



# LUMBAR PAIN RELATED TO ANXIETY AND DEPRESSION IN POLICE OFFICERS OF A POLICE STATION IN LIMA

DOLOR LUMBAR RELACIONADO CON ANSIEDAD Y DEPRESIÓN EN POLICÍAS DE UNA COMISARIA EN LIMA

Cristhian Santiago-Bazan<sup>1,ab</sup>, Arleen Yesenia Espinoza-Ventura<sup>2,c</sup>

## ABSTRACT

**Introducción:** Lumbar pain is a public health problem which carries some kind of functional limitation in the individual affecting the quality of life of police personnel. **Objective:** Linking lower back pain to anxiety and depression in police officers at a police station in Lima. **Methods:** It is research with a quantitative, descriptive, transversal analytical and correlational approach, there was the participation of 110 participants, which was obtained through a probabilistic show where all participants had the same opportunity to participate, was conducted at the Monserrat Commissioner, a questionnaire survey was used to measure lower back pain in police personnel "CDLPP" whose reliability was 0.914 alpha cronbach and to measure anxiety and depression Zung's test. **Results:** 75.5% of police officers with lower back pain were shown. A statistically significant relationship between anxiety and lower back pain ( $p=0.028$ ) was also evident. Similarly, there was no statistically significant association between lower back pain and depression ( $P > 0.05$ ). **Conclusion:** Lumbar pain is associated with anxiety in police officers, a police station in Lima. Also a high percentage of police officers suffering from lower back pain, considering that it is a public health problem, which could lead to future some type of disability affecting their quality of life.

**Key words:** Low back pain; Anxiety; Depression; Police (source: MeSH NLM).

## RESUMEN

**Introducción:** El dolor lumbar es un problema que conlleva limitación funcional y puede afectar la salud mental del personal policial. **Objetivo:** Determinar la asociación el dolor lumbar con ansiedad y depresión en policías de una comisaría en Lima. **Métodos:** Investigación transversal analítica, con 110 participantes, a partir de un muestro probabilístico, llevado a cabo en la comisaría de Monserrat en Lima. Se utilizó el cuestionario para medir dolor lumbar en el personal policial "CDLPP", que pasó por juicio de expertos y tuvo un alfa de Cronbach de 0,914; para medir ansiedad y depresión se usó el test de Zung. **Resultados:** Un 75,5% de policías padecen dolor lumbar. Asimismo, se evidencio una relación estadísticamente significativa entre la ansiedad y el dolor lumbar ( $p=0,028$ ). Pero no se evidenció una asociación estadísticamente significativa entre el dolor lumbar y la depresión ( $p=0,740$ ). **Conclusión:** El dolor lumbar se asocia a la ansiedad en los policías una comisaría en Lima. Asimismo, un alto porcentaje de policías padecen dolor lumbar, teniendo en consideración que es un problema de salud pública, podría conllevar a futuro algún tipo de discapacidad afectando su calidad de vida.

**Palabras clave:** Dolor de la región lumbar; Ansiedad; Depresión; Policía (fuente: DeCS BIREME).

<sup>1</sup> Centro de Rehabilitación Integral Física Funcional, Lima-Perú.

<sup>2</sup> Universidad Arzobispo Loayza, Lima-Perú.

<sup>a</sup> Medical Technologist Licensed in Physical Therapy and Rehabilitation.

<sup>b</sup> Phd in Education.

<sup>c</sup> Bachelor of Medical Technology.

**Cite as:** Cristhian Santiago-Bazan, Arleen Yesenia Espinoza-Ventura. Lumbar pain related to anxiety and depression in police officers of a police station in Lima. Rev. Fac. Med. Hum. Enero 2021; 21(1):75-81. DOI 10.25176/RFMH.v21i1.3229

Journal home page: <http://revistas.urp.edu.pe/index.php/RFMH>

Article published by the Magazine of the Faculty of Human Medicine of the Ricardo Palma University. It is an open access article, distributed under the terms of the Creative Commons License: Creative Commons Attribution 4.0 International, CC BY 4.0 (<https://creativecommons.org/licenses/by/4.0/>), that allows non-commercial use, distribution and reproduction in any medium, provided that the original work is duly cited. For commercial use, please contact [revista.medicina@urp.pe](mailto:revista.medicina@urp.pe)

## INTRODUCTION

Lumbar pain is a musculoskeletal injury considered a public health problem, causing a social and economic impact on the population. There are different ergonomic, postural, emotional factors, etc., which could lead to a functional limitation affecting the individual's quality of life. Likewise, if the person has chronic lumbar pain, they have a higher risk of suffering a higher level of disability<sup>(1,2)</sup>.

Lumbar pain is usually nonspecific or mechanical when intrinsically from the spinal column (the intervertebral discs or surrounding soft tissues). On the other hand, non-mechanical lumbar pain includes a progressive motor or sensory loss, new urinary retention or overflow incontinence, history of cancer, recent invasive spinal procedure, and significant age-related trauma<sup>(3)</sup>.

People of active working age are subject to a series of physical factors, typical of daily life activities<sup>(4)</sup>. For many years, lumbar pain has been the leading cause of absence from work as the ultimate indication for medical rehabilitation due to disability<sup>(5,6)</sup>.

On the other hand, common psychological problems are significantly associated with musculoskeletal disorder patterns<sup>(7)</sup>. Likewise, the comorbidity of anxiety and depression is related to pain intensity, pain-related disability, and health-related quality of life<sup>(8)</sup>.

In addition, epidemiological studies found some psychiatric disorders found more commonly among people with chronic pain, such as headache, back pain, than those without chronic pain. Some psychiatric disorders, such as depression, increase the risk of chronic pain and its persistence. These clinical studies suggest that chronic pain is not common comorbidity among people with other psychiatric disorders, such as dementia and schizophrenia. It is not clear if this is a consequence of some specific biological mechanism or methodology problems in the studies<sup>(9)</sup>.

The functions of the National Police of Peru are an organism of the Peruvian state in charge of guaranteeing, maintaining, and reestablishing internal order, providing protection and assistance to people and the community, and ensuring compliance with the security laws of the public and private assets<sup>(10)</sup>.

Most of these police officers have a level of psychosocial exposure unfavorable to their health

in terms of insecurity, occupational stressors, such as organization (for example, staff shortages, inconsistent leadership styles), and operational elements (for example, work by turns, public scrutiny). A working schedule is 3-5 times a week, and they cannot choose their time off. Regarding physical exposure, their work demands to be standing during the entire shift of their work. This is a negative factor in terms of the posture of which it has generated some kidney problems, varicose veins, and the most common is swelling of feet. Most of the officers are unaware of active breaks; therefore, they do not take them<sup>(11,12)</sup>. The present objective is to determine the association of lumbar pain with anxiety and depression in police officers from a Lima police station.

## METHODS

### Design and study area

A descriptive, cross-sectional, analytical, and correlation study was carried out.

### Population and sample

The study population was made up of the police from the Monserrat Police Station, located in Lima, Peru, during January and February 2020. All police officers who freely agreed to participate in the study were included, with prior informed consent. Exclusions included cops that were discharged, removed, and those who have had some back surgery or degenerative pathologies of any type of infectious disease, participants who are receiving physical therapy or pain relief drugs. The required sample was 110 participants, which was obtained through probability sampling.

### Variables and instruments

For the measurement of lumbar pain, the instrument called a questionnaire to measure lumbar pain in police personnel "CDLPP", which consists of 12 questions, was taken into consideration presence of lumbar pain (yes/no), chronicity of pain (acute, chronic), intensity of lumbar pain (none, mild, moderate, severe), frequency of lumbar pain (never, almost never, sometimes, almost always, always), Type of sensation of lumbar pain (numbness, burning, squeezing, stabbing, other pain), persistence of lumbar pain (less than 15 minutes, 16 to 30 minutes, 31 to 60 minutes, 1 to 2 hours), side of the lumbar region (right, left, both sides, in the center), activities increased lumbar pain (bending over, carrying light



objects, being able to turn your body, carrying heavy items), limitation in the work environment (never, almost never, sometimes, almost always, always), relief of lumbar pain (rest, take medicine prescribed by the doctor, take medication without a prescription, take natural remedies, go to the specialist professional, information on lumbar pain (yes/no). This instrument validation went through expert judgment from four experts and had judges reliability of 0,914 evaluated according to Cronbach's alpha.

On the other hand, to measure anxiety, the Zung test was used, classifying anxiety as: no anxiety (normal), minimal to moderate, marked to severe and maximum grade<sup>(13)</sup>; while for the depression variable, the Zung Self-Rating Depression Scale was used, classifying depression as no depression (normal), slightly depressed, moderately depressed, severely depressed<sup>14</sup>.

### Procedures

For data collection, permission was requested from the Monserrat police station commissioner; once granted, the information collection began during January and February 2020.

### Statistical analysis

For the analysis, Statistical program SPSS v. 24 was used. Regarding the statistical analysis, the univariate and bivariate analysis were taken into consideration. Regarding the univariate analysis, the categorical

variables (frequency and percentage) and the numerical variables (mean and standard deviation) were considered.

On the other hand, statistical parameters were taken into consideration to measure the association between categorical variables; the Chi-Square test was performed to measure the relationship between lumbar pain with anxiety and depression, significant differences were considered if the p-value it was less than 0.05.

### Ethical considerations

Bioethical criteria were taken into account in scientific research (autonomy, justice, beneficence, and non-maleficence). The patients' informed consent and the institution's permission were used to carry out the research. Likewise, respect for privacy and free participation of those investigated prior to the collection of information was guaranteed.

### RESULTS

Of the total of 110 participants, 93.6% were men and 6.4% women. 50.9% of the participants declared to be married, 46.4% were single, 1.8% were divorced, and 0.9% were widowed. The average age of the participants was 38.3, with an age range of 21 to 60 years. The sociodemographic characteristics of the study sample were shown in Table 1.

**Table 1.** Sociodemographic characteristics of the sample of police officers from a police station in Lima 2020 (n = 110).

Sociodemographic characteristics	Frequency	Percentage
<b>Gender</b>		
Male	103	93.6
Female	7	6.4
<b>Marital status</b>		
Single	51	46.4
Married	56	50.9
Divorced	2	1.8
Widowed	1	0.9
<b>Age</b>		
Prom. ± Desv. Están. (min./max.)	38.3 ± 13.9 (21 / 60)	

**Source:** Authors' own elaboration.

Regarding the participants' lumbar pain, it was obtained that 75.5% had lumbar pain while 15.5 % did not present lumbar pain. Regarding the anxiety of the participants, it was obtained that 84.5% presented a normal degree of anxiety, 13.6% showed a degree of anxiety from minimal to moderate, and 1.8% presented a degree of anxiety from marked to severe. Regarding the depression of the participants, it was obtained that 80% did not present depression, while 20% presented mild to moderate depression. Table 2 shows the results obtained from the measurement instruments applied to the population that participated in the study.

When performing the bivariate analysis on the relationship between anxiety and depression with lumbar pain, it was found that 63.6% of those surveyed with lumbar pain had a normal degree of anxiety, while 11.8% of those surveyed with lumbar pain. Lumbar pain presented a degree of minimal to moderate anxiety ( $p = 0.028$ ). In addition, 60.9% of those surveyed with lumbar pain did not present depression, while 14.5% of those surveyed with lumbar pain presented mild to moderate depression ( $p = 0.740$ ). The other data for analysis are found in Table 2.

**Table 2.** Relationship between anxiety and depression with lumbar pain in police officers from a police station in Lima ( $n = 110$ )

	Lumbar Pain						P-value
	Yes		No		Total		
	f	%	f	%	f	%	
<b>Anxiety</b>							
Normal	70	63.6	23	20.9	93	84.5	0.028
Minimal to moderate	13	11.8	2	1.8	15	13.6	
Marked to severe	0	0.0	2	1.8	2	1.8	
Maximum degree	0	0.0	0	0.0	0	0.0	
<b>Depression</b>							
Normal	67	60.9	21	19.1	88	80.0	0.740
Slightly depressed	16	14.5	6	5.5	22	20.0	
Moderately depressed	0	0.0	0	0.0	0	0.0	
Severely Depressed	0	0.0	0	0.0	0	0.0	

**Source:** Authors' own elaboration.

Regarding the clinical characteristics of the participants' lumbar pain, it was found that 46.4% were chronic, 34.5 % was of moderate-intensity, 50% sometimes presented pain, 17.3% pain was

puncture type and 30% presented pain on both sides. Table 3 details the results obtained from the measurement instrument applied to the population that participated in the study.

**Table 3.** Clinical characteristics of lumbar pain in police officers from a police station in Lima (n = 83).

Characteristic of lumbar pain	Frequency	Percentage
<b>Chronicity</b>		
Acute	32	29.1
Chronic	51	46.4
<b>Intensity</b>		
Mild	35	31.8
Moderate	38	34.5
Severe	10	9.1
<b>Frequency of pain</b>		
rarely	10	9.1
sometimes	55	50.0
Almost always	15	13.6
always	3	2.7
<b>type pain</b>		
Numbness	18	16.4
burning	17	15.5
Constricting	17	15.5
Pungent	19	17.3
Other	12	10.9
<b>Side of pain</b>		
Right	8	7.3
Left	11	10.0
Both sides	33	30.0
In the center	31	28.2

**Source:** Authors' own elaboration.

## DISCUSSION

Musculoskeletal disorders are considered a major problem affecting the health and well-being of active-duty police. Discomfort from wearing mandatory equipment and sitting for long periods in fleet vehicles are workload factors related to musculoskeletal disorders in the police<sup>(13)</sup>.

Regarding lumbar pain, 75.5% of police officers present lumbar pain. This agrees with several previous reports Cardoso E<sup>(14)</sup>, Brown JJ<sup>(15)</sup>, Gruevski KM<sup>(16)</sup>. This problem is severe and frequent in police personnel<sup>(17)</sup>. While it is true, the police's activity

is exposed to a series of factors that could affect their health and produce physical disability. Some carry out internal functions such as administrative activities, others patrol, standing for many hours, and carrying heavy equipment. Adding the working conditions, can lead to an overload of the column<sup>(18)</sup>.

Regarding anxiety and its relationship with lumbar pain ( $p = 0.028$ ), studies such as Douma NB<sup>(19)</sup>. This agrees with several previous reports Santiago C<sup>(20)</sup>, Barreda E<sup>(21)</sup>. Likewise, anxiety and depression disorders are increasingly affecting society. Anxiety disorders are the most common psychiatric disorders, and depressive disorders are increasing in

society globally. Lumbar pain is one of the common health problems experienced by 50-80% of adults at some point in their lives<sup>(22)</sup>.

Regarding depression, a study by Jara JA<sup>(23)</sup>. People with symptoms of depression are at higher risk of developing an episode of lumbar pain in the future, with the risk being higher in patients with more severe levels of depression<sup>(24)</sup>. Anxious manifestations accompany this high proportion of depressive disorders, and these frequently present with pain. Likewise, these painful manifestations cause or worsen depressive and anxious symptoms<sup>(25)</sup>.

On the other hand, the individual's psychological aspects are important in the development and progression of lumbar pain. It is important to consider that the official personnel, in the presence of pain, rest, and take medications prescribed by the specialist, similar to a study mentioned by Anderson G<sup>(26)</sup>. Likewise, back pain is a factor to increase the probability of depression<sup>(27)</sup>.

This type of Investigation in police personnel is of utmost importance, because of the characteristics demanded by their work in the development of their functions. They are exposed to physical and functional injury, and in their emotional state, problems could hinder missions. Early detection could avoid any kind of subsequent consequences.

Despite the present research, which was supported

by the participants. It had limitations, including the little and scarce national background information about lumbar pain publications in police personnel. Likewise, he may have had a recall or memory bias when completing the questionnaire alternatives, to recall experiences accurately.

## CONCLUSION

Lumbar pain is associated with anxiety in police officers at a police station in Lima. Likewise, a high percentage of police officers who suffer from lumbar pain consider it a public health problem, which could lead to some type of disability in the future, affecting their quality of life.

---

**Authorship contributions:** The authors participated in the genesis of the idea, project design, development, collection and interpretation of data, analysis of results, and manuscript preparation.

**Financing:** Self-financed.

**Conflict of interest:** The authors declare that they have no conflict of interest.

**Received:** October 1, 2020

**Approved:** December 04, 2020

---

*Correspondence:* Cristhian Santiago Bazan

*Address:* Jr. Tiahuanaco 1493 Urb. Zárate S.J.L., Lima-Perú.

*Telephone number:* 997602814

*E-mail:* cristhiansantiagob@gmail.com



## BIBLIOGRAPHIC REFERENCES

- Rueda ZR, Ramírez CR. Relación entre la longitud de los músculos isquiotibiales y el dolor lumbar: una revisión sistemática. *Fisioterapia*.2020; 42(3): 124-135. DOI: <https://doi.org/10.1016/j.ft.2019.12.002>
- Santiago C, Perez Domingue KJ, Castro Reyes NL. Dolor lumbar y su relación con el índice de discapacidad en un Hospital de Rehabilitación. *Rev Cient Cienc Méd*. 2018; 21(2): 13-20. Disponible en: [http://www.scielo.org.bo/scielo.php?script=sci\\_arttext&pid=S1817-74332018000200003&lng=es](http://www.scielo.org.bo/scielo.php?script=sci_arttext&pid=S1817-74332018000200003&lng=es).
- Will JS, Bury DC, Miller JA. Mechanical low back pain. *American family physician*.2018; 98(7): 421-428. Disponible en: <https://www.aafp.org/afp/2018/1001/p421-s1.html>.
- Pomares Avalos AJ, Zaldívar Pérez DF, Vázquez Núñez MA. Caracterización sociodemográfica y clínica de pacientes con dolor crónico de espalda, Cienfuegos 2019. *Rev Soc Esp Dolor*. 2020;27(4):239-245. DOI: <https://doi.org/10.20986/reesed.2020.3798/2020>
- Chenot JF, Greitemann B, Kladny B, Petzke F, Pfingsten M, Schorr SG. Non-specific low back pain. *Deutsches Ärzteblatt International*. 2017; 114(51-52), 883-890. DOI: <https://doi.org/10.3238/arztebl.2017.0883>
- Reith, W. Nonspecific low back pain and chronification. *Der Radiologe*.2020; 60(2): 117-122. DOI: <https://doi.org/10.1007/s00117-019-00636-7>
- Yazdi M, Zeverdegani SK, MollaAghaBabae AH. Association of derived patterns of musculoskeletal disorders with psychological problems: a latent class analysis. *Environmental health and preventive medicine*. 2019; 24(1): 1-9. DOI: <https://doi.org/10.1186/s12199-019-0784-x>
- Bair MJ, Wu J, Damush TM, Sutherland JM, Kroenke K. Association of depression and anxiety alone and in combination with chronic musculoskeletal pain in primary care patients. *Psychosomatic medicine*.2008; 70(8):890-897. DOI: <https://doi.org/10.1097/PSY.0b013e318185c510>.
- Velly AM, Mohit S. Epidemiology of pain and relation to psychiatric disorders. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*.2018; 87(20): 159-167. DOI: <https://doi.org/10.1016/j.pnpbp.2017.05.012>
- Plataforma digital de Estado Peruano. Policía Nacional del Perú 2020 [Internet].2019 [citado 28 jun 2020]; 6(11). Disponible en: <https://www.gob.pe/policia-nacional-del-peru>
- Bocanegra LD. Diagnóstico de Factores de Riesgos Ocupacionales en el Servicio a pie de la Policía de Tránsito en la Región policial Lambayeque. [Tesis para grado]. Perú: Universidad Tecnológica del Perú .2018. [citado 28 jun 2020]. Disponible en: [http://repositorio.utp.edu.pe/bitstream/UTP/1915/3/Leidy%20Bocanegra\\_Trabajo%20de%20Investigacion\\_Bachiller\\_2018.pdf](http://repositorio.utp.edu.pe/bitstream/UTP/1915/3/Leidy%20Bocanegra_Trabajo%20de%20Investigacion_Bachiller_2018.pdf)
- Carleton RN, Afifi TO, Taillieu T, Turner S, Mason JE, Ricciardelli R, et al. Assessing the relative impact of diverse stressors among public safety personnel. *International journal of environmental research and public health*.2020;17(4): 1234. DOI: <https://doi.org/10.3390/ijerph17041234>
- Añorga JL. Depresión en pacientes hipertensos atendidos en el hospital II Essalud Pucallpa mayo - octubre 2014. [Tesis para grado]. Perú: Universidad Nacional de Ucayali .2014. [citado 31 oct 2020]. Disponible en: [http://repositorio.unapiquitos.edu.pe/bitstream/handle/UNAP/3709/Ricardo\\_Tesis\\_Titulo\\_2014.pdf?sequence=1&isAllowed=y](http://repositorio.unapiquitos.edu.pe/bitstream/handle/UNAP/3709/Ricardo_Tesis_Titulo_2014.pdf?sequence=1&isAllowed=y)
- Velásquez HS. "Validez y confiabilidad del Test de Zung que categoriza la depresión en adultos mayores. - zonas de la Región Cajamarca. 2019 [Tesis para grado]. Perú: Universidad Nacional Pedro Ruiz Gallo .2019. [citado 31 oct 2020]. Disponible en: <http://repositorio.unprg.edu.pe/bitstream/handle/UNPRG/8249/BC-4649%20VELASQUEZ%20CABREJOS.pdf?sequence=1&isAllowed=y>
- Larsen LB, Andersson EE, Tranberg R, Ramstrand N. Multi-site musculoskeletal pain in Swedish police: associations with discomfort from wearing mandatory equipment and prolonged sitting. *International archives of occupational and environmental health*.2018; 91(4): 425-433. DOI: <https://doi.org/10.1007/s00420-018-1292-9>
- Cardoso ES, Fernandes SGG, Corrêa LCDAC, Dantas GADF, Câmara SMAD. Low back pain and disability in military police: an epidemiological study. *Fisioter. mov*. [Internet] 2018;31(0) [citado 24 de agosto 2020]. DOI: <https://doi.org/10.1590/1980-5918.031.a001>
- Brown JJ, Wells GA, Trottier AJ, Bonneau J, Ferris B. Back pain in a large Canadian police force. *Spine*.1998; 23(7), 821-827. Disponible en: [https://journals.lww.com/spinejournal/Abstract/1998/04010/Back\\_Pain\\_in\\_a\\_Large\\_Canadian\\_Police\\_Force.17.aspx](https://journals.lww.com/spinejournal/Abstract/1998/04010/Back_Pain_in_a_Large_Canadian_Police_Force.17.aspx)
- Gruevski KM, Holmes MW, Gooyers CE, Dickerson CR, Callaghan JP. Lumbar postures, seat interface pressures and discomfort responses to a novel thoracic support for police officers during prolonged simulated driving exposures. *Applied ergonomics*.2016; 52: 160-168. DOI: <https://doi.org/10.1016/j.apergo.2015.07.015>
- Douma NB, Côté C, Lacasse A. Occupational and Ergonomic Factors Associated With Low Back Pain Among Car-patrol Police Officers. *The Clinical Journal of Pain*.2018; 34(10): 960-966. DOI: <https://doi.org/10.1097/AJP.0000000000000617>
- Neto AT, Faleiro TB, Moreira FD, Jambeiro JS, Schulz RDS. Lombalgia na atividade policial militar: análise da prevalência, repercussões laborativas e custo indireto. *Revista Baiana de Saúde Pública*.2014; 37(2), 365-374. Disponible en: <http://files.bvs.br/upload/S/0100-0233/2013/v37n2/a4447.pdf>
- Douma NB, Côté C, Lacasse A. Quebec Serve and Protect Low Back Pain Study: What About Mental Quality of Life?. *Safety and health at work*.2019; 10(1):39-46. DOI: <https://doi.org/10.1016/j.shaw.2018.08.006>
- Santiago C. Dolor miofascial lumbar en estudiantes de Terapia Física y Rehabilitación de la Universidad Nacional Federico Villarreal, 2012. *Horizonte Médico*.2014; 14(4): 19-23. Disponible en: <http://www.scielo.org.pe/pdf/hm/v14n4/a04v14n4.pdf>
- Barreda-Castillo EL, Santiago C. Dolor lumbar y actividades domésticas en mujeres atendidas en un centro de rehabilitación de Lima. *Peruvian Journal of Health Care and Global Health*.2019; 3(2): 63-69. DOI: <https://doi.org/10.22258/hgh.2019.32.59>
- Zieliński G, Zięba E, Wilkowiec W, Byś A, Ginszt M, Libera O, Zawadka M, Saran T, Gawda P. Influence of regular climbing on depression, generalized anxiety and lower back pain. *Ann Agric Environ Med*. 2020. DOI: <https://doi.org/10.26444/aaem/124189>
- Jara Rivera JA, Villacorta Seminario, VC. Factores asociados del dolor lumbar en los estudiantes de terapia física y rehabilitación del Hospital de Rehabilitación del Callao. [Tesis de Licenciatura]. Perú: Universidad Católica Sedes Sapientiae .2017. [citado 24 julio 2020]. Disponible en [http://repositorio.ucss.edu.pe/bitstream/handle/UCSS/435/Jara\\_Villacorta\\_tesis\\_bachiller\\_2017.pdf?sequence=1&isAllowed=y](http://repositorio.ucss.edu.pe/bitstream/handle/UCSS/435/Jara_Villacorta_tesis_bachiller_2017.pdf?sequence=1&isAllowed=y)
- Pinheiro MB, Ferreira ML, Refshauge K, Ordoñana JR, Machado GC, Prado LR, Maher G, Ferreira PH. Symptoms of depression and risk of new episodes of low back pain: a systematic review and meta-analysis. *Arthritis care & research*. 2015; 67(11): 1591-1603. DOI: <https://doi.org/10.1002/acr.22619>
- Arango-Dávila CA, Rincón-Hoyos HG. Trastorno depresivo, trastorno de ansiedad y dolor crónico: múltiples manifestaciones de un núcleo fisiopatológico y clínico común. *Revista colombiana de Psiquiatría*.2018; 47(1): 46-55. DOI: <https://doi.org/10.1016/j.rcp.2016.10.007>
- Anderson G, Zutz A, Plecas D. Police Officer back health. *Rev. The Journal of Criminal Justice Research*.2020; 2(1):16. Disponible en: [https://www.researchgate.net/publication/281378222\\_Police\\_Officer\\_Back\\_Health](https://www.researchgate.net/publication/281378222_Police_Officer_Back_Health).
- Amiri S, Behnezhad S, Azad E. Back pain and depressive symptoms: A systematic review and meta-analysis. *The International Journal of Psychiatry in Medicine*.2020;0(0) 1-15. DOI: <https://doi.org/10.1177/0091217420913001>

