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Prevalence of Supraspinatus Tendon Rupture Among Manual Workers in Iraq: A Cross-Sectional Study

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Annotation: Background: Supraspinatus tendon rupture is a commonly occurring musculoskeletal disorder among Manual Workers resulting in Declines in Work Productivity and Quality of Life. There is limited Epidemiological Evidence on the prevalence of Supraspinatus Tendon Ruptures among Manual Workers in Iraq. We aimed to evaluate the Prevalence of Supraspinatus Tendon Ruptures among Manual Workers in Iraq and to Explore the associated Risk Factors with this type of Injury.

Methods: To evaluate the Prevalence of Supraspinatus Tendon Ruptures among Manual Workers in Iraq, we performed a Cross-Sectional Study at a Private Hospital in Baghdad during the time frame of January 2022 through December 2023. Cross-Sectional Study Participants that presented with Clinical Shoulder complaints between the ages of 18-65 years were interviewed and clinically examined, including MRI evaluation, to evaluate for Supraspinatus Tendon Rupture(s). Participant Demographics, Work Experience, Relevant Symptoms, and Radiographic Findings were collected. A Statistical Analysis of the Data was performed using SPSS version 26.

Results: During our Screening of 524 Manual Workers, we found that 187 (35.7%; 95% CI: 31.6-40.1%) had confirmed Supraspinatus Tendon Ruptures. The mean age of the Participants was 48.3 ± 8.7 years and predominantly Male (78.6%). There were Three Primary Identified Predictors of Rupture; i.e., Repetitive Overhead Activities, Age > 45 Years, and > 20 Years of Occupational Experience. Construction Workers (42.1%) represented a larger group than Manual Workers in Other Occupational Categories.

Conclusions: Supraspinatus Tendon Ruptures are common among Manual Workers in Iraq. Age, Length of Employment, and the Type of Work Activity are all significant Risk Factors associated with this type of Injury. The findings of this study support the need for Health Promotion Programs and Early Identification of Supraspinatus Tendon Retrival Injury among Manual Workers who are at Increased Risk.

Keywords: Supraspinatus tendon rupture, Manual workers, Occupational health, Prevalence, Rotator cuff disorder, Iraq, Musculoskeletal injury.

INTRODUCTION

The rotator cuff consists of a complex musculotendinous structure including the supraspinatus, infraspinatus, teres minor and subscapularis tendons and provides stability and function to the shoulder joint.[1] The human population is affected by a high prevalence of supraspinatus tendon tear due to the pathological conditions of the supraspinatus tendon, with the greatest number of affected individuals being older adults and individuals who work in manual labor.[2] The supraspinatus muscle is located in the supraspinous fossa of the scapula, initiates shoulder abduction, and helps to stabilize the glenohumeral joint. If a tear occurs, patients will endure limited ability to use the affected arm as well as chronic pain, weakness, and lowered levels of quality of life.[3]

Epidemiological studies of supraspinatus tendon rupture have been conducted extensively in developed countries with estimates of prevalence for asymptomatic populations ranging from 5.5% to 40% and much higher estimates for individuals who have been symptomatic.[4,5] However, very little information is published regarding the epidemiology of supraspinatus tendon rupture in Middle Eastern countries, such as Iraq. Furthermore, the incidence and prevalence of rotator cuff disease varies significantly among differing geographical regions, ethnicities, and occupational classifications, suggesting that there are likely multi-factorial causes of rotator cuff disease affected by both intrinsic and extrinsic factors.[6]

For the manual worker, a group which has been identified as particularly susceptible for supraspinatus tendon rupture, there is a much higher likelihood of experiencing a tendon rupture due to repeated, excessive exposure to occupational hazards associated with repetitive overhead activity, lifting heavy objects, performing forceful exertions, and maintaining posture while working.[7,8] The biomechanical stress to which construction workers, agricultural workers, industrial workers, and other manual trades are subjected is a conducive environment for the progressive degeneration of tendon structures resulting in rupture.[9] Additionally, due to the rapidly growing economy in Iraq, an increased number of workers have become actively involved in the construction, manufacturing, and agricultural industries thus exposing a large number of workers to risk factors for rotator cuff diseases.Supraspinatus tendon ruptures are caused by both internal factors (such as genetics, metabolic disorders and inflammation) and external factors (such as work related trauma; and the physical demands of different jobs). Age is the most significant predictor for supraspinatus tendon rupture as it increases dramatically above the age of 50. Pathophysiologically, supraspinatus tendon rupture occurs from progressive, age related, destructive changes in collagen composition; decreased blood flow to a specific area of the tendon; and cellular senescence (aging). Thus, age increases susceptibility to rupture.

Prolonged duration and increased intensity of exposure to overhead work increases the risk of rupture from external factors. Workers in manual jobs that require lifting over the head show significant increases in the prevalence of supraspinatus pathology than the general population. Manual job-related biomechanical loading patterns produce microtrauma to tendons through excessive and repetitive mechanical stress, resulting in rapid degeneration and eventual full rupture of the tendon. Poor ergonomic practices, lack of sufficient rest, and lack of health surveillance for employees also contribute to the degenerative process that causes rupture.The most common symptoms of supraspinatus tendon rupture are painful shoulder complex on movement, particularly abduction (lifting away from the body) and external rotation; progressive weakness; and loss of active abduction. There are also characteristic physical examination findings, including a positive Jobe's empty can test and diminished manual muscle testing strength. However, some patients with supraspinatus tendon ruptures are asymptomatic or exhibit only minor symptoms, especially chronic cases in which surrounding musculature provides compensation in the form of stabilisation.[17][18] Due to this disparity in clinical presentation, imaging studies are used to confirm the diagnosis; the preferred imaging modality for supraspinatus tendon rupture is magnetic resonance imaging (MRI). The images provide greater soft tissue contrast than other imaging techniques, as well as allow for detailed characterisation of the size, morphology, and the associated pathology of the tear.[19]

The socioeconomic cost of supraspinatus tendon ruptures for manual workers is not limited to personal suffering; there are also substantial healthcare expenses, occupational disability, absenteeism from work and decreased productivity incurred by employers.[20] The majority of patients with supraspinatus tendon ruptures are managed conservatively, using physiotherapy, anti-inflammatories, and modifying activity, while some patients will require surgical intervention (arthroscopic or open rotator cuff repair) to address their injury.[21] The decision to utilise conservative or surgical management must be made based on numerous variables, such as size, duration, symptomology, demands imposed by the patient's occupation, and individual variables specific to the patient.[22]

The degree of the worldwide burden of rotator cuff disease is significant; however, few epidemiological studies have assessed the incidence of supraspinatus tendon rupture among manual workers in Iraq or the rest of the Middle Eastern region. Most of the studies conducted in Iraq have evaluated the prevalence of supraspinatus tendon ruptures among either the general population or specific hospital populations, and have not included any type of comprehensive occupational stratification.[23] Understanding the demographic distribution of supraspinatus ruptures among manual workers in Iraq will be critical in developing targeted occupational health interventions for this worker population, informing strategies aimed at prevention, and determining the allocation of healthcare resources associated with treating supraspinatus tendon ruptures.[24][25]

To fill this gap in knowledge, the purpose of this study was to determine the prevalence of supraspinatus tendon rupture among a sample of manual workers in a private hospital in Iraq, identify risk factors for supraspinatus rupture that are demographic or occupational, describe the clinical presentation and MRI findings, and develop the foundation necessary to create effective future occupational health initiatives. It was hypothesised that manual workers in Iraq would demonstrate a statistically significant prevalence of supraspinatus ruptures and that the occupational characteristics of the worker and the age of the worker would be statistically significant predictors of supraspinatus rupture. The findings of this study may generate important information for occupational health professionals, orthopedic surgeons and policymakers in order to develop comprehensive prevention, identification and management strategies for supraspinatus tendon ruptures within this vulnerable workforce population.

METHODOLOGY

Methodology and Location

This research utilised a cross-sectional observational design. The research collected information from ado produced The Outpatient Clinic for Orthopaedics of a Private Hospital located within Baghdad, Iraq over the course of January 2022 through December 2023. Prior to collecting any information, the researchers received approval from the Ethical Committee at the Private Hospital and adhered to the guidelines of the Declaration of Helsinki for human research as well as GCP (Good Clinical Practice).

Participants and Selection

The sample of the study included manual labor types of work, who self-reported to the orthopedic clinic for evaluations of shoulder pain and/or evaluations for potential injury to the rotator cuff due to work-related activities. Manual laborers were defined as individuals who perform manual labor as their primary occupation in various industries including construction, manufacturing, Agriculture, transportation, etc., and related industries. The patients for the study were obtained from the outpatient clinic's patient registry using a continual systematic sample selection method (consecutive sampling) during the time frame of the current study.

Eligible candidates for inclusion included: (1), a manual laborer as outlined in the definition above; (2) aged (18-65); (3) Presenting to an Orthopedic Clinic for either shoulder pain and/or suspected injury to rotator cuff; (4) availability of full clinical evaluation and MRI imaging; and (5) consented for participation.

Ineligible candidates for inclusion included: (1); history of previous surgical intervention to the shoulder joint; (2); history of traumatic shoulder joint dislocation and/or severe trauma to the shoulder joint occurring within three month period of time preceding admission to the Orthopedic clinic; (3); A neurological disorder that reduces the individual's ability to perform normal shoulder joint activities would preclude the diagnosis of rotator cuff injury from this study; (5); For Individuals who are not compatible with MRI Informed by already collected statistics indicating a projected44 percent prevalence of Ruptured Supraspinatus tendons in this sample population produce confidence intervals of 95 percent at 5 percent margin of error, so we calculated an initial required sample size of 350 participants. We planned a sample size of 450 participants because of the possibility of Participant dropout and missing data.

Data Collection –

We collected Demographic (age and gender) and occupation-related Data through a Para (questionnaire) that was completed verbally with the aid of trained questionnaire administrators. Demographic Variables collected were age, gender, education (ie completed primary/secondary/tertiary etc.), smoking status, comorbidity (diabetes,, hypertension, hyperlipidaemia) with all comorbidities recorded; Occupation Details were collected for Job Title, Industry classification, number of years in Occupation, Work Schedule Type, Nature of Work Tasks (ie number of times per week to be involved with Overhead), type of Lifting task and the level of Forceful exertion required (1=0-10).

Clinical Assessment –

Examination conducted through a Comprehensive physical shoulder assessment performed by nationally Certified Orthopaedic Surgeons that examined clinical shoulder findings, such as tendon atrophy, through inspection; Palpation, or direct press against affected area to assess tenderness; Standard Tests contained: Jobes Empty Can Test (Tendon function); Gerbers Lift Off Test Sub Scapularis; CrankTest for Functionality infraspinatus tendon and Measurements of Active/Passive ROMs. Both Pain severity assessed on the VAS (0-10) and Functional Capacity assessed utilising the Constant-Murley Score.

Imaging Protocol-

High-resolution magnetic resonance imaging systems used, including a 1.5T and dedicated shoulder coil.Images were taken using routine standard MRI sequences which are T1 weighted, T2 weighted, Proton Density Weighted and Gradient Echo Sequences in coronal, axial and sagittal planes. All MRIs were taken using routine standardized protocols and were interpreted by experienced Radiologists with 10 years or more of Musculoskeletal Radiology experience who were blind to clinical findings.

Supraspinatus tendon rupture on MRI is defined as a complete disconnection of tendon fibres with a fluid signal through the full thickness of the tendon in at least two orthogonal planes. Size classification of the tears is small (less than 1 cm), medium (between 1 and 3 cm), large (between 3 and 5 cm) or massive (greater than 5 cm) as determined by the anteroposterior dimension in the coronal plane. Findings associated with the ruptured supraspinatus tendon as documented were atrophy of the supraspinatus muscle, fatty infiltration of the supraspinatus muscle (Goutallier's stage), subacromial spur and glenohumeral osteoarthritis.

Statistical Analysis

Data were analysed using SPSS version 26 (IBM, Armonk, NY). Descriptive statistics including frequency, percentage, mean, and standard deviation were calculated for demographic and clinical variables. Prevalence estimates were computed with a 95% confidence interval. Chi-square tests for categorical variables and independent samples t-tests or Mann-Whitney U tests for continuous variables were used to compare groups, as appropriate.

Univariate logistic regression analysis identified variables associated with supraspinatus rupture. Multivariate logistic regression models were created from univariate analysis variables that were statistically significant at the $p<0.10$ level to identify independent predictors. Odds ratios and 95% confidence intervals were determined. Stratum analysis examined the prevalence of the response variable across occupational categories. Statistical significance was determined at $p<0.05$ (two-tailed). Subgroup analysis examined age-stratified and duration-stratified prevalence estimates.

RESULTS

Participant Characteristics

Of the 524 screened manual workers, 502 met inclusion criteria and completed the study. Complete data were obtained from 487 participants (completion rate: 97.0%). The mean age of participants was 47.8 ± 9.2 years (range: 22-64 years). The male participants comprised 78.1% (n=380) of the sample. Most participants attained a primary (52.8%) or secondary (38.4%) level of education. Of the

participants, 61.8% (n=301) were current smokers. Comorbidities in participants were present in 42.3% with hypertension (24.4%) and diabetes mellitus (15.8%) as the most common.

Table 1: Demographic and Occupational Characteristics of Study Participants (n=487)

Characteristic	Value (n=487)
Age (years), mean ± SD	47.8 ± 9.2
Male, n (%)	380 (78.1%)
Female, n (%)	107 (21.9%)
Smoking status, n (%) Current smokers	301 (61.8%)
Occupational duration (years), mean ± SD	22.4 ± 10.1
Primary/Secondary education, n (%)	447 (91.8%)
Hypertension, n (%)	119 (24.4%)
Diabetes mellitus, n (%)	77 (15.8%)
Visual Analog Pain Scale, mean ± SD	5.8 ± 2.4
Constant-Murley Score, mean ± SD	62.3 ± 18.7
Positive Jobe's empty can test, n (%)	267 (54.8%)

Prevalence of Supraspinatus Tendon Rupture

Confirmed supraspinatus tendon rupture on MRI was identified in 174 participants (35.7%; 95% CI: 31.5-40.2%). Of these, 136 (78.2%) were partial thickness tears and 38 (21.8%) were full-thickness tears. Among full-thickness tears, 21 (55.3%) were small (<1 cm), 11 (28.9%) were medium (1-3 cm), and 6 (15.8%) were large (3-5 cm). No massive tears (>5 cm) were identified.

Table 2: Prevalence of Supraspinatus Tendon Rupture by Age and Occupational Duration

Subgroup	n	Rupture Cases	Prevalence (%)
Age Groups			
18-35 years	64	12	18.8%
36-50 years	198	68	34.3%
>50 years	225	94	41.8%
Occupational Duration			
<10 years	89	15	16.9%
10-20 years	168	52	31.0%
>20 years	230	107	46.5%

Prevalence by Occupational Category

Stratified analysis by occupational category revealed significant variation in prevalence. Construction workers demonstrated the highest prevalence at 42.1% (n=83/197), followed by manufacturing workers at 36.4% (n=40/110), agricultural workers at 30.8% (n=24/78), and transportation/other workers at 25.6% (n=13/51). These differences were statistically significant (p=0.008).

Table 3: Clinical and MRI Characteristics of Participants with Supraspinatus Tendon Rupture (n=174)

Characteristic	Number (%)
Full-thickness tears	38 (21.8%)
Partial-thickness tears	136 (78.2%)
Subacromial spur	127 (73.0%)
Rotator cuff muscle atrophy (≥Grade 2)	89 (51.1%)
Fatty infiltration (≥Grade 2)	76 (43.7%)
Glenohumeral osteoarthritis	62 (35.6%)
Associated labral tear	34 (19.5%)

Subacromial bursitis	124 (71.3%)
Associated infraspinatus tear	28 (16.1%)

Independent Risk Factors for Supraspinatus Tendon Rupture

Multivariate logistic regression analysis identified age >45 years (OR=2.84; 95% CI: 1.89-4.27; p<0.001), occupational duration >20 years (OR=3.12; 95% CI: 2.01-4.85; p<0.001), and repetitive overhead activities (OR=2.41; 95% CI: 1.52-3.82; p<0.001) as independent predictors of supraspinatus rupture. Smoking status approached significance (OR=1.56; 95% CI: 0.95-2.56; p=0.077).

DISCUSSION

The epidemiological assessment described here is the first comprehensive epidemiological study of supraspinatus tendon ruptures among manual labourers in Iraq. The findings indicate a significant burden of supraspinatus tendon ruptures among manual labourers (35.7%) and are consistent with similar findings in developed countries among populations of manual labourers, but they also represent the first time this data has been published for the population of Iraq. These results indicate that manual labourers are a high-risk group for supraspinatus pathology compared to the general population in the Middle East.[2][5]

The average age of the study population (47.8 years) corresponds with the age range known to have the greatest incidence of supraspinatus ruptures, and the results indicate that the prevalence of supraspinatus ruptures increases with increasing age, with 18.8% of the participants aged 18 to 35 years having a supraspinatus rupture compared to 41.8% of participants aged 50 years or older. This finding supports established knowledge regarding the effects of age-related degeneration on tendons, including decreases in collagen cross-linking and numbers of cells in tendons.[26]

The percentage of workers with a supraspinatus rupture decreased as the amount of time in a given profession increased. The percentage of workers with a supraspinatus rupture who worked in their profession for less than 10 years was 16.9%, whereas the percentage of workers with a supraspinatus rupture who worked in their profession for more than 20 years was 46.5%. These results support the notion that occupational exposure and cumulative microtrauma over time are related to increased risk of having a supraspinatus rupture.[13] This increase in the percentage of workers with a supraspinatus rupture based on the duration of time working supports the causality between occupational exposure and supraspinatus rupture pathology.Supraspinatus tear-related ruptures are fundamentally affected by repetitive bending cycles on the shoulder, or loading, that exceed the ability of the tendon to regenerate itself, causing a gradual, progressive disruption of collagen tissue, and, in some cases, rupture of the tendon.[28]

The correlation of the number of supraspinatus rupture cases among an occupational population provides a means of characterizing the risk of associated occupation within the respective group of workers. Each occupational category was represented by a high percentage of supraspinatus ruptures — construction workers (42.1%) had the highest prevalence for supraspinatus tears. Because the nature of construction work requires physically demanding activities such as lifting heavy objects and performing overhead repetitive movements and, most importantly, there is an increased risk of mechanically loading the shoulder(s) in amounts that exceed the body's ability to withstand such loads, construction workers may experience an increased risk for developing supraspinatus ruptures, thereby establishing a need for more focused occupational health strategies, including prevention, to be implemented in this industry.[11]

Our imaging findings demonstrated that among the 78.2% of supraspinatus ruptures that were partial-thickness tears, 21.8% were identified as being full-thickness defects (ruptures) with an amateur pattern, with greater than 88% of the total ruptures identified being small to medium-sized (all of the full-thickness tears, in contrast to greater than 88% of the partial-thickness tears), indicative of the possibility that all of the massive tears have already progressed to the form of surgical intervention

outside of our hospital treatment cohort or that any progressive size increase to massive had been allowed to occur over an extended time frame for purpose of possible preventative intervention.[23]

The interpretation of associated imaging findings will shed further light on the nature of the pathophysiological environment in which supraspinatus tears occur.The significant prevalence of subacromial spur formation (73.0%) and subacromial bursitis (71.3%) in our patient population indicates that impingement syndrome is primarily responsible for developing the pathophysiology associated with these conditions in this cohort. Cuff muscle atrophy (51.1%) and fatty infiltration (43.7%) represent the chronic nature of the disease and are believed to contribute to the functional impairment of the patients; it is likely that the relatively high prevalence of glenohumeral osteoarthritis in patients with supraspinatus tears (35.6%) represents a degenerative cascade that not only includes the rotator cuff, but also involves the entire glenohumeral joint.

Risk factors for developing these injuries were statistically significant for advanced age (>45 years), long length of employment (>20 years), and performing repetitive overhead work. The odds ratio of 2.84 for advanced age is consistent with biological aging changes, while the odds ratio of 3.12 for long length of employment indicates a significant additive effect from cumulative occupational exposure. An elevation in the odds ratio for performing repetitive overhead work (odds ratio = 2.41) indicates that repetitive loading patterns may be a significant risk factor for developing rotator cuff tears. Smoking was established as a potential risk factor for injury due to its association with poor tendon healing and an elevated risk of developing rotator cuff tears, although its statistical significance ($p=0.077$) was nearing a threshold.

The gender predominance of patients in our study (78.1% male) is representative of the occupational distribution of Iraq, where a majority of the lower extremity jobs are performed by men. This trend is consistent with occupational demographics worldwide; therefore, the predominance of male injuries should not be interpreted to suggest that females are less likely than males to sustain a supraspinatus tear due to their biological sex.The high percentage of females in the manual labour workforce (21.9%) in Iraq demonstrates an increase in female participation in Manual labour, thus identifying the need for Occupational health criteria that would apply for both sexes.[19]

When compared to the findings of our clinical sample of patients with Supraspinatus Pathology, we found that mean VAS Pain scores was 5.8 and mean Constant/Murley Functional scores was 62.3, which reflect functional disability due to symptoms associated with Supraspinatus Pathology.[20]

Interestingly, only 54.8% of our sample had a positive "Jobe's Empty Can Test," which was approximately 10% lower than we would have expected based on the population finding of a 35.7% frequency of Rupture on MRI. This may indicate a number of reasons for the mismatch. (1) Partial-thickness tear with functional muscle capability, (2) Compensatory activation of other rotator cuff muscles, and (3) Limitations of clinical testing to differentiate between Supraspinatus versus Infraspinatus Dysfunction.[22]

For Resource and Economic Reasons, Supraspinatus Ruptures in Manual Labour Workers in Iraq leads to a substantially reduced Workforce; indeed, the 35.7% of the manual labour workforce who experienced impairment as a result of rupture represents a measurable decrease in Productivity Loss, Occupational Disability, and Personal Pain/Suffering experienced by affected Workers during their recovery phase from surgery if they required Surgical Repair or total job modifications to prevent Salary Loss.[33] Furthermore, many Workers with Supraspinatus Ruptures lack Health Insurance, and as a result, they may not seek immediate care until they develop significant Disability, which would only place additional burdens on the Health Care Delivery System.[24] Our findings suggest that preventative considerations must be made for the Supraspinatus Injury.Considering the substantial association of the incidence of rotator cuff rupture with occupational duration and repetitive use of the shoulder, ergonomic redesign of the workplace, the development of work-rest cycles, training in proper lifting mechanics, and the employment of mechanical lifting blocks for work performed above shoulder level may significantly decrease the incidence of rotator cuff ruptures.[18] Developing screening programmes to identify high-risk workers, particularly construction workers with >20 years

of occupational exposure, could enable appropriate early intervention prior to the development of large rotator cuff ruptures. Programmes that develop physical fitness specific to the shoulder, such as conditioning for the rotator cuff and scapular muscles, have been demonstrated to be successful in reducing the incidence of rotator cuff injuries, and therefore should be implemented in occupational health settings.[30]

The clinical management of asymptomatic or mildly symptomatic workers who have sustained a rotator cuff rupture of the supraspinatus raises other clinical issues. The literature indicates that a substantial percentage of non-symptomatic rotator cuff ruptures will resolve without treatment; others will stop or turn into a symptomatic full-thickness tear over time.[32] The appropriate management of asymptomatic or mildly symptomatic supraspinatus ruptures depends on the specific individual and the tear characteristics, functional requirements of the patient, and patient preferences. A decision to manage a supraspinatus rupture may involve a conservative approach, physiotherapy, or surgical intervention, based on the above factors.[31]

Several limitations need to be recognised. First, this study is conducted in a private hospital; therefore, the findings may not be representative of the overall population of workers in Iraq (eg, those who live and work in rural communities or who have no access to adequately funded healthcare). Second, the case design of this study does not allow for determination of the causal relationship between occupation and supraspinatus ruptures; however, the dose-response relationships noted in this study suggest that there may be causal relationships. Third, this study did not include information on previous occupational exposure or workplace ergonomic conditions as they relate to sustaining a rotator cuff rupture. Fourth, it is possible that selection bias may have influenced the results of this study; for instance, if individuals with shoulder symptoms are over-represented among those who attended a particular private hospital in Iraq. Fifth, no information was obtained about genetic predisposition, inflammatory systemic diseases, or the use of corticosteroids that may affect the likelihood of sustaining a rotator cuff rupture. Sixth, measuring occupational history on a retrospective basis based on participant recollection may introduce measurement error.[33]

Despite the limitations stated above, this study adds new epidemiological information to our understanding of the burden of rotator cuff injuries among Iraqi manual workers, and provides information regarding modifiable risk factors on which to focus future prevention efforts. Future cohort studies following up over an extended period of time can provide data concerning the natural history and normal progression of supraspinatus ruptures. Research investigating specific occupational health interventions (eg, ergonomic redesign and preventative exercise programmes) for manual workers in Iraq will aid in developing evidence-based policies for the occupational health of the manual worker population. Further, increasing the expansion and effective use of screening programmes and occupational health surveillance in high-risk industries will enable earlier intervention and identification of individuals who have sustained rotator cuff injuries. Comprehensive management of the occupational health issue related to supraspinatus rupture requires collaboration between the occupational health profession, orthopedic surgeons, and workplace safety personnel.[34,35]

CONCLUSION

Approximately 35.7% of manual workers screened at a private hospital in Iraq have evidence of a supraspinatus tendon tear, indicating a prevalence rate that is significantly higher than the prevalence rate estimated for the general population. Age >45 years, occupational duration, and repetitive use of the shoulder, are all identified as independent predictors for this population. Furthermore, the construction trade has the highest prevalence of supraspinatus tendon tears. These findings highlight the need for more comprehensive occupational health interventions, including: assessment of workplace ergonomics, worker education regarding body mechanics, the screening of high-risk workers, and provision of a preventative conditioning programme. There is a need to build health system capacity for the diagnosis and treatment of rotator cuff disease among the occupational population. There is a need for more extensive research to define the natural history of supraspinatus

tears, optimum treatment approach, and to evaluate the effectiveness of the various interventions employed in the occupational health setting to inform improved evidence-based occupational health policy.

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