

# Musculoskeletal shoulder complaints: characteristics of patients and consultations in primary care

*Queixas musculoesqueléticas no ombro: características dos usuários e dos atendimentos na atenção primária*

*Quejas musculoesqueléticas en el hombro: características de los pacientes en las consultas de la atención primaria*

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**ABSTRACT** | Shoulder pain is the third most common musculoskeletal complaint of the world population. It affects the physical, psychological and financial situation of the individual. Primary care is essential to an effective health care for affected patients. This cross-sectional and observational study has the purpose of characterizing the profile of users of the primary health care service, and analyzing the medical records with shoulder pain reports over an one-year period in the primary care service of Ribeirão Preto – SP. Medical records of patients with scheduled and unscheduled medical consultations were analyzed. Data from patients with musculoskeletal shoulder pain – sociodemographic data and the consultation characteristics – were collected and analyzed descriptively and by Pearson's Chi-squared test, Odds Ratio and Multiple Logistic Regression. The frequency of shoulder pain in the primary care was 9.2%. The profile of individuals who complained about shoulder pain was advanced age, married, literate and working women. Most consultations had scheduled follow-up consultations, therapeutic guidance and few referrals.

**Keywords** | Musculoskeletal Pain; Shoulder; Primary Health Care.

**RESUMO** | A dor no ombro representa a terceira principal queixa musculoesquelética da população. Afeta fatores físicos, psicológicos e econômicos do indivíduo. A atenção primária à saúde é essencial para a eficácia do cuidado dos pacientes acometidos. Este estudo é observacional transversal e obteve um perfil dos usuários e das consultas médicas com relato de dor no ombro durante um ano na atenção primária do município de Ribeirão Preto (SP). Foram analisados em prontuários os registros das consultas médicas agendadas e sem agendamento prévio. Nestes registros foram coletados dados dos pacientes que apresentaram queixas de dor musculoesquelética no ombro (dados sociodemográficos e características das consultas), que foram analisados de forma descritiva e pelos testes qui-quadrado de Pearson, razão de chance e regressão logística múltipla. A frequência de consultas médicas por queixa de dor no ombro foi de 9,2%. O perfil dos indivíduos que se queixaram de dor no ombro se caracterizava por mulheres, com idade avançada, casadas, alfabetizadas e que apresentavam alguma ocupação. As consultas em sua maioria tiveram retornos agendados, oferecimento de orientações terapêuticas e poucos encaminhamentos.

**Descritores** | Dor Musculoesquelética; Ombro; Atenção Primária à Saúde.

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**RESUMEN** | El dolor en el hombro representa la tercera principal queja musculoesquelética de la población. Acomete los factores físicos, psicológicos y económicos del individuo. La atención primaria a la salud es esencial para la eficacia del cuidado de los pacientes afectados. Este estudio de tipo observacional transversal obtuvo un perfil de los usuarios y de las consultas médicas en que había relato de dolor en el hombro durante un año en la atención primaria del municipio de Ribeirão Preto (SP). Se analizaron los registros de las consultas médicas programadas y sin programación previa. En estos registros se recolectaron los datos de los pacientes que se quejaban de dolor musculoesquelético en el hombro (sus datos

sociodemográficos y las características de las consultas), los cuales fueron analizados de forma descriptiva y por la prueba chi-cuadrado de Pearson, por las razones de prevalencia y por la regresión logística múltiple. La frecuencia de consultas médicas por queja de dolor en el hombro fue del 9.2%. El perfil de los individuos que se quejaron de dolor en el hombro fue de mujeres, con edad avanzada, casadas, alfabetizadas y que se dedicaban a alguna actividad. Las consultas en su mayoría tuvieron retornos programados, ofrecimiento de orientaciones terapéuticas y pocos encaminamientos.

**Palabras clave** | Dolor Musculoesquelético; Hombro; Atención Primaria de Salud.

## INTRODUCTION

Non-communicable chronic diseases have become a priority in the health area of countries such as Brazil<sup>1,2</sup>. Among these chronic diseases, musculoskeletal disorders occupy the fourth position in years of life lost adjusted by disability<sup>3,4</sup>. In international studies that investigated musculoskeletal disorders, shoulder pain is the third major complaint of the population<sup>5</sup>, given that complaints from the subacromial space structures represented 44% to 80%<sup>6,7</sup>.

Values for annual incidence and prevalence vary across countries. The prevalence of cervical and shoulder pain in population studies was 55.6% in Japan and 23.3% in the United Kingdom<sup>8,9</sup>. One study reports data indicating that the mean incidence of patients with shoulder complaints was 29.3% per 1,000 people/year during a 9-year period in the Netherlands, and that the prevalence ranges from 41.2% to 48.4%<sup>6</sup>. Another population study conducted in the Netherlands and the United Kingdom reported incidence rates ranging from 11.2% to 29.5% and prevalence data from 4.7% to 46.7%<sup>10,11</sup>. In Brazil, most of the studies that investigated musculoskeletal pain in the shoulder evaluated specific occupations, and no studies of the population or health services were found<sup>12,13</sup>.

National studies investigating the demand for medical consultations in primary care indicate pain as the main reason for seeking this service, and musculoskeletal discomfort is the type of pain most frequently reported, with prevalence ranging from 14.5% to 15.7%<sup>14,15</sup>. Little is known about the extent of shoulder pain cases in primary care in Brazil, which

complicates the identification of the population's health needs and the subsequent intervention planning.

The initial steps to diagnose and treat the patient with shoulder pain in primary care may be essential for the effectiveness of health care, reducing the number of surgical repair procedures for tendons, and reducing the costs for society. Therefore, epidemiological studies in primary care on musculoskeletal pain in the shoulder are established as relevant. Thus, this study analyzed the users and the medical consultations with shoulder pain report during a year in the primary care of Ribeirão Preto (SP).

## METHODOLOGY

This cross-sectional and observational study was held for one year in three of the six Family Health Centers (NSFs – *Núcleos de Saúde da Família*) located in the Western district of the city of Ribeirão Preto. The study followed the guidelines of the Strengthening the Reporting of Observational Studies in Epidemiology<sup>16</sup> and was approved by the local Ethics Committee, under opinion number 40772214.9.0000.5414.

The collection was performed by a single person that attended the centers and analyzed in paper medical records the registry of planned (scheduled) and occasional (unscheduled) consultations in NSFs from January 2014 to January 2015. Data collected were from patients who presented complaints of musculoskeletal pain in the shoulder, excluding patients with information on the medical record of pain originating from neurological or vascular disorders and neoplasia. Data on sociodemographic

information, diagnostic hypothesis, type of consultation and characteristics of the consultation were collected.

The simple descriptive analysis of data was held in relation to the sociodemographic data, characteristics of consultations and referrals to other specialties in the health area, extracting means and absolute numbers. Occupations were classified as: active with demand of the upper extremity (required manipulation of objects with elevation of the upper extremity); active without demand of the upper extremity; and retirees.

Pearson's chi-square test was used to verify association between nominal variables by comparing the proportions of clinical diagnosis of subacromial impingement syndrome (SIS and others), clinical diagnosis of osteoarthritis (osteoarthritis and others), prescription of guidelines (yes and no) and referrals for physical therapy (yes and no) between groups of adults and older persons. Analyses of the Pearson's chi-square test were held with a significance level of 0.05. Odds ratios with a 95% confidence interval were used to verify the magnitude of the association between these variables. The odds ratio was assessed using the following categories: an odds ratio of 1 indicates that the condition or event under study is equally likely to occur in both groups; an odds ratio >1 indicates that the condition or event is more likely to occur in the adult group; finally, an odds ratio <1 indicates that the probability is lower in the adult group than in the older persons group.

Multiple logistic regression analysis was performed to determine the predictors of referral for physical therapy, which represented a binary dependent variable. The independent variables were: age (up to 59 years or ≥60 years), sex (female or male), level of education (literate or illiterate), marital status (with partner or without partner), occupation in three aforementioned categories, diagnostic hypothesis (SIS, osteoarthritis and without diagnosis) and presence of medical guidance (yes or no). For the regression model, the independent variables with association to the dependent variable in the Spearman's correlation were selected. The significance level in the correlation and regression analyses was 0.05. Regression analyses were performed in the Statistical Package for the Social Sciences version 17 for Windows (SPSS Inc., Chicago, IL).

## RESULTS

During the study period, 7,298 medical records were analyzed considering the scheduled and unscheduled

medical consultations in the centers. Of these medical records, 1,087 (100.0%) were related to complaints of musculoskeletal pain, of which 117 (9.2%) were related to complaints in the shoulder region. Of the appointments for shoulder pain complaints, 79.2% were scheduled, and 20.8% were unscheduled.

After stratifying these data by age group, the results showed an increase in shoulder pain complaints as the population ages. The highest demands for care were by literate and married women. Thirty-one work situations and 20 different diagnoses were described (Table 1).

Table 1. Absolute (n) and relative (%) values of sociodemographic data and diagnostic hypothesis. Ribeirão Preto (SP), Brazil, 2014

Variables	%	n
<b>Age (years)</b>		
≥ 60 (older persons)	55.5	65
15-59 (young adults + adults)	44.4	52
<b>Sex</b>		
Female	58.1	68
Male	41.8	49
<b>Level of education</b>		
Literate	88.0	103
Illiterate	11.9	14
<b>Marital status</b>		
With partner	64.1	75
Without partner	35.8	42
<b>Occupation</b>		
Active without upper extremity demand	47.0	55
Active with upper extremity demand	28.2	33
Retired and unregistered	24.7	29
<b>Diagnostic hypothesis</b>		
Subacromial impingement syndrome, tendinitis, bursitis	42.7	50
Osteoarthritis	35.9	42
No diagnosis	21.3	25
<b>TOTAL</b>	100	117

Source: Family Health Centers (NSF) – Secretaria Municipal de Saúde de Ribeirão Preto (SMS/PR).

Figure 1 presents data from the first medical consultation and shows that approximately 59% of the patients received the diagnostic hypothesis at that time (Figure 1A), 53% received some kind of therapeutic guidance provided by the doctor (Figure 1B) and only 11% of the patients were referred to physical therapy (Figure 1C).

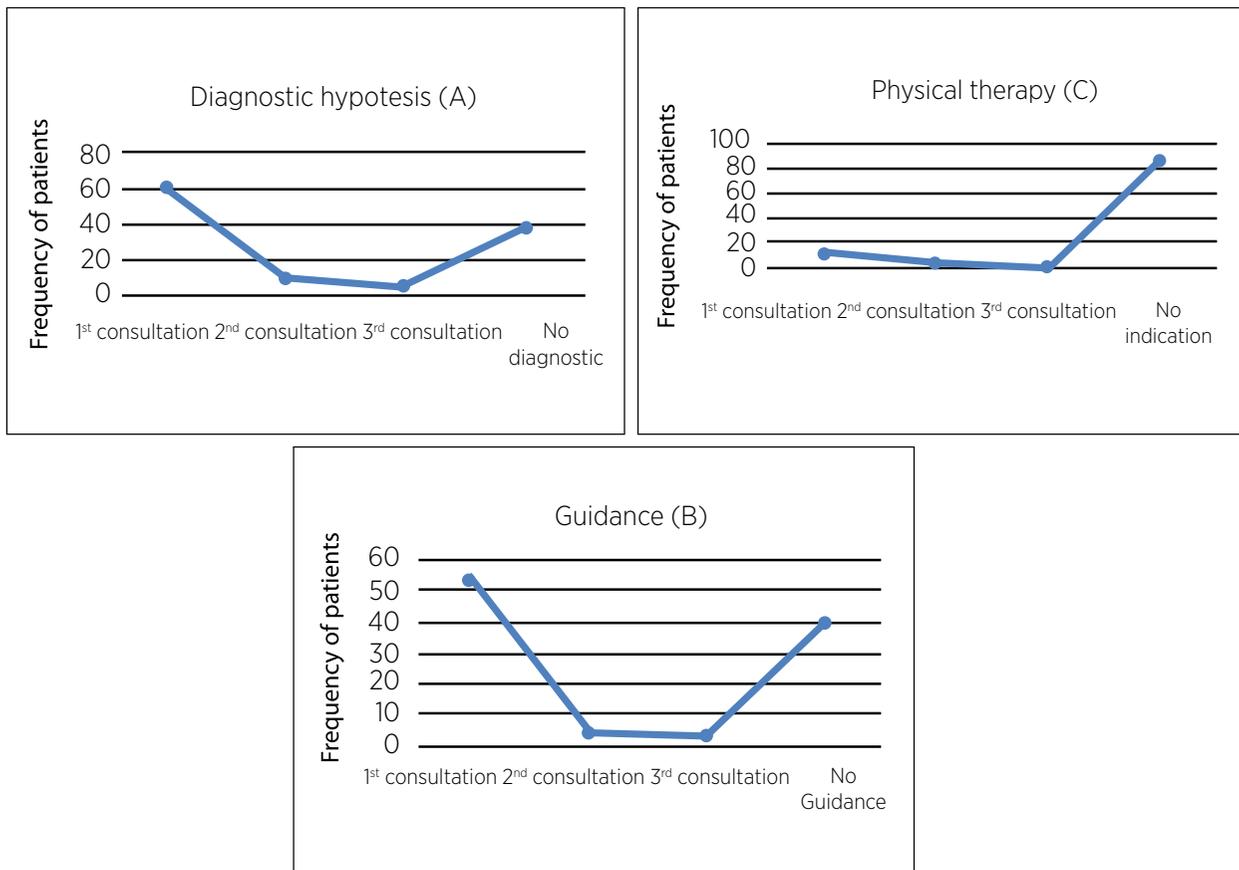


Figure 1. Descriptive data of the first consultation regarding the frequency of patients who received a diagnostic hypothesis at that time (1A), those who received some kind of therapeutic guidance provided by the doctor (1B) and those who were referred to physical therapy (1C)

The therapeutic guidance was the most practiced conduct, being prescribed in 60.6% of consultations, with indication of rest, guidance on positioning, use of thermal resources, stretching, nutrition reeducation and physical activity. Most patients had a scheduled follow-up consultation in the center, and only 16 were referred to physical therapy (Table 2).

Comparisons between groups of adults and older persons showed no evidence of difference in proportions or association with increased odds for clinical diagnoses, medical guidance conducts and referrals for physical therapy in the appointments (Table 3).

The association between referral for physical therapy and sociodemographic variables was observed for level of education, diagnostic hypothesis and guidance prescription. Multiple logistic regression analysis included in the model these three variables and showed that the variables level of education and guidance prescription influenced the doctor's decision in referring the patient to physical therapy. Level of education presented a directly proportional relation ( $B=2.425, p=0.041$ ), whereas the guidance prescription

variable had an inversely proportional relation ( $B=-3.505, p=0.000$ ). The variable diagnostic hypothesis did not influence the decision of referral to physical therapy ( $B=-18.031, p=0.09$ ).

Table 2. Absolute (n) and relative (%) values of medical conduct data. Ribeirão Preto (SP), Brazil, 2014

	Subacromial impact syndrome		Osteoarthritis		No diagnosis		TOTAL	
	%	n	%	n	%	n	%	n
<b>Guidance</b>								
Yes	26.5	31	22.2	26	11.9	14	60.6	71
No	16.2	19	13.6	16	9.4	11	39.3	46
<b>TOTAL</b>	<b>42.7</b>	<b>50</b>	<b>35.8</b>	<b>42</b>	<b>21.3</b>	<b>25</b>	<b>100</b>	<b>117</b>
<b>Referral</b>								
Yes	6.8	8	3.4	4	3.4	4	13.6	16
No	35.9	42	32.4	38	17.9	21	86.3	101
<b>TOTAL</b>	<b>42.7</b>	<b>50</b>	<b>35.8</b>	<b>42</b>	<b>21.3</b>	<b>25</b>	<b>100</b>	<b>117</b>

Source: Family Health Centers (NSF) – Secretaria Municipal de Saúde de Ribeirão Preto (SMS/PR).

Table 3. Absolute (n) and relative (%) values for data on consultations of older persons and adults. Ribeirão Preto (SP), Brazil, 2014

	Adults n (%)	Older persons n (%)	Total n (%)	Chi-square		Odds ratio (CI95%)
				X <sup>2</sup> (gl)	p-value	
<b>SIS</b>						
Present	23 (45.1%)	27 (40.9%)	50 (42.7%)	0.206 (1)	0.708	1.19 (0.57; 2.48)
Absent	28 (54.9%)	39 (59.1%)	67 (57.3%)			
Total	51 (100%)	66 (100%)	117 (100%)			
<b>Osteoarthritis</b>						
Present	19 (37.3%)	23 (34.8%)	42 (35.9%)	0.072 (1)	0.847	1.11 (0.52; 2.38)
Absent	32 (62.7%)	43 (65.2%)	75 (64.1%)			
Total	51 (100%)	66 (100%)	117 (100%)			
<b>Guidance</b>						
Yes	33 (64.7%)	38 (57.6%)	71 (60.7%)	0.613 (1)	0.452	1.35 (0.64; 2.87)
No	18 (35.3%)	28 (42.4%)	46 (39.3%)			
Total	51 (100%)	66 (100%)	117 (100%)			
<b>Referral</b>						
Yes	9 (17.6%)	7 (10.6%)	16 (13.7%)	1.208 (1)	0.291	1.81 (0.62; 5.23)
No	42 (82.4%)	59 (89.4%)	101 (86.3%)			
Total	51 (100%)	66 (100%)	117 (100%)			

X<sup>2</sup>: value of Pearson's chi-square test; df: degrees of freedom; CI95%: confidence interval; SIS: subacromial impingement syndrome.

## DISCUSSION

This study showed that the frequency of medical consultations due to shoulder pain complaints in the NSF's studied was 9.2% in a one-year period. This percentage is below the world prevalence and incidence rates<sup>10,11</sup>.

Most consultations held during this period were scheduled and had a follow-up visit as conduct, corroborating the principles of primary care for continuity of care (logitudinality) and bonding<sup>17</sup>. Another study also showed that approximately 60% of consultations in primary care were held through planned demands<sup>18</sup>.

Most users with shoulder pain who attended consultations were older persons. Evidence in the literature suggests that the increase of age is proportional to the number of musculoskeletal complaints, as well as those of shoulder pain<sup>18</sup>, which are more common in individuals of middle<sup>19,20</sup> and advanced aged<sup>21</sup>.

There is also a pattern among those who complain about shoulder pain, are concerned about and regularly seek health services, and usually present a double work shift and home services: they are women. This result has already been demonstrated in several other studies on musculoskeletal disorders<sup>22,23</sup> and on shoulder disorders<sup>24</sup>.

Shoulder pain was associated with occupation, even to those that did not demand the upper extremity directly. Other studies have also shown that shoulder pain may be related to occupation<sup>25,26</sup>, indicating that both physical risk factors that directly involve the shoulder<sup>27,28</sup> and

psychosocial factors<sup>29</sup> may be associated with pain complaint.

After analyzing the consultation characteristics, the diagnostic hypothesis was established for most patients already in the first consultation. A different result was found in the study by Dorrestijn et al.<sup>24</sup>, in which only 14% of the patients that attended consultations due to shoulder pain complaints with their general doctors had a diagnostic hypothesis established at the first visit. Also in opposition to the result of this research, some national studies have shown that only 50% of primary care demand is susceptible to diagnosis<sup>18</sup>.

In this study, the following diagnostic hypothesis determined in the consultation were highlighted: SIS, tendinitis, bursitis and osteoarthritis. Other studies have found different diagnoses because of the international destandardization of diagnoses<sup>24</sup>.

Therapeutic guidance was the medical conduct most used in relation to the prescription of drugs and the request of examinations. Contrary to this result, a study in primary care of the Netherlands indicated the prescription of drugs as the most common conduct of the consultations<sup>24</sup>.

Among the referrals to different specialties, physical therapy and orthopedics were highlighted, and 86% received no referral. Considering the resolutiveness level of primary care, only 20% of the demand is admitted to referral<sup>14</sup>.

The comparison between the groups of older persons and adults showed no differences in the proportions

of clinical diagnoses, medical guidance conducts and referrals for physical therapy in the consultations. Regarding the odds ratio, a descriptive association with a greater chance of adults presenting SIS (19%), osteoarthritis (11%), guidance (35%) and referral (81%) could be verified. Even though not supported by the confidence interval, these differences in odds may be clinically relevant. In a study<sup>24</sup>, the group of older persons had a lower referral rate by consultations, and a US study<sup>30</sup> showed that older patients are less likely to be referred to physical therapy or secondary care services compared to younger patients.

Referral to physical therapy and prescription of guidelines were inversely related, suggesting that when receiving a guideline, the patient is less likely to be referred. Therapeutic guidelines are important as first treatment option, because when solving the reason that led to the consultation, they prevent higher expenses for the system and loss of time on the part of the user.

Finally, the limitations of this study are the use of a secondary database; the inclusion of an older population, which may have increased the number of consultations for pain in these centers; the number of incomplete medical records; the destandardization of the filling in of medical records among the centers; and the varied definition as to the naming of the diagnosis. However, this study presents a pioneering character because shoulder pain is discreetly analyzed, especially in Brazil and in primary health care. Other studies need to uncover the issues of incidence, lifestyle, associated diseases, income, race, and psychosocial factors related to shoulder pain.

## CONCLUSIONS

The predominant profile of individuals complaining of shoulder pain consisted of old-age, married and literate women who presented an occupation that did not necessarily demand the use of the upper extremity. The characteristics of the visits corroborate the principles of primary care: the consultations, in their most, had scheduled follow-up appointments, offering therapeutic guidance and few referrals.

## ACKNOWLEDGEMENTS

We thank the *Programa Institucional de Bolsas de Iniciação Científica* (Pibic) for the financial support.

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