



## Predicting Relaxation Behaviors in Patients with Chronic Low Back Pain: A Theory Based Study from Yazd, Iran

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**Background:** One approach to face with Chronic Low Back Pain (CLBP) is to perform Relaxation Behavior (RB). The aim of this study was to assess the factors predicting the behaviors of relaxation among the patients with CLBP in Yazd, Iran.

**Methods and Material:** This descriptive study conducted on 182 patients with CLBP, referring to the pain clinic in Yazd, Iran from October to December 2016. A socio-demographic questionnaire and a 14-item questionnaire regarding RB based on the Theory of Reasoned Action (TRA) were used to collect the required data. Data were fed into SPSS software v.23 and AMOS software v. 23 and analyzed using linear regression analysis procedures.

**Results:** A total of 182 individuals with mean age of  $42/18 \pm 13/12$  years participated in this study. The results showed that attitude towards the behavior was a good predictor of intention to do RB ( $p < .001$ ). However, subjective norm was not a good predictor of intention to do relaxation behavior ( $p = .058$ ). This study showed that intention was a good predictor for doing relaxation behavior ( $p = .042$ ).

**Conclusion:** Based on the results of this study, the health care providers are recommended to change RB beliefs of the patients suffering from chronic low back pain in order to persuade them to do regular relaxation behaviors to improve their pain.

**Keywords:** Relaxation behavior; Chronic Low Back Pain (CLBP); Theory of Reasoned Action (TRA), Attitude, Behavioral belief

### Introduction

Chronic Low Back Pain (CLBP) is a common phenomenon among the Iranian population, and it has been estimated that 54.2% of adults with the age ranges from 15 to 45 years suffer from this health problem (Azizpoor, Hemmati, & sayehmiri, 2014). On the other hand, in another study, it was shown that CLBP is a high-cost health problem leading to disability limiting sufferer's daily activities (Cherkin, et al., 2016). The negative impacts of CLBP in a wide range include reducing work and social activities, social relationships, and general mental health (Karimi & Saeidi, 2013). CLBP has also economic

impact on sufferers and societies such as imposing direct and indirect costs including medical expenses and loss of productivity, respectively (Hansen, Daykin, & Lamb, 2010).

Relaxation Behaviors (RBs) including mindfulness, deep breathing, and progressive relaxation of different muscles were proposed by Jacobson in 1938 (Sokunbi et al., 2016; Akmeşe & Oran, 2014). RB is effective for pain control (Topcu & Findik, 2012), and in similar vein, for controlling CLBP (Akmeşe & Oran, 2014; Amri, Nozari, & Hasheminejad, 2014; Blödt et al., 2014; Good, 1995; Sami et al., 2014). In fact, patients performing RBs change their negative attitudes to positive attitudes toward their pain, reduce their stresses, and increase their quality of life (Kobayashi, Yanagi, & Koitabashi, 2013).

Regarding CLBP, performing relaxation behaviors is shaped by patients' beliefs about their pain. Such beliefs influence patient's attitudes as positive/negative toward their pain, and in turn, affect patients' behaviors about doing or not doing curative RBs (Rainville et al., 2011).

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Theory of Reasoned Action (TRA), as a model for predicting behavioral intention, was developed by Fishbein and Ajzen (Glanz, Rimer, & Viswanath, 2008). According to TRA, individuals' health behaviors are determined by their intentions to perform such behaviors, which in turn, influenced by their attitudes toward the behaviors and also their subjective norms (Figure 1) (Sheldon, 2016). As Figure 1 shows attitudes toward the behaviors are affected by individuals' behavioral beliefs and also individuals' evaluation of behavioral outcomes. Additionally, subjective norms are influenced by the individuals' normative beliefs (that means following significant peoples who affect the individuals to do behavior) and also by their motivation to comply with the significant

people (Hackman & Knowlden, 2014). The key concepts of the TRA are shown in Figure 1.

Although CLBP is as a prevalent health problem in Iran, it is observed that the patients are not willing to do relaxation behavior. This study aimed to seek answer to what factors influence doing RB among Iranian patients with CLBP based on the theory of reasoned action. In present study, RB was a dependent variable, which was defined as lying in a calm place without any noise, putting a pillow under the knees, and breathing deeply so that abdomen movement is observed while breathing. Tightening and relaxing the different muscles of the body should be done while relaxing. This behavior should be done for half an hour in three times per week.

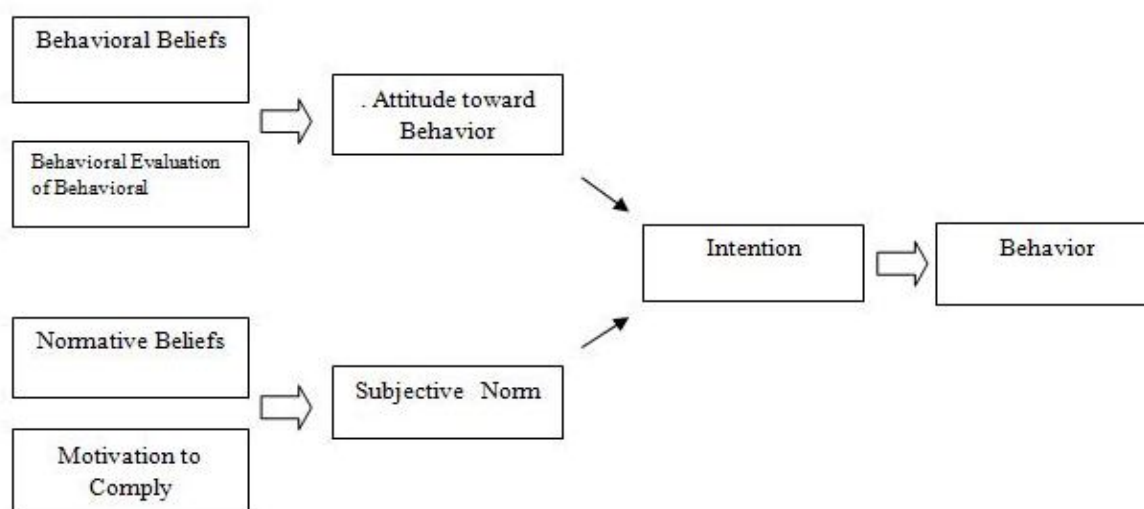


Figure 1. Theory of Reasoned Action.

## Methods

This cross sectional study was done on 182 patients with CLBP referring to pain clinic in Yazd, Iran from October to December 2016. This study was registered at Ethics committee of Tarbiat Modares University (TMU) with ID number of 67.IR.TMU.REC.1394) Sample size calculation was based on considering 30 samples for each constructs of TRA. Therefore, for six constructs of TRA, 182 eligible patients suffering from CLBP were recruited. Inclusion criteria were as follows: having a minimum level of reading/writing ability in Persian language and suffering from CLBP for at least 12 weeks. However, patients who were mental retarded, or had a history of vertebral fracture/inflammation in their spine, or suffered from tumor or congenital abnormalities in the spine were excluded from the study.

Two questionnaires were used in this study. The first one was about socio-demographic characteristics of the studied patients, including job, age, gender, marital status, literacy. The second one was a 14-item questionnaire regarding relaxation behavior based on TRA. The structure of this questionnaire was based on the TRA developed in previous evidence (Glanz, Rimer, & Viswanath, 2008).

To assess the questionnaire content validity, both qualitative and quantitative methods were employed. In qualitative method, an expert panel consisting of 10 experts was employed to evaluate the questionnaire wording. The expert panel commented on all the questionnaire items. For assessing the questionnaire content validity quantitatively, the Content Validity Ratio (CVR) and the Content Validity Index (CVI) were used.

According to the Lawshe's table, items with  $CVR \geq 0.4$  were considered as acceptable. For the CVI, based on Waltz & Bausell's recommendation, the  $CVI \geq 0.79$  was considered acceptable for each item.

To confirm the questionnaire internal consistency, the Cronbach's alpha reliability coefficient was computed. The Cronbach's alpha coefficient of 0.7 or above was considered as satisfactory. In this study, 19 patients suffering from LBP completed the questionnaire, and Cronbach's alpha computed for the questionnaire was .79, indicating the questionnaire internal consistency to a good extent.

The data gathered through these questionnaires were fed into SPSS v.23 and AMOS software v. 23 and analyzed using linear regression analysis procedures.

## Results

In this study, a total of 182 participants with the mean age of  $42/18 \pm 13/12$  were assessed. All participants were aged between 18 and 79 years (Table 1).

The predicting factors of RB were determined through linear regression analysis (Table 2). As shown in Table 2, the Attitude is considered as a predictor of RB ( $p < .001$ ), but Subjective norm is not a predictor of RB ( $P = 0.09$ ).

Predictors of RB based on the data analysis in AMOS software version 23 are shown in Table 3.

According to the findings shown in Table 3, behavioral beliefs and attitudes are good predictors of relaxation behaviors ( $P < 0.001$ ). Normative beliefs and motivation to comply are predictors of subjective norm ( $P < 0.001$ ). Attitude is a significant predictor ( $p < .001$ ), but subjective norm was not significantly a predictor of intention ( $p = .058$ ). Intention was a significant predictor of relaxation behavior ( $p = .042$ ).

**Table 1. Socio-demographic characteristics of the studied patients.**

Job	Frequency	Percent
Housewife	70	38.5
Manager	3	1.6
Employed	31	17.0
Non-employed	36	19.8
Farmer	9	4.9
Worker	20	11.0
Retired	5	2.7
Others	8	4.4
Total	182	100.0
<b>Age</b>		
18-30	33	18.1
31-50	97	53.3
51-70	48	26.4
71-80	4	2.2
Total	182	100.0
<b>Gender</b>		
Women	103	56.6
Men	79	43.4
Total	182	100.0
<b>Marital status</b>		
Married	149	81.9
Wife died	12	6.6
divorced	2	1.1
Single	19	10.4
Total	182	100.0
<b>Literacy</b>		
Primary	21	11.5
Guidance	60	33.0
High school	51	28.0
College	50	27.5
Total	182	100.0

**Table 2. Linear regression analysis regarding predictors of Relaxation Behavioral.**

variables	B	Standard deviation	Beta	t	significant
Attitude	0.027	0.005	0.436	5.427	.001
Subjective norms	0.011	0.006	0.137	1.707	.090

**Table 3. Predictors of physical activity based on data analysis in AMOS software.**

			P	C. R.	S. E.	Estimate
Attitude RB	< ---	Behavioral belief RB	***	36.924	.115	4.238
Attitude RB	< ---	Evaluation outcome RB	***	40.136	.129	5.170
Subjective norm RB	< ---	Normative beliefs RB	***	46.873	.115	5.370
Subjective norm RB	< ---	Motivation to comply RB	***	33.330	.125	4.150
Intention RB	< ---	Subjective norm RB	***	5.518	.005	.027
Intention RB	< ---	Attitude RB	.058	1.892	.006	.011
Behavior RB	< ---	Intention RB	.042	2.035	.095	.193

S. E = Standard Error C. R = Critical Ratio P = Significance level.

## Discussion

The major aim of this investigation was to predict the factors influencing RB based on TRA in patients with CLBP. The results showed that attitude is a good predictor of intension, and consequently, of RB. In a study, it was showed that patients with CLBP, who used relaxation behaviors changed their attitude toward pain and reduced their stress, resulted in increased their quality of life (Kobayashi, Yanagi, & Koitabashi, 2013).

Subjective norm is the perceived social pressure for doing or not doing a healthy behavior. In this study, external factors affecting subjective norm were not able to impact on the RB. Therefore, subjective norm was not a predictor of relaxation behavior. However, internal factors affecting individuals' attitude were significant predictors of relaxation behavior.

Existed evidence showed that various factors affected relaxation behavior in patients with CLBP. The patients suffering from chronic low back pain suffer from a wide range of limitations and disability in their jobs, social activities and relationship, and their mental health (Hansen, Daykin & Lamb, 2010). Previous evidences verified that relaxation behavior could influence CLBP improvement (Blödt et al., 2014; Sami et al., 2014; Topcu & Findik, 2012).

However, our study showed the patients who had positive attitudes toward relaxation behavior were more likely to do this behavior. Therefore, designing educational program in which the patients with CLBP are persuaded to do relaxation behaviors in order to improve CLBP is strongly recommended. According to the obtained results of this theory based study, considering the relaxation behavior predictors is highly recommended for patients with CLBP so that an intervention program should be designed in which a way that patients' negative attitudes toward RB be changed into positive attitudes. According to TRA, attitude is composed of individual' belief and behavior outcome evaluation; therefore, it seems that for encouraging patients to do relaxation behavior, it is better to highlight the benefits and positive outcomes of doing relaxation behavior to improve chronic low back pain.

In addition to positive points of this study, there are some limitations affecting the generalizability of the findings. First of all, this study was a cross sectional study with the aim of predicting the RB influential factors. However, other analytical studies are suggested to be carried out in this

domain in order to determine with more precise other predictor factors. Furthermore, this study was a self-reported study, and this kind of data collection method may impact on the results. Thus, it is recommended that observational studies to be done in future.

## Conclusion

Based on the results of this study, the health care providers are recommended to change RB beliefs of the patients suffering from chronic low back pain in order to persuade them to do regular relaxation behaviors to improve their pain.

## Conflict of interests

The authors declare that they have no conflicts of interest.

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## Author contribution

G A H, S S T: Study importation, data collection and analysis, Wwriting the first draft of the Paper.

G A H, S S T: Study design and data analysis, editing and confirming the final draft of the paper.

G A H, S S.T: Study design, confirming the final draft of the paper .

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