Chi-Sq	P
	144	76	21.012	<b>0,000***</b>
Has this information been effective in changing your behaviors?	Yes	No		
	127	17		
Have you been informed by the healthcare professionals about the treatment process and the precautions you should take after the treatment in order to prevent the recurrence or worsening of your disease?	Yes	No	Chi-Sq	P
	162	56	51.172	<b>0,000***</b>
Has this information been effective in changing your behaviors?	Yes	No		
	147	15		

Chi-Square Independence Test, \*(p<0,05), \*\*(p<0,001), \*\*\* (p<0,0001)

There is a significant difference between the general scale and sub-scale scores of the HLSBS II scale of the participants and being informed by the doctor about the cause of the disease ( $p < 0.05$ ). It is seen that the difference is in favour of the participants, who are informed by the doctor regarding the disease, and when the HLSBS II sub-scale scores are examined, it can be observed that informing by the doctor about the disease positively affects the acquisition of HLSB [Table 5](#)

There is a significant difference between the general scale and sub-scale scores of the HLSBS II scale of the participants and being informed by the doctor about the risk factors of the disease ( $p < 0.05$ ). It is seen that the difference is in favour of the participants, who are informed by the doctor regarding the risk factors of the disease, and when the HLSBS II sub-scale scores are examined, it can be observed that informing by the doctor about the risk factors of the disease positively affects the acquisition of HLSB [Table 5](#)

**Table 5**

<b>Table 5 Relationship Between the HLSBS II General Scale and Sub-Scale Scores of the Participants and Informing regarding the Cause of Disease and Risk Factors of the Disease by the Doctor, Effectiveness of Information, and Informing the participants regarding the behaviors by Healthcare Professionals</b>									
<b>HLSBS II General Scale and Sub-Scale Scores</b>									
		<b>n</b>	<b>Health Responsibility</b>	<b>Physical Activity</b>	<b>Nutrition</b>	<b>Spiritual Development</b>	<b>Interpersonal Relations</b>	<b>Stress Management</b>	<b>Total</b>
Informing the Patient by the Doctor about the disease	Yes	168	20,70 ± 4,37	16,60 ± 4,52	22,38 ± 3,20	23,94 ± 4,15	23,50 ± 3,96	18,73 ± 3,55	125,84 ± 19,02
	No	52	19,35 ± 3,32	14,75 ± 3,49	20,59 ± 3,60	22,41 ± 3,62	21,96 ± 3,64	16,92 ± 2,90	115,98 ± 15,0
	T ; p		<b>2,338; 0,021*</b>	<b>2,697; 0,008**</b>	<b>3,388; 0,001**</b>	<b>2,369; 0,019*</b>	<b>2,475; 0,014*</b>	<b>3,309; 0,001**</b>	<b>3,840; 0,000***</b>
Informing the Patient by the Doctor about Informing about The risk factors	Yes	118	20,89 ± 4,32	17,08 ± 4,40	22,46 ± 3,37	24,10 ± 4,27	23,70 ± 4,01	19,10 ± 3,66	127,33 ± 19,64
	No	98	19,79 ± 3,96	15,23 ± 4,06	21,44 ± 3,28	22,98 ± 3,78	22,49 ± 3,76	17,42 ± 3,03	119,34 ± 16,33
	T ; p		<b>1,948; 0,050*</b>	<b>3,210; 0,002**</b>	<b>2,264; 0,025*</b>	<b>2,043; 0,042*</b>	<b>2,306; 0,022*</b>	<b>3,673; 0,000***</b>	<b>3,289; 0,001**</b>
Informing by the Healthcare Professionals About HLSB	Yes	77	22,39 ± 4,40	17,96 ± 4,94	22,81 ± 3,70	25,13 ± 4,40	24,68 ± 4,18	19,74 ± 3,66	132,70 ± 20,71
	No	141	19,32 ± 3,62	15,24 ± 3,57	21,52 ± 3,09	22,79 ± 3,55	22,30 ± 3,52	17,60 ± 3,03	118,77 ± 14,86
	T; p		<b>5,230; 0,000***</b>	<b>4,260; 0,000***</b>	<b>2,587; 0,011*</b>	<b>4,272; 0,000***</b>	<b>4,445; 0,000***</b>	<b>4,386; 0,000***</b>	<b>5,214; 0,000***</b>
Effectiveness of Informing About HLSB on the Behaviors	Yes	65	22,55 ± 4,42	18,46 ± 4,73	23,18 ± 3,44	25,68 ± 4,29	25,13 ± 4,15	20,23 ± 3,55	135,23 ± 19,88
	No	12	21,61 ± 3,20	15,87 ± 3,29	22,13 ± 3,65	22,13 ± 3,06	21,48 ± 3,03	17,35 ± 2,59	120,57 ± 13,35
	T; p		0.942; 0.349	<b>2,443; 0,016*</b>	1.257; 0.212	<b>4,339; 0,000***</b>	<b>3,891; 0,000***</b>	<b>3,585; 0,001**</b>	<b>4,017; 0,000***</b>

Unpaired t-test, \*(p<0,05), \*\*(p<0,001), \*\*\* (p<0,0001)

There is a significant difference between the informing of the participants about HLSB and the HLSBS II sub-scale scores (p <0.05). It can be observed that the difference is in favour of the participants, who were informed about HLSB and all the sub-scale scores and the general average scores and informing the participants about HLSB had a positive effect on acquisition of HLSB [Table 5](#)

There is a significant difference between the effectiveness of informing the participants about HLSB in their behaviours and HLSBS II general and scale sub-scale scores (p <0.05). It is observed that the difference is in favour of the participants, who stated that being informed by healthcare professionals, has an effect on the behaviours in physical activity, spiritual development, interpersonal relations, stress management sub-scales, and also the overall average scores, and they are open to behavioural changes when they believe that the information provided is correct [Table 5](#)

#### 4. DISCUSSION

The individuals should be informed about the causes and risk factors of chronic diseases and undertake health responsibilities in order to be protected from diseases, to provide correct information to the healthcare professionals in case of a disease, and to undertake the requirements of a quality life Bektas [Akpınar and Ceran \(2019\)](#) [Tanrıover et al. \(2014\)](#)

There are studies reporting that the patients who had knowledge about the disease adopted HLB more than those who did not know, and the difference was in favour of participants with sufficient level of knowledge [Gur and Sunal \(2019\)](#) [Gezer and Ulasan \(2020\)](#) and there was a significant difference between the disease risk factors knowledge level and HLSBS II mean scores ( $p < 0.05$ ), and the difference was in favour of the participants who found the information they received about disease risk factors sufficient Taşkın [Yılmaz et al. \(2018\)](#) [Curuk et al. \(2018\)](#). In the present study, the significant difference ( $p < 0.05$ ) between the HLSBS II overall scale and subscale scores of the participants and the state of knowing the cause of the disease was in favour of the participants who knew the cause of the disease in the nutrition and spiritual development subscales and the difference between the state of knowing the risk factors and the HLSBS II overall scale and subscale scores ( $p < 0.05$ ) was in favour of the participants who knew the risk factors. These results are compatible with the other studies.

Informing the patient, which is a legal obligation for the doctor, provides the fiduciary relationship between the patient and the doctor. The purpose of informing the patient is to ensure that the patient learns all the information that will cause the acceptance or rejection of the medical intervention. Informing the patient about the diagnosis, the treatment method chosen and why the individual chose the current treatment method, the benefits and harms, alternative treatments and the reasons for not choosing these treatments, the risks and harms of the medical intervention, the side effects of the drugs, and the functioning of the treatment process, and having the individual to perform the behaviours of the patient, and obtaining their consent are the responsibility of the healthcare professionals [Oral \(2011\)](#), [Akyuz et al. \(2016\)](#)

In the study of Akgül et al., the expectation rates of patients to receive information, communication, and emotional support from healthcare professionals varied between 89.2% and 56.7%. It was observed that the patients requested to get health information from healthcare professionals and found this information transfer sufficient. The expectations of the patients from the healthcare professionals are information about treatment, information about the disease, and emotional support, in order of priority [Baskale et al. \(2015\)](#) In the study of Kisioglu et al., 69.7% of the participants stated that they were informed about the tests conducted, 29.8% about the drugs and their side effects, 34.2% about the drug changes, 58.3% about the procedures to be performed, 53.1% about the surgery, and 52.5% about the points to be considered after the surgery [Kisioglu et al. \(2001\)](#)

It was stated that approximately 50% of the participants (25) in the study of Zdanowska et al. and 49.3% (26) in the study of Ustunova and Nakhichevan did not receive appropriate information about their treatment, and the written and verbal information provided was not sufficient for the specific problems of the participants [Zdanowska et al. \(2010\)](#) [Ustunova and Nahcivan \(2015\)](#)

In the current study, the rates of informing the participants about their diseases, treatments, medical treatments (surgery, medical) as an alternative for PTR, and risk factors ranged from 53.2% to 75.7%, and the rates of behaviour changes after being informed varied between 81.8% and 90.7%. The current study

is similar to the study of [Kisioglu et al. \(2001\)](#) and it differs from the study of Ustunova and Nahcivan and Zdanowska et al. due to the high rate of being informed.

In the study of [Joolae et al. \(2017\)](#) the average quality of acquisition score of informed consent was found to be 17,13 out of 35 and was considered inappropriate. The results showed that 48% of those, who signed the informed consent form, did not read the form before signing. While 52% of the participants, who read the consent form, mentioned the varying degrees of incomprehensibility in the consent form, 94.2% mentioned the existence of incomprehensible technical, medical, and legal vocabulary [Joolae et al. \(2017\)](#)

Of the participants in the current study, 184 (82.9%) stated that the information provided was clear and understandable. The fact that the participants of the study found the information clear and understandable was high, and 191 (86%) of them stated that they gave permission for the procedures to be carried out in the PTR process, and that they signed the informed consent form, which was different from the study of [Joolae et al. \(2017\)](#)

PTR informed consent form that the participants stated that they signed it included General information on the how the procedure is done, what the procedure is and where, by whom, the benefits expected from the procedure, the problems that will arise if the procedure is not applied, what are the medical alternatives of the procedure if any, the complications and risks of the procedure, the estimated duration of the procedure, and points to take into consideration. Although there were these questions in such form, the rate of those who stated that they were informed about their diseases (risk factors, treatment method, results of treatment, etc.) was low and the rate of those who changed their behaviours with information was high. This indicates that it is necessary to consider the adequacy, availability, and applicability of information together with socio-demographic characteristics.

It is a known fact that training can improve the healthy lifestyles of the individuals. Cultural, race, and socio-demographic characteristics of the individual do not constitute a serious problem for the positive results of training [Yesilfidan and Adana \(2017\)](#)

There are studies that show that the individuals change their behaviours after receiving training regarding the disease and risk factors by determining the lifestyle, socio-demographic and physiological characteristics of individuals, and after the training on disease and risk factors with various methods, there is a decrease in risk factors causing chronic diseases Bektas [Akpınar and Ceran \(2019\)](#) hospitalization, and complications. [Alkan \(2016\)](#) [Kommiri et al. \(2012\)](#) In a study, it was found that cervical stability and core stability training had a positive effect on neck pain and neck muscle resistance and behaviours in the patients with cervical disc herniation [Buyukturan et al. \(2017\)](#)

The fact that 39 (17.6%) of the participants in the study received training on healthy lifestyle behaviours, and 171 (77%) stated that they believed that getting education about healthy lifestyle behaviours would be beneficial for living a healthy life.

Informing helps the individuals to give decisions and show appropriate behaviours according to their own values, ideas, and experiences, and supports them to establish their lifestyle according to healthy lifestyle behaviours [Vanstone et al. \(2018\)](#)

In the studies, the difference between informing the participants about HLSB and health responsibility, physical activity, nutrition, spiritual development, interpersonal relationships, and stress management was in favour of informed

participants ( $p < 0.05$ ) [Sabry et al. \(2018\)](#) positive results were obtained in the patients' neck pain [Skillgate et al. \(2017\)](#) behaviours of the physician and other healthcare professionals that support patients' autonomy enabled them to develop HLSB [Kayser et al. \(2014\)](#)

In the current study, it was observed that the significant difference ( $p < 0.05$ ) between informing the participants about HLSB by healthcare professionals and health responsibility, physical activity, nutrition, spiritual development, interpersonal relationships, and stress management was in favour of the participants informed by supporting the autonomy of the patients, and also positively affected the HLSB. The current study is similar to other studies in this respect.

## 5. LIMITATIONS OF THE STUDY

The study was conducted with volunteers, who were over 18 years old, received PTR at the Department of PTR at EYEDH with the diagnosis of cervical disc hernia. Results are only valid for the location, time, and group of the research. Generalization cannot be made to the whole population.

## 6. CONCLUSION

It can be seen that the participants consider the information provided and try to carry out their actions, are willing to learn about HLSB, are open to behavioural changes, want to receive training on this matter, and informing has a positive effect on the disease and HLSB behaviours of the individuals. The awareness of the individuals regarding the importance of planning life in order to protect health is revealed by making behavioural changes after informing.

Informing will enable the increase of autonomous individuals with developed health responsibility and to acquire HLSB, avoid the risk factors of the disease, awareness in diagnosis and treatment processes, support medical treatment in the recovery process, and lead a healthy and quality life at the highest level for themselves. Individuals with such characteristics will positively affect the development of healthier populations and the effective use of limited resources ethically.

## 7. RECOMMENDATIONS

It can be efficient to inform the patients about their diseases and HLSB systematically, to improve health, and to increase the life quality. Thus, patient training programs that are specific to the diseases should be organized and their continuity should be ensured, and pre-test and post-test should be evaluated in order to determine the effect of training.

It is only possible for an individual to give decisions and have the right to comment, to take responsibilities, and to have knowledge, and experience awareness. Health literacy skill enables individuals to correctly understand the information given to them and to make the right choices for themselves, to express their choices, in other words, to have control over their health condition since it supports autonomous individual behaviour. Within this scope, further studies should be conducted, and the results should be compared in order to reveal the relationship with health literacy and HLSB.

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