

ACUPUNCTURE IN THE MANAGEMENT OF LOWER PAIN IN PROFESSIONALS AT A PUBLIC HOSPITAL USING DISTAL POINTS

Maria Vitória Monteiro Bassi

<https://orcid.org/0000-0002-0329-4644>

Iria Roberta Staut Freitas

<https://orcid.org/0000-0002-3796-3578>

Maria Julia de Oliveira Lucente

<https://orcid.org/0009-0005-3974-7341>

Eleine Aparecida Penha Martins

<https://orcid.org/0000-0001-6649-9340>

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Abstract: The in-hospital environment is a place susceptible to numerous risks, making its professionals vulnerable to the risk of accidents and physical and mental illness. The work process and the responsibilities that the hospital environment requires trigger responses in the body due to repetitive stress, leading these professionals to develop pathologies. Low back pain affects around 60 to 80% of workers of working age, being a public problem as it is an important cause of absence from work, leading to other problems that impact their social and economic life. Acupuncture is a complementary integrative practice much sought after for the treatment of pain, as it has local and systemic action, providing analgesia due to the release of neurotransmitters and hormones that release endogenous opioids, promoting pain relief. This practice is essential in the treatment of acute and chronic illnesses. Objective: to evaluate the use of distal points in the treatment of low back pain with systemic acupuncture in improving pain and quality of life of workers at a public hospital. Method: this is a before and after intervention study, using the distal points (R3, VB34, EC36 and C7), 15 workers from a university hospital participated. Results: At the first appointment, everyone reported feeling pain in the lower back, the average age was 25 years old, the shortest period of pain was three months and the longest was one year. The numerical value of pain showed that the average pain intensity in the first care was 5.7 and in the last intensive care was 1, generating a significant result ($p > 0.003$). 60% of those treated had moderate pain in the first session and only two patients in the last. The number of people treated without pain in the last session increased by 60% and the number of participants with mild pain increased by 27%. When analyzing the seven domains of the SF36 instrument, the significant index general health ($P = 0.002$)

showed greater significance, in addition to the index of bodily pain ($P = 0.005$) and physical function ($P = 0.016$). Conclusion: The study showed an improvement in the intensity of low back pain using the distal points of systemic acupuncture, improving the limitations and pain experienced in everyday life, thus promoting a better quality of life.

Keywords: Acupuncture; Backache; Quality of life.

INTRODUCTION

The hospital is a place susceptible to numerous risks, making its professionals vulnerable to the risk of accidents, physical and mental illness (MATOS; ARAÚJO, 2021). The work process and the responsibilities that the hospital environment requires trigger responses in the body due to repetitive stress, leading this professional to develop pathologies (REIS et al., 2020).

Precarious working conditions lead to illness. Low back disease is the one that most affects workers, between around 60% and 80% of working age, being a public problem as it is an important cause of absence from work, leading to other problems that impact their social and economic life. (VALENCIA et al., 2018).

In 2007, in Brazil the incidence rate of disability retirement due to back pain was 29.96% of 100,000 taxpayers according to social security data. These rates are projected to increase each year, as low- and middle-income countries have limited resources in the area of musculoskeletal health. Disability promotes a limitation in daily activities, generating emotional and social exhaustion, reports such as “uncertainty and the impact that pain has on life” are mentioned in the literature (MENDONÇA, 2020).

Quality of life at work is a health promotion tool that, in addition to improving performance within the institution, effectively impacts the

professional's well-being (CAMARGO et al., 2021). The concept of quality of life is broad depending on scientific bias and common sense, according to the WHO it is defined as the individual's perception of the complete state, physical, mental and social well-being reflected on their experiences and values (SILVA et al, 2022).

There are instruments that assess quality of life, including the Health Survey (SF-36v2), which is a multidimensional instrument developed in 1992 by North Americans and validated in Brazil by Ciconelli et al., (1997).

It is a questionnaire that contains 36 questions grouped by eight dimensions of health and well-being, the scores obtained in the domains vary from zero being the worst quality of life to 100, the best quality of life. In the domains we have the physical and mental components. Physical functioning is composed of four dimensions: Physical functioning (PF) assesses physical functioning and its limitations; Role-physical (RP) analyzes physical health; Bodily pain (BP) checks the intensity of bodily pain and interferes with daily activities; General Health (GH) considers participants' perception of their health status (MARUISH, 2011).

The mental component covers the following domains: Vitality (VT) analyzes the subjectivity of well-being, social functioning (SF) examines how health interferes with social relationships, Role-emotional (RE) analyzes the limitations of work in relation to the emotional; Mental Health (MH) comprises mental health issues (MARUISH, 2011).

Complementary integrative practices are a way of dealing with physical and psychosocial stressors, providing a better quality of life. The practice of traditional medicine seeks to stimulate prevention and health recovery through the therapeutic bond and the interaction of human beings with the environment and society. (TELESI et al, 2016).

Acupuncture is a complementary practice used in the treatment of pain, which aims to reestablish an energetic balance through energetic stimuli (WEN,2010). The stimuli must be carried out in specific locations, there are studies that prove that their action works by activating specific central nervous pathways, thus allowing action in the bone marrow and even in afferent viscera (QUIROZ et al., 2017).

Acupuncture is a great ally in the treatment of acute and chronic diseases, from specific points, based on the theory of Traditional Chinese Medicine, promoting the control of low back pain (GUIMARÃES et al., 2020).

To measure pain during consultations, there are some instruments that can be used, such as the Visual Numerical Scale (VNS), the Visual Analogue Scale (VAS), Verbal Scale (VE), Face Scale (EF), which are classified as unidimensional. (OLIVEIRA et al., 2020). The EVN is a safe, simple, easy to understand and quick to apply scale. Its results help in the treatment of pain (SILVA MARTINS et al., 2017).

The objective of this study is to evaluate the benefits of distal points used in acupuncture for the treatment of low back pain. This study is fundamental as it contributes to scientific evidence and is believed to be complementary therapy that improves low back pain and consequently reduces health problems and improves quality of life.

GOALS

GOAL

To evaluate the quality of life of workers at a public hospital using the distal points used in acupuncture for chronic low back pain.

METHODOLOGY

This is a before and after intervention study, with the intervention mode being the distal points (R3, VB34, EC36 and C7) added to the VG20 point.

The study population were workers over 18 years of age who volunteered, with chronic low back pain and working in a public university hospital, in a medium-sized city in the south of the country. Servers who were absent from the project twice in a row were excluded. The sample selection was made by inviting hospital employees who met the research inclusion criteria. The sample was selected by inviting all hospital workers who met the research inclusion criteria.

The treatment was carried out in the integrative practice rooms of the specialty outpatient clinic of a public hospital, with a scheduled time.

For the study, the instruments used were the anamnesis sheets in Traditional Chinese Medicine, the numerical visual scale (VNS) to assess pain intensity (Nascimento, 2017) and the quality of life assessment questionnaire Health Survey SF36 v2[®], licensed by OPTUMTM, the body responsible for releasing the use of the instrument under number QM046302.

A sequence of six consultations were carried out, with one consultation per week for each patient. In the first consultation, the objectives of the study were explained, the Free and Informed Consent Form (TCLE) was read and it was explained how the research would be carried out and, finally, the option to withdraw from treatment at any time was highlighted.

The SF 36 v2[®] questionnaire was used to assess the quality of life of workers, which was answered on the first and last day of treatment.

In the first session, an anamnesis based on traditional Chinese medicine (TCM) was carried out (Appendices A, B, C and D), for individuals with open questions with the

aim of understanding treatment expectations and checking their general health status as weight, height, pulse examination, tongue examination, alarm points and numerical visual scale of pain intensity. In the last session, there was a general assessment, an open question about the improvement or worsening after acupuncture treatment.

To measure the low back pain of these workers, the value of zero was used for absence of pain; from one to three, mild pain from four to seven, moderate pain; from eight to 10, intense pain. At each return visit, it was also asked whether there was any event that occurred between visits that was related to the worsening of pain (MARTINEZ et al., 2011).

Traditional Chinese medicine states that chronic pain in the lower back occurs due to the paralysis of the “Qi” of the Liver and the deficiency of the Kidney. The points selected in this research, according to Maciocia and Focks (2018), were: **Heart 7 Shenmem (C7)**, Earth point for sedation and main for calming *shen*. It relieves back pain by calming the mind and relieving spasms; **Gallbladder 34 yanglingquan (VB34)**, regularizes the “Qi” of the Liver, main for muscular problems; **Stomach 36 Zusanli (E36)**, tones “Qi” in general, being important in the treatment of chronic conditions; **Kidney 3 Taixi (R3)**, best point for strengthening the Kidney, tones the Kidney; **Governor Vessel 20 – Baihui (VG20)**, in this place there is the crossing of the energy channels of the Gallbladder, Bladder, Triple Burner and Liver, the distal point for affect the Governing Vessel, for pain in the lower lumbar spine.

The treatment was carried out in an organized, clean, ventilated environment, with an ambient temperature that generates thermal, private comfort, walls and furniture in neutral and relaxing tones. Lavender essential oil was used, which acts on the Central Nervous System (CNS) by inducing

relaxation and combating stress, in addition to the pleasant odor (Paganini, 2014).

It had ambient music with constant tempo, low volume, soft dynamics and little change, mild timbre, harmonious musical arrangement, uninterrupted melodies, progressions and simple harmony and without defined rhythm with markings, in order to produce a relaxing sound (Nunes-Silva, 2016).

To perform the technique, a sterile, disposable, 0.25 x 0.25 mm systemic acupuncture needle, white hydrophilic cotton, 70% alcohol, non-sterile procedure gloves, and sharps container were used. Nine needles were inserted into each patient. The material was provided at the expense of the researcher.

The results obtained, using the numerical value scale (EVN) as a parameter, were tabulated in an Excel® spreadsheet and analyzed using the SPSS® version 20 program. In comparing the data obtained on the first and last day of treatment of the groups and the total population, the Wilcoxon test was used.

The Questionnaire Data SF 36 v2® were tabulated in PRO CoRE™, software: *Smart Measurement®*, which is the *Optum* software update *Quality Metric Health Outcomes™*.

This study was approved by the Ethics Committee opinion n° 2,682,912, CAAE: 82757417.7.0000.5231 and is part of the research project entitled: “*The use of complementary integrative practices – PICs – in the city of Londrina – UEL/Londrina City Hall*”, Workers were free to withdraw from treatment at any time and all signed the Free and Informed Consent Form (ICF).

RESULTS

15 professionals participated in the study, with 90 services being carried out from January to June 2019. A distribution was made by professional category of the participants treated. (Table 1).

		N	%
Gender	Masculine	5	33,3
	Feminine	10	66,6
Religion	Evangelical	-	-
	Catholic	12	80,0
	Atheist	1	6,6
	Without religion	1	6,6
	Spiritist	-	-
	Apostolic	-	-
Education	Christian	1	6,6
	Complete high school	5	33,3
	Graduated	5	33,3
	Incomplete higher	2	13,3
	Latu Sensus	2	13,3
	Strict sensu	1	6,6
	Operational assistant	4	26,6
	Administrative technician	1	6,6
Professional category	Nursing assistant	3	20,0
	Nursing Technician	5	33,3
	Nurse	2	13,3
	Dental assistant	-	-
	Resident	-	-
	maintenance officer	-	-
	Social worker	-	-
	Doctor	-	-
	Laboratory technician	-	-
Nursing Intern	-	-	

Table 1: Social demographic characteristics of workers with low back pain at a public university hospital, Brazil - BR 2019

The predominant gender was female 10 (66.6%). The religion that stood out was Catholicism 12 (80%), followed by other religions that presented similar data. In relation to education, the majority of employees completed higher education and high school, these being 5 (33.3%), only 2 (13.3%) had incomplete secondary education.

The professional category that predominated was nursing, with nursing technicians 5 (33.3%), followed by operational assistants 4 (26.6%).

Table 2 shows the distribution of quantitative variables: weight, height, gender and duration of pain.

Variable	N	Minimum	Maximum	Average	Standard deviation
Age	15	33	66	51.00	9.55
Weight (kg)	15	58	140	91.67	21.41
Height (cm)	15	150	200	166.47	12.01
Time of pain (years)	15	3m to 1 year	20	7.40	6.28

Table 2: Distribution of workers with low back pain treated with acupuncture according to age, gender, weight, height and duration of pain. Brazil - BR 2019

The age variable showed a discrepancy, with the minimum being 33 years old and the maximum being 66 years old. There was a significant difference in relation to weight, with 21.43 being the one with the highest standard deviation between the variables.

The standard deviation in relation to height was 12.01, presenting a variable from 1.50m to 2.00m. The time for feeling pain showed a deviation of 6.28, with the minimum value being 3 months and the maximum being 20 years. In **table 3**, the distribution of the main complaint and diagnosis of the origin of the pain occurred.

		N	%
Chief Complaint	Backache	11	73,3
	Lumbar and neck pain	4	26,7
Diagnosis	Hernia in the lumbar spine	3	6,5
	Parrot beak	1	V
	Osteoarthritis	-	-
	Column Listesis Accident	-	-
	Cord compression	-	-
	Fracture	1	2,2
	Scoliosis	3	6,5
	Marrow protrusion	-	-
	No diagnosis	2	4,3
		5	10,9

Table 3: Distribution of the main complaint and Diagnosis of workers with low back pain at a public university hospital, Brazil – BR 2019.

Workers reported low back pain as their main complaint, 73.3% (11), some reported low back and neck pain at the same time, 26.7% (4). The diagnoses of hernia in the lumbar spine and fracture presented the same result at 6.5%, however the prevalence remained in those served who had symptoms of low back pain but without a diagnosis, 10.9% (5).

Figure 1 shows the distribution of pain measured by the EVN scale in each service, in the three treatment groups.

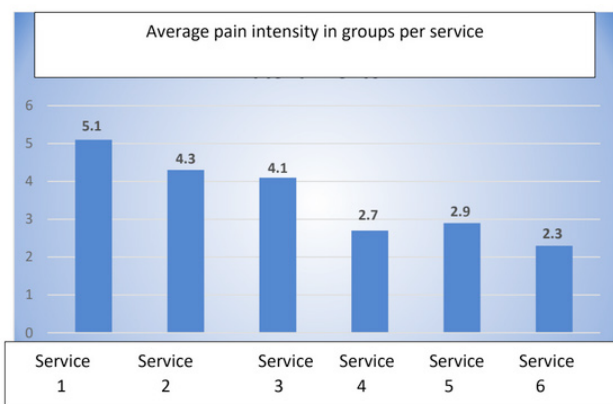


Figure 1: distribution of average pain intensity during the six sessions in each acupuncture care group in a public university hospital. Brazil - BR 2019

When starting the acupuncture sessions, they were asked how intense the pain was at that moment. In **figure 1**, the first treatment had a higher rate compared to the subsequent ones, during which it remained regular, but in the third treatment there was a significant drop in the pain index. However, it remained with a linear average, between the third and sixth service.

Table 4 shows the comparison between the groups of the percentage of patients by pain intensity in the groups, before and after the last acupuncture session.

Pain intensity	First service		Last service	
	N	%	N	%
No pain (0)	-	-	5	33,33
Mild pain (1-3)	2	13,33	6	40
Moderate pain (4-7)	11	73,33	4	26,66
Severe pain (8-10)	2	13,33	-	-
Total	15	100	15	100

Table 4: Comparison of the intensity of low back pain among workers, before and after the last session, at a public university hospital. Brazil – BR 2019

In the first consultation, 73.33% reported moderate low back pain, in the last only 26.66% said they felt it. Mild pain increased its rate from 13.33% to 40%. In the last consultation, 33.33% did not complain of pain in the region and no one reported intense pain, showing a significant drop in pain intensity comparing the first and sixth consultations.

In table 5, the comparison of p-values in the eight domains, PCS and MCS of the quality of life assessment according to the SF36 instrument.

When evaluating performance in the eight domains, relevance is observed considering $p=0.001$ as significant in the general health (GH) domains with $p=0.002$ and in the physical component (PCS) with $p=0.003$. The body pain domain (BP) with $p=0.005$ and the physical function domain (PF) with $p=0.016$ presented statistical significance, respectively.

The items physical aspect (RP), vitality (VT), mental health (HM) did not present statistical significance, with the ones that stood out least being the social function (SF) with $p=0.422$ and the mental components dimension (MCS) with $p=0.496$ being the worst result among the other domains.

DISCUSSION

In this study, it was identified that the predominant epidemiological profile was females aged between 33 years and 66 years. In the literature, we found that the incidence of low back pain occurs predominantly in men over 40 years old and in women over 50 years old (VALADARES et al., 2020)

The predisposing factors for the development of low back pain are prolonged sitting, intense physical effort, repetitive movements, stress and conflict in the work environment (SIMAS et al., 2020). Studies indicate that these factors are mostly performed by women, as they are the ones who are subject to domestic work, cleaning, food and textiles, in addition to anatomical particularities such as smaller stature, muscle mass and more fragile joints, this justifies the high incidence of low back pain in females, adding to the findings in this study (BOTTAMEDI 2016; SIMAS 2020).

Corroborating the anatomical aspects, the work process can reflect on the server's body, which can lead to work accidents and occupational illnesses due to exposure to ergonomic risks such as low back pain. The majority of professionals are nursing technicians considering that it is a profession that exposes workers to intense working hours, causing stress, demotivation, low appreciation and reduced quality of life. (CRUZ et al., 2019).

Low back pain is of paramount social importance, as it can lead workers to sick leave, absence, hospitalizations and disabilities directly affecting socioeconomic issues, limiting these employees from having a favorable quality of life in the health and economic spheres (VALADARES et al, 2020).

Braiding the profile there was a significant difference in relation to weight with 21.43% varying between 58kg minimum weight and maximum 140kg, in relation to height

Domains	PF	RP	BP	GH	VT	SF	RE	HM	PCS	MCS
Group +	0,016	0,128	0,005	0,002	0,347	0,422	0,08	0,269	0,003	0,496

Table 5-, Distribution of statistical analysis using the Wilcoxon test in the eight domains in a group of workers from a public university hospital. Brazil - BR 2019.

which varied from 1.50m to 2.00m showing a pre-disposition to overweight and obesity. People with a higher BMI are more likely to suffer from low back pain (COSTAS, 2019). These individuals are more likely to develop comorbidities such as musculoskeletal disorders, the Brazilian Association for the Study of Obesity and Metabolic Syndrome of Brazil, estimates that in 2025 there will be 2.3 billion overweight adults worldwide, these data being worrying (ABESO, 2023).

The workers' main complaint was low back pain and it is associated with neck pain, which is triggered due to incessant mechanical stress, triggering acute symptoms lasting less than three weeks or progressing to chronic symptoms lasting more than 4 months or even a degenerative process altering the functions and structures of the spine (NETO et al., 2021; CYPRIANO, 2021). The servers presented chronic symptoms, lasting more than three months, reaching a period of 20 years with this pain.

The diagnoses found in the study were hernia in the lumbar spine, fractures, parrot beak, among others, which occur due to trauma or wear in the spine region, overload, sedentary lifestyle and incorrect posture (VALADARES et al., 2020). Those served had symptoms but did not have a confirmed diagnosis.

To measure the intensity of pain in these workers, the Visual Numerical Scale (VNS) was used, which is a simple instrument, quick to apply and easy to understand (SILVA MARTINS et al., 2017). Allowing monitoring the improvement or worsening of pain intensity during consultations, enabling

reflection on the extrinsic factors that affect the individual's quality of life and can promote a solution to the problem.

The study showed a reduction from 5.1% to 2.3% in pain intensity in relation to the first and last care, proving to be efficient. A study carried out with patients hospitalized at the Instituto Hospitalar de Base in the Federal District of Brasília showed significant results with the use of acupuncture, being effective in reducing pain by 50% for the main complaints, which were low back pain and neck pain, corroborating this study. (VALENTE et al., 2020).

Acupuncture is a highly sought-after method for treating pain, as it has local and systemic action, providing analgesia due to the release of neurotransmitters and hormones that release endogenous opioids, promoting pain relief (CYPRIANO, 2021).

A study carried out with 51 patients with chronic low back pain, which used distal and local points, demonstrated pain relief compared to the placebo group (PAULO, 2005). The use of distal points was effective in reducing the intensity of low back pain, in the first consultation 73.33% reported moderate low back pain and 13.3% severe pain, in the last consultation 33.33% had no pain and no one reported severe pain showing a reduction in pain.

In the review by Campos et al., (2020) they observed that acupuncture is a very effective technique for treating low back pain, in addition to showing an improvement in physical performance and the reduction of disability provides a better quality of life.

To assess the quality of life of employees,

the SF36 instrument was used, which is a multidimensional questionnaire (SILVA; PEREIRA; MILAN, 2021). The results found allowed us to conclude that acupuncture using distal points was effective in treating low back pain, improving the participants' performance in the general health domains, which was the most significant, and in the bodily pain and physical function domains.

A review carried out by Godoy et al., (2014) reports that the use of acupuncture according to the Quality of Life scale (SF36) improves mental and physical function. A study carried out at the Instituto Ortopédico de Palmas with 30 individuals who presented non-specific chronic low back pain showed a significant improvement between the physical components, pain and general state, in addition to the emotional aspects after physiotherapeutic interventions. Proving to be a method that reduces physical and pain limitations, enabling the execution of daily activities without difficulties (ADORNO and BRASIL-NETO, 2013).

The mental components were those that presented the least significant results, there are studies that present evidence that low back pain is associated with psychosocial factors. Low back pain is multifactorial, that

is, it involves biological, psychological and social factors that promote illness. There are few studies that bring this correlation, which is why studies are needed that make this relationship between low back pain and psychological factors (ARAUJO et al., 2018).

The impact caused by low back pain is great as it directly affects the quality of life of this individual. Acupuncture is a method that has shown effective results in treating pain, improving disability and physical exhaustion, being a great ally in medical treatment.

CONCLUSION

This study showed a significant improvement in low back pain with acupuncture treatment using distal points, promoting an improvement in quality of life for everyone. The factors that most caused this misalignment in function and structure were repetitive movements and exacerbated physical effort. The physical and pain domains show an improvement, reducing the limitations and pain experienced by workers on a daily basis. The mental domain did not present a significant result, but it is important for the treatment of low back pain. There are few studies that address this relationship, which is why studies that address this subject are necessary.

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