



An Investigation of the Effect of Anxiety and Religious Beliefs on Decision-Making Attitudes to Lumbar Microdiscectomy

Murat Kiraz^{1✉}, Seda Kiraz²

¹Hitit University, Faculty of Medicine, Department of Neurosurgery, Çorum, Turkey

²Hitit University ErolOlçok Research and Training Hospital, Department of Psychiatry, Çorum, Turkey

✉ **Corresponding author:**

Murat Kiraz,

E-mail: kirazmurat@gmail.com

Address: Hitit University, Faculty of Medicine, Department of Neurosurgery, Çorum, Turkey

Phone: +90-5542700445

ORCID: 0000-0001-6692-444X

Article History

Received: 05 July 2020

Reviewed: 07/July/2020 to 09/August/2020

Accepted: 09 August 2020

E-publication: 17 August 2020

P-Publication: September - October 2020

Citation

Murat Kiraz, Seda Kiraz. An Investigation of the Effect of Anxiety and Religious Beliefs on Decision-Making Attitudes to Lumbar Microdiscectomy. *Medical Science*, 2020, 24(105), 3199-3205

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General Note



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ABSTRACT

Background: The effects of religious beliefs on health have been investigated for many years. Although this issue has been investigated in many scientific studies, whether there is a significant relationship between anxiety and religiousness is still discussed.

This study aims to investigate the effects of anxiety levels and religiousness on Lumbar Microdiscectomy acceptance attitudes. *Methodology:* The participants were divided into two groups as those who accepted Lumbar Microdiscectomy and those who did not; these patients were asked to fill in two different forms that were developed to measure pre-operative anxiety level and religiousness level. The patients' religiousness level was identified using the "Religious Orientation Scale". The anxiety levels of the patients were determined by using "Anxiety Specific to Surgery Questionnaire". *Results:* The anxiety level of the group that did not accept an operation was 33.48 ± 8.05 , which was significantly higher than the anxiety level (27.12 ± 7.32) of the group which accepted an operation ($p=0.001$). The Pearson correlation analysis performed between the anxiety and religiousness scale scores indicated a significant, weak-level, and negative relationship ($p=0.033$, $r=-0,320$). When the effect of anxiety level between the groups who accepted an operation and who did not is controlled with ANCOVA test, no significant differences were found between the religious scale scores of the groups ($p=0.572$). *Conclusion:* Apart from the effect of religiousness, decision for Lumbar Microdiscectomy is considered to be affected by several multidimensional factors such as patients' anxiety levels, previous disease experiences, importance they give to quality of life, post-operative risks such as experiencing severe pain or getting paralyzed, anxiety of leaving from the family, loss of independence, fear of operation, and fear of death.

Keywords: Neurosurgery, Lumbar Microdiscectomy, anxiety, religious beliefs, attitudes.

1. INTRODUCTION

The effects of religious beliefs on health have been investigated for many years. For instance, effects of religious beliefs on many factors such as anxiety (Shreve-Neiger & Edelstein, 2004), anxiety before an operation (Muslu & Demir, 2020), fear of death (Ellis et al., 2013; Jong et al., 2018), acceptance attitudes about aesthetic surgery (Muslu & Demir, 2020), coping with diabetes (Yazla et al., 2018), and attitudes of pregnant women towards fetal health (Demir & Yıldırım, 2019) have been examined. Several studies reported significant relationships between the religiousness level or frequency of worship ritual and mental health or some health attitudes (Muslu & Demir, 2020; Ellis et al., 2013; Jong et al., 2018; Muslu & Demir, 2020; Yazla et al., 2018; Demir & Yıldırım, 2019; Koenig, 2015).

Although this issue has been investigated in many scientific studies, whether there is a significant relationship between anxiety and religiousness is still discussed. While some studies provided evidence for the significant relationship between anxiety and religiousness (Muslu & Demir, 2020), some others found no significant relationships (Frenz & Carey, 1989). Several studies reported that patients with high religious belief levels had lower operation anxiety before an operation (Muslu & Demir, 2020; Muslu & Demir, 2020). Shreve-Neiger (2004) conducted a review study on religion and anxiety and reported that preliminary evidence showed that anxiety and religion were somehow associated (Shreve-Neiger & Edelstein, 2004).

Religion is generally defined as a whole of beliefs and worships that have supernatural, sacred, and moral components; and various religious ceremonies, practices, values, and institutions. A religious person could be defined as someone who obeys the orders and prohibitions of his/her religion and is committed to his religion and performs the requirements of that religion (Doğan & Kayır, 2020; Demir, 2019; Koenig, 2009).

Lumbar disc herniation is a serious health problem that generally presents itself with low back pain and leg pain. It is quite common in all societies, and it might sometimes cause permanent disability. Treatment of lumbar disk herniation could be divided into two main categories as surgical or non-surgical treatments. Both treatment options have their advantages and disadvantages. Although surgery is the only option in some clinical cases, patients might reject to undergo surgery. In some other clinical cases, the doctor and patient decide on the treatment option together by evaluating many parameters. The purpose of the present study is to identify the effect of belief and anxiety levels on the treatment choices in patients who were recommended surgery treatment by the neurosurgeon due to lumbar disc herniation.

2. MATERIAL AND METHODS

This study involved 68 volunteer patients who applied to Brain and Nerve Surgery Polyclinic of ErolOlçok Training and Research Hospital at Hitit University Medical Faculty between 23 December 2019 and 23 June 2020 were planned to undergo a LMD. The exclusion criteria were having undergone LMD before and being 18 and younger. Of all the patients who were decided to undergo a LMD, 30 accepted to undergo an operation and were given a date for an operation; 38 patients stated that they did not accept to have an operation because they could not make that decision; it was decided that these patients would undergo follow-ups. The participants were divided into two groups as those who accepted LMD and those who did not; these patients were asked to fill in

two different forms that were developed to measure pre-operative anxiety level and religiousness level. The flowchart for the methodology is shown in Figure 1.

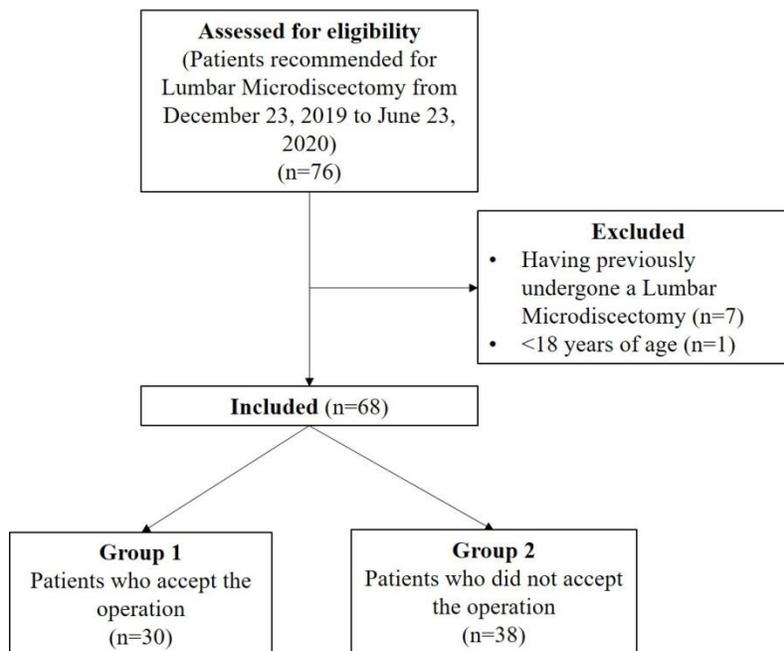


Figure 1. Flowchart for the methodology

Once the LMD decision was told to the patients, the patients who decided to have an operation and the patients who did not want to have an operation were asked to fill in the “Anxiety Specific to Surgery Questionnaire (ASSQ)” developed by Karancı and Dirik (2003) to measure their pre-operative anxiety states (Karancı&Dirik, 2003). The items are scored using a 5-point scale (1: I totally disagree, 5: I totally agree). The scale is composed of 10 items that include the operation-related fear that might be experienced by patients. Karancı and Dirik found the Cronbach’s Alpha Coefficient of the scale as 0.79. Scores to be obtained from the scale range between 10 and 50 (minimum: 10, maximum: 50).

The patients’ religiousness level was identified using the “Religious Orientation Scale” developed by Coştu (2009). The scale, which is composed of two sub-scales, was developed to measure the normative and popular religious attitudes levels. Coştu (2009) defined the first sub-scale (normative style religious orientation) as religious orientation based on bookish information in terms of its source while the second sub-scale (popular religious orientation) was defined as religious orientation based on common and routine rituals respected in society. The scale is composed of 30 items expressing normative style religious attitudes (maximum score: 150, minimum score: 30), and 7 items expressing popular style (maximum score: 35, minimum score: 7). Higher scores indicate higher religious orientation levels. Coştu found Cronbach's Alpha Coefficient of the scale as 0.87 (Coştu, 2009).

All the patients involved in the study were given information about the study, and their informed consent was received. Approval was obtained from the Hitit University Clinical Studies Ethics Committee, and the study was conducted in line with the Declarations of Helsinki.

Sample Size estimation (Priori power analysis)

Before the study was initiated, the sample size was calculated using the G-power (Version 3.1) package program to obtain sufficient power. As ANCOVA was used for testing the significant differences of the religiousness scale scores according to the attitudes groups, the main hypothesis of the study, the sample size was performed for the ANCOVA test. As a result of the sample size analysis which indicated 90% power ($1-\beta=0,90$), $\alpha=0.05$ margin of error (95% confidence interval) and Cohen’s 0.4 effect size, the study involved 68 patients in total to reveal significant differences between two groups, if any.

Statistical methods

Data obtained from the questionnaire and scales were analyzed using the SPSS (Version 22.0, SPSS Inc., Chicago, IL, USA, License: Hitit University) package programming. Descriptive statistics were reported as mean±standard deviation according to the data

distribution (minimum-maximum). Descriptive statistics of the categorical data were presented as numbers and percentages (%). Normality distribution of the data was analyzed using the Shapiro-Wilk test for statistical test preference. Correlation between anxiety ad religiousness scale scores was assessed using the Pearson correlation coefficient. The scores obtained from both tests were compared statistically using a t-test for independent groups (students t-test) between the groups that accepted and that did not accept an operation. ANCOVA test was performed by excluding the effect of anxiety level for comparing the religiousness scores.

3. RESULTS

The mean age of the 68 patients who participated in the study was 46.99 ± 8.45 . Of these participants, 37(54.4%) were female, and 31 (45.6%) were male. The mean age was similar between the study groups ($p=0.182$). The mean age of the group that accepted to have an operation was 48.86 ± 9.16 and that of the group that did not accept an operation was 46.11 ± 7.65 . Gender distribution was statistically similar between the study groups ($p=0.740$). While the group that accepted an operation included 17 females and 13 males, the group that did not accept an operation included 20 females and 18 males.

Initially, anxiety levels of the groups that were formed according to accepting an operation were compared, and a statistically significant difference was found between the groups. The anxiety level of the group that did not accept an operation was 33.48 ± 8.05 , which was significantly higher than the anxiety level (27.12 ± 7.32) of the group which accepted an operation ($p=0.001$, Figure 2).

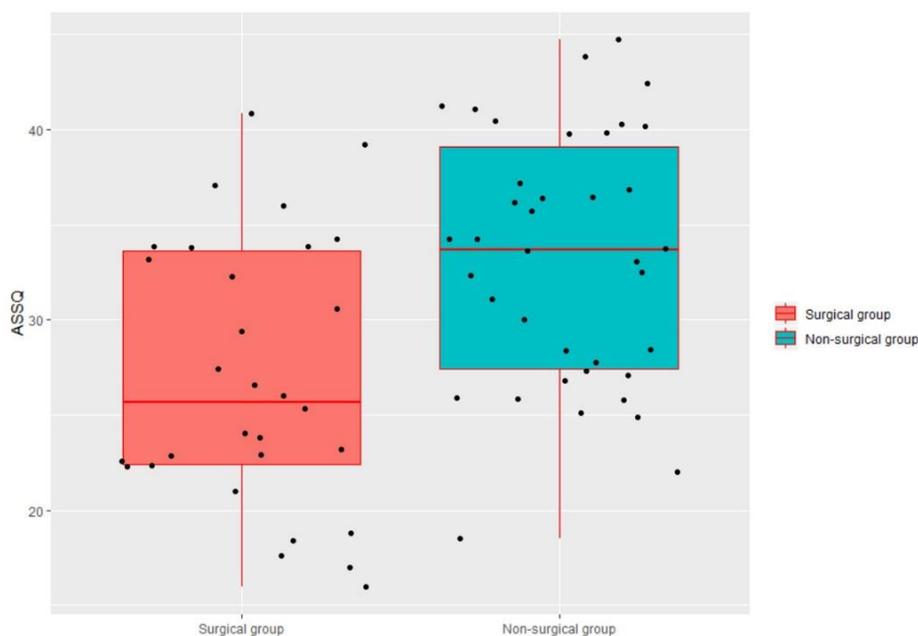


Figure 2. Comparison of Anxiety Specific to Surgery Questionnaire and Religious Orientation Scale scores according to the research group

Table 1. Comparison of Anxiety Specific to Surgery Questionnaire scores and Religious Orientation Scale according to the research group

	Surgical group (n=30) (Mean ± SD)	Non-surgical group (n=38) (Mean ± SD)	P values
ASSQ	27.12±7.32	33.48±8.05	0.001^{a*}
ROS	124.7 ± 12.1	118.9 ± 11.2	0.045^{a*}
ROS 2	18.07 ± 4.86	16.47 ± 5.08	0.193 ^a
ROS purified from ASSQ effect	123.1 ± 12.3	120.2 ± 11.3	0.572 ^b

^aStudents t-test, ^bAnalysis of covariance (ANCOVA)

*Statistically significant $p < 0.05$,

SD: Standard deviation, ASSQ: Anxiety Specific to Surgery Questionnaire, ROS: Religious Orientation Scale

A comparison of the study groups according to religiousness scale scores showed that normative style religious attitude scores were significantly different between the groups ($p=0.045$; Table 1). While the normative style religious attitude mean score was 124.7 ± 12.1 in the group that accepted an operation, it was significantly higher (118.9 ± 11.2) in the group that did not accept an operation. No significant differences were found between popular style religious attitudes ($p=0.193$).

The correlation analysis performed between the anxiety and religiousness scale scores indicated a significant, low-level, and negative relationship ($p=0.033$, $r=-0,320$). As a significant correlation was found between the scale scores, after the effect of intergroups anxiety levels scale scores were excluded using ANCOVA test, religiousness scale scores of the groups were compared and no statistically significant difference was found ($p = 0.572$, Table 1).

4. DISCUSSION

This study investigated the effect of pre-operative anxiety and religiousness levels on the decision-making attitudes about a LMD. The findings showed that pre-operative operation anxiety was higher in those who did not accept to have a LMD, which indicated that anxiety levels before an operation had effects on operation attitudes. Although religiousness level was significantly higher in the group that accepted the operation, religiousness levels indicated no significant differences between the groups according to their anxiety levels. In other words, patients' operation acceptance attitudes were affected by their anxiety levels rather than their religiousness levels. Although there is a negative, low-level and significant relationship between patients' religiousness level and anxiety level, individuals with high religiousness levels could have lower anxiety levels, which might lead them to have higher operation acceptance attitudes.

Pre-operative anxiety is triggered by common factors such as post-operative pain, thinking of leaving from the family, loss of independence, and fear of operation and death. In addition to these factors, Kalkhoran et al. (2007) investigated whether religious beliefs had effects on pre-operative anxiety. In their study on an Iranian sample, they found no statistically significant relationship between religiousness and anxiety level (Kalkhoran & Karimollahi, 2007); the results of this study are different. This study found a low-level yet significant relationship between anxiety and religious beliefs. Mueller et al. (2001) reported that people could have more moral needs when they are sick (Mueller et al., 2001). Several studies found a significant relationship between religious involvement and spirituality and positive health outcomes, including mortality, physical illnesses, mental illness, HRQOL, and coping with illness. Studies recommend that recognition of patients' moral needs might make recovery easier (Yazla et al., 2018; Mueller et al., 2001; Seybold & Hill, 2001; Salsman et al., 2015).

Muslu et al. (2020) reported that Muslim people who tend to perform religious rituals more had fewer fear levels before operations (Muslu & Demir, 2020). This study found a significant relationship between belief level and pre-operative anxiety level, which is in line with the results of this study. Muslu et al. (2020) also assessed the relationship between religious beliefs and aesthetic surgery attitudes and found that belief levels and worship ritual performing frequency had significant effects on the operation acceptance attitudes (Muslu & Demir, 2020). This study, on the other hand, found that religiousness level had no direct effects on LMD acceptance attitudes. This effect was found to have been resulted from the anxiety level rather than the religiousness level. However, as there is a potential relationship between anxiety and religiousness, it is recommended to investigate the multidimensional relationships between religious beliefs, pre-operative anxiety level, and operation attitudes through other studies to be conducted with different samples.

The strength of this study is that it assessed the results by controlling the anxiety levels, a confounder variable, using ANCOVA analysis. VanderWeele et al. (2016) recommended that observational data might have a bias about objectivity and one might not be sure about the results; experimental designs of mental health, religion, and health studies should thus be conducted more carefully (VanderWeele et al., 2016).

The first limitation of this study is that it is difficult to measure religiousness as it is a multidimensional concept. Various scales in the Islamic literature aim to measure religiousness (Hill & Hood, 1999). However, although the concept of religiousness is interpreted differently in various scientific fields and although it is a multidimensional concept, this study utilized a scale the reliability of which was tested on the Islamic society.

5. CONCLUSION

This study investigated the effects of anxiety and religiousness levels on patients' acceptance of LMD. When the effect of anxiety level between the groups who accepted an operation and who did not is controlled, no significant differences were found between the religious scale scores of the groups. Apart from the effect of religiousness, decision for LMD is considered to be affected by several multidimensional factors such as patients' anxiety levels, previous disease experiences, importance they give to quality of life, post-operative risks such as experiencing severe pain or getting paralyzed, anxiety of leaving from the family, loss of independence,

fear of operation, and fear of death. More concrete results could be obtained through future studies with sufficient sample size regarding the operation attitudes to consider the effects of several factors that could have the confounder effect.

Acknowledgement

We thank the patients who are all participated in and contributed samples to the study.

Funding

This study has not received any external funding.

Conflict of Interest

The authors declare that there are no conflicts of interests.

Informed consent

Written & Oral informed consent was obtained from all individual participants included in the study.

Ethical approval

The study was approved by the Medical Ethics Committee of Faculty of Medicine, Hitit University.

Data and materials availability

All data associated with this study are present in the paper.

Peer-review

External peer-review was done through double-blind method.

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