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Research

# Falls, fear of falling and risk of falls in patients with rheumatoid arthritis: prevalence and associated factors

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**Abstract**

**Introduction:** We aimed to analyze the prevalence of fall, fear of falling and risk of falls in the patients with rheumatoid arthritis and the associated factors. **Methods:** One hundred and twenty-three participants with rheumatoid arthritis (RA) aged over 18 years were enrolled based on the 1987 ACR/EULAR classification criteria. Patients were asked to complete an interviewer-assisted questionnaire about the number of falls and fear of falling during the last 12 months. Comorbidities and complications related to the disease were also obtained. The disease activity was evaluated by the patient and evaluator global assessment (PGA, EGA), the tender and swollen joint counts (TJC28, SJC28), the disease activity Score 28 ESR (DAS28 ESR) and the clinical and simple disease activity indexes (CDAI, SDAI). The functional disability was measured by the health assessment questionnaire (HAQ). The risk of falls was estimated by five standardized performance tests: the Tinetti test (TIT), the timed get up and go test (TUG), the chair-rising test (CRT), the tandem and the tandem stand tests. The relation between disease parameters and the test of fall were analyzed by the r of Pearson, Spearman and Chi-square. The factors associated with falls and fear of falls were evaluated using multiple linear regression analysis and t independent test. **Results:** Twenty-three (18.7%) participants reported a fall and forty-five (36.6%) of them the fear of falls. Risk of falls was strongly correlated with age (CRT: r = 0.345, TIT: r = -0.314), TJC 28 (TIT: r = -0.482, TUG: r= 0.260), PGA (TIT: r = -0.481, TUG: r = 0.375) EGA (CRT: r = 0.27, TIT: r = -0.48), DAS28 ESR (CRT: r = 0.32, TUG: r = 0.25, TIT: r = -0.51), CDAI (TIT: r = -0.421, TUG: r = 0.292), HAQ (CRT: r = 0.411, TIT: r = -0.648, TUG: r = 0.537) and disease duration (CRT: r = 0.343, TIT: r = -0.400, TUG: r = 0.363). No relation was found between corticosteroid use and the risk of falls. Fear of falls was related in simple analysis to the presence of a comorbidity (p = 0.002 OR: 0.252 CI [0.104-0.611]), the walk with aid (p = 0.010 OR: 0.1225 CI[0.025-0.602]), the body mass index (BMI) (p < 0,001 OR:1.143 CI[1.064-1.228]), the disease duration (p < 0.001 OR:3.69 CI[1.97-6.92]), the VAS pain (p = 0.001 OR:1.03 CI[1.011.05]) and the HAQ (p < 0.001 OR: 3.69 CI[3.69-6.92]). In multiple regression analysis, fear of falls remained related to BMI, HAQ and disease duration. **Conclusion:** The falls in RA seems to be frequent. Several factors were associated to a high risk of falls and fear of falling: disease duration, HAQ and especially the high disease activity, which is the case of many patients in African countries. These results suggest that the physician has to be aware of the high risk of falling in RA patients and the importance of identifying them with a simple interrogation and physical examination.

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## Introduction

Patients with rheumatoid arthritis (RA) have an increased risk of falls compared with healthy controls [1]. These falls have consequences especially fractures. The estimation of people with RA who fall annually range from 10-54% [2, 3] and this high variability may be due to the sample selection (women only, small samples, or frail older patients), inconsistent definitions or no definitions of falls and use of different assessment measures [4]. Although advancing age is a common factor associated with the incidence of falls in elderly persons [5], the correlations of age with falls and fear of falling have been less consistent in patients with RA [6]. Identify predictive and potentially modifiable risk factors is necessary for the development of falls prevention strategies to prevent falls consequences. In this study, we aimed to analyze prevalence of fall, fear of falls and risk of falls in rheumatoid arthritis, to determinate factors correlated or associated to fall's parameters and fear or fall and to identify simple tools to detect risk of falls.

## Methods

**Subjects**: All participants were aged over 18 years with a diagnosis of RA based on the 1987 American College of Rheumatology/European League Against Rheumatism classification criteria for in this transversal study. The subjects were enrolled in the department of rheumatology, at El Ayachi Hospital between June and august 2014. This study was conducted with the approval of the ethics committee of the faculty of medicine and pharmacy of Rabat. All subjects were informed about the objectives of the study and consented. We excluded patients with neurological disorders or visual impairment that could have induces an increased risk of falls. At the start of the study, patients were asked to complete an interviewer-assisted questionnaire about the number of falls and fear of falling during the last 12 months. Participants were also asked to answer questions about demographic and socioeconomic parameters, past medical and medication use history (including steroids), comorbidities (like hypertension, diabetes, osteoporosis, joint replacement), disease duration and the use of walking aids. We also obtained the HAQ disability index (HAQ-DI). And finally, we performed physical examination to search parameters of disease activity and complications of RA.

**Disease activity**: The disease activity was evaluated by the patient and evaluator global assessment (PGA, EGA), the tender and swollen joint counts (TJC28, SJC28), the disease activity Score 28 ESR (DAS28 ESR) and the clinical and simple disease activity indexes (CDAI, SDAI). In addition, demographic variables, RF (U/l) and anti-CCP (U/l) were also recorded.

**Fear and assessment of risk to fall**: Falls risk was measured by five standardized performance tests as follows: chair-rising test (CRT) [**7**], timed get up and go test (TUG) [8], Tinetti test (TIT) [9], tandem stand (TS) [7] and tandem walking (TW) test [10]. They were performed according to the Austrian Geriatric Society recommendations. The TIT or performance-oriented mobility assessment is a reliable and valid tool to assess the falls risk of the elderly person [11, 12]. It consists of a balance and a gait test. In total, 28 points can be achieved. The higher the score achieved, the better the performance. This test is considered to be the gold standard to evaluate mobility dysfunction in the elderly population [13]. The CRT is a timed test of muscle strength [14, 15]. The participant is asked to stand up and sit down from a chair five times in a row as fast as possible without using the arms. If a participant is not able to complete the test or needs > 10 s, the risk for falls and immobility is increased [16]. In the TUG, an individual sit on a standard height armchair with his hands placed on the armrest. The person is asked to stand up (using his arms), walk 3m at a normal speed, turn around, return to the chair and sit down again. The more time needed to complete the test, the greater the restriction of mobility and the higher the risk of falling [17]. In tandem walk test; there are two ways of conducting it. Patients are required to walk heel to toe along a 10-foot line as quickly as possible without errors. Errors included not walking heel to toe, stepping off the gait line and losing balance. Seeing that counting errors is tricky and not very reliable, an alternative is to ask clients to take 4 steps and score it as able or unable [18]. For tandem stance test, we ask participants to stand with the heel of one foot in front of and touching the toes of the other foot for 30 seconds by keeping their arms by their sides and try not to shift their feet. They have to hold this position until the stop of the examiner. The time held to the nearest tenth of a second is record. Cut point unable to TS for 10 secs is fall risk indicator [19].

**Statistical analysis**: All Statistical analysis was performed using SPSS, version 18.0. The correlation between individual and composite measures of disease activity and the tests of the fall assessment were analyzed by Spearman's and Pearson's

correlations, we also evaluated association between those parameters using Chi-square. We performed linear regression analysis between the parameters CDAI, SDAI, DAS28, HAQ-DI, TUG, CRT and TIT following by multiple linear regression analysis; factors related to falls occurrence and fear of falls were also analyze by the same test. We compared the fall assessment results across the disease activity categories (remission, low activity, moderate activity and high activity) and different age groups using the Kruskal-Wallis independent test.

## Results

The characteristics of the one hundred and twenty-three participants in this study and the characteristics of the disease are shown in Table 1. Seventy-eight patients (64.2%) of participants had comorbidities. Figure 1illustrates the prevalence of the different comorbidities. Five patients used walking aids.

**Falls and fear of falling**: Forty-five patients (36.6%) reported fear of falling while twenty-three (18.7%) reported a fall at last one time during the preceding 12-months. Among these 23 patients, 13 (10.6%) fell once, 6 patients (4.9%) twice, 3 patients fell 3 times and one patient 6 times. Table 2 and Figure 2 show the incidence of falls in different age groups. All patients underwent TIT, tandem stance, tandem walk and TUG tests; 24 patients (19.8%) were unable to perform CRT test. According to age, no difference exists between patients who reported a fall and those who didn't and when comparing fear of falls using Chi-square test, we found an association between different groups of ages ($p < 0.001$). We also found a significant association between different groups of ages with TIT ($p = 0.001$), TUG ($p = 0.006$) and CRT ($p = 0.001$). We compared the results of TUG, CRT and TIT of participants with and without join prosthesis by independent U-test and we found that patients with joint replacement attained the worse results in all three tests but the differences were not statistically significant. Fear of falls was related in simple analysis to the presence of a comorbidity ($p = 0.002$ OR:0.252 CI [0.104-0.611]), the walk with aid ($p = 0.010$ OR:0.1225 CI[0.025-0.602]), the body mass index (BMI) ($p < 0.001$ OR:1.143 CI[1.064-1.228]), the disease duration ($p < 0.001$ OR:3.69 CI[1.97-6.92]), the VAS pain ($p = 0.001$ OR:1.03 CI[1.011.05]) and the HAQ ($p < 0.001$ OR:3.69 CI[3.69-6.92]). In multiple regression analysis, fear of falls remained related to BMI, HAQ and disease duration.

**Correlation between disease activity and fall assessment**: Table 3 shows the correlation between fall assessment and the different disease parameters. The strongest correlations were seen for HAQ, disease duration, EGA, CRT, TIT and TUG tests. ACPA, RF and SJC correlated weakly with all parameters assessed. DAS28 ESR was strongly correlated with CRT, TIT, and TUG ($p < 0.001$); CDAI with TIT and TUG ($p < 0.001$); and SDAI with TIT and TUG ($p < 0.001$ and $p = 0.004$ respectively). In simple linear regression analysis, TIT and TUG were related to disease activity score, HAQ, VAS pain and PGA; age was related with CRT and TIT. In multiple linear regression analysis, CRT was correlated to disease duration ($p = 0.027$, $\beta = 0.250$, CI[0.022-0.354]), age($p = 0.005$, $\beta = 0.28$, CI[0.034-0.181]), VAS pain ($p = 0.049$, $\beta = 0.92$, CI[0.001-0.409]) and PGA ($p = 0.008$, $\beta = -1.3$, CI[-0.22, -0.085]). TIT was correlated to age ($p=0.024$, $\beta = -0.16$, CI[-0.134-0.010]), CRP ($p = 0.028$, $\beta = -0.28$, CI[-0.09,-0.040]) CDAI($p = 0.030$, $\beta = -0.972$,CI[-0.79,-0.040]) and HAQ ($p < 0.001$, $\beta = -0.6$,CI[-6.8, -3.1]). And TUG was correlated to disease duration ($p = 0.037$, $\beta = 0.19$, CI[0.009-0.286]), VAS pain ($p = 0.032$, $\beta = -0.8$, CI[-0.41, -0.045]), PGA ($p = 0.032$, $\beta = 0.79$, CI[0.02-0.44]), DAS28 ESR ($p = 0.003$, $\beta = 1.5$, CI[2.1-10]), DAS 28 CRP ($p < 0.001$, $\beta = -1.7$, CI[-11.6,-3.5]), CDAI ($p = 0.005$, $\beta = 1.3$, CI[0.20-1.12]), SDAI ($p = 0.029$, $\beta = -1.04$, CI[-1, -0.015]) and HAQ ($p < 0.001$, $\beta = 0.47$, CI[1.9-6.5]). We used the Kruskal-Wallis test to compare the disease activity categories of CDAI, DAS28 ESR and SDAI; to the results of TIT, TUG and CRT. We pooled patients with low, moderate and high activity. Table 4 and Figure 3summarize our findings (median values were used for comparison). Most participants with high disease activity performed the worse results in fall assessment, but we also found certain patients in low activity with worse results than whom with high disease activity. At the TUG, significant differences were seen with all parameters of disease activity: DAS28 ESR ($p < 0.001$), SDAI ($p = 0.001$), CDAI ($p < 0.001$) (Figure 3). Similar results were found at the CRT with DAS28 ESR ($p<0.001$), SDAI ($p = 0.001$ =) and CDAI ($p = 0.002$); and also at TIT with the 3 parameters of disease activity ($p < 0.001$). We also analyzed differences between age groups and the results of fall assessment tests using Kruskal-Wallis test. With aging, tests results were worse in CRT ($p = 0.006$) and TIT ($p = 0.001$). Table 5 summarizes all the associations between disease activity, functional disability and fall assessment, including Tandem stance and Tandem walk tests.

## Discussion

In our study, we evaluated the prevalence of falls, fear of falling and risk of falls in the patients with rheumatoid arthritis. And seeing that a fall isn't a random event, we also looked for its associated factors. 18.7% of the participants reported at least one fall during the preceding 12 months. Böhler and al. in their retrospective study reported at least one fall in 27% of the subjects [20], when Smulders and al [21] and Stanmore and al [4] respectively found a fall in 42% and 36% of participants in their prospective studies. We have a lower rate of falling, probably because some patients forgot to report their falls especially when there are no injuries. These differences in results between prospective and retrospective studies have been already reported in literature [22]. Thus, the Prevention of Falls Network Europe (ProFaNE) recommends prospective daily recording and notification of falls, with a minimum monthly reporting [23]. In Smolen's study, the patients had more comorbidities in particular joints replacements (19 vs. 5 in our study). This could explain de the difference between our studies. An association between fall history and number of comorbid conditions was reported by Jamison and al [24] but three subsequent prospective studies found no association between falls and comorbid conditions [2, 4, 21]. A third (36.6%) of our patients expressed fear of falling. This prevalence is comparative with the 26.1% found in Smulders and al [21] results and the 46% of Böhler and al study [20]. In our study, the patients with fear of falling tended to falls more than those who didn't (44% vs 3.8%, $p < 0.001$). So, fear of falling appears as a high risk of falls in our population. Among our patients, fear of falls was negatively related to BMI and positively to disease duration and HAQ. Relation between fear of falls and BMI wasn't studied in our knowledge. Risk of falling was strongly correlated with disease duration, EGA and HAQ. Through disease duration was well correlated with the risk of falls in our study, surprisingly most of the previous studies couldn't find this correlation [1, 20, 25]. Median disease duration of our patients was shorter compared to the others (10 years for Hayashibara and al [2], 14 years for Böhler and al [20]). The risk of falls and disease activity were well correlated, especially with the DAS28 ESR. So, the risk of falling seem to increase with high disease activity. In addition, disease activity in our population was higher compared to other studies (DAS28 = 4.6 in our study, vs. 3.4 and 2.8 respectively for Böhler and al [20] and Hayashibara and al [2]). CRP and ESR were well correlated to fall risk in our study, but not in Böhler and al study [20]. The higher rate of CRP and ESR of our patients could explain this difference. We didn't found a correlation between the presence of autoantibodies or SJC and fall risk.

The results of previous studies were contradictory concerning this relation between a high disease activity and a high falling risk. It was mostly due to the fact that the data were collected either in the beginning or the end of the studies [2, 21, 24-26] and so not at the time when the fall occurred. While in our study, the evaluations of the falling risk and disease activity were performed on the same day. Concerning the tests assessing falling risk, the parameters who showed good correlation with at least two of them were: CDAI, VAS and HAQ. The regression coefficient for TIT and CDAI was -0.972. Thus, a participant in high disease activity, with a CDAI = 22.9, scored 22 points less than a patient in remission, with a CDAI = 1.0, in the TIT. So, the risk of falling seems to increase with higher disease activity (Table 4). If some patients in remission showed bad results, it's mostly due to disability following joint deformities. it is known that age and comorbidities are the highest risk factors for falls in the elderly population [27, 28]. However, in RA this risk seems to be surprisingly independent of age [2, 25, 29], joining our results. Although, elderly patients performed worse in the functional tests. Thus, falls prevention should involve young, as much as old patients. More studies are necessary to investigate this relation which remains controversial in RA's patients. Our study has several limits. It's a retrospective study which underestimates the prevalence of falls, as it consequences, and the number of patients is low. We didn't have a control group and the relation between radiographic changes and falls were not studied. However, the mean advantages of our study are, the high number of patients with high and moderate disease activity, which is the case of many RA's patients in African countries and the few patients with joint replacement, who appear to have a higher fall risk [26] and so could have influenced the results of our study. Also, we were able to find several risk factors for falls and fear of falling in RA's patients (EGA, VAS, DAS28 ESR, CDAI, HAQ) and to our knowledge, we were the first to highlight the relation with disease duration. Others studies, prospective with group control, where patients are examined several times, are needed to verify these results and specify the factors associated with fear of falls and falls, which remains uncertain.

## Conclusion

To conclude, we have to say that the falling risk in RA patients and its severe consequences are still underestimated problems. According to our findings, we propose to the physicians to attempt to identify (regardless of age) the patients with high risk of falling. An objective quickly attainable, with a simple interrogation and physical examination (patients with high disease duration, pain, synovitis, high composite measures, high HAQ). Thereafter, we can proceed to evaluate more deeply those identified patients, with TIT and TUG performance tests. This allows rapid rehabilitation program with physiotherapists and occupational therapists.

**What is known about this topic**

- Falls are a common event in patients with rheumatoid arthritis, with a high frequency and often severs consequences. Despite that, they are still an underestimated and poorly researched issue in rheumatoid arthritis;
- Age and comorbidities are considered to be the highest risk factor for falls in the normal population. In contrast, the fall frequency in rheumatoid arthritis patients appears to be age independent;
- Disease duration does not seem to play a role.

**What this study adds**

- We were able to find several risk factors for falls and fear of falling in patients with rheumatoid arthritis;
- We had many patients with high and moderate disease activity, like many patients in Africa. And we had few patients with joint replacement, minimizing there influence in the results of the study;
- We were the first, to our knowledge, to highlight the positive correlation with the disease duration. And the evaluations of the falling risk and disease activity were performed on the same day, in contrast with most of the previous studies, which had contradictory results.

## Competing interests

The authors declare no competing interest.

## Authors' contributions

All the authors have read and agreed to the final manuscript.

## Tables and Figures

**Table 1**: Characteristics of patients and disease

**Table 2**: Fall prevalence, DAS 28 ESR and CDAI levels, TIT, TUG and CRT in different age groups

**Table 3**: Correlation between fall assessment and different parameters of disease

**Table 4**: Comparison of the results achieved in different stages of disease activity

**Table 5**: Association between fall assessment, disease activity and HAQ

**Figure 1**: Comorbidities prevalence in our study

**Figure 2**: Fall and fear of falling prevalence

**Figure 3**: TUG results (seconds) in different stages of disease activity

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| **Table 1:** Characteristics of patients and disease | |
|---|---|
| **Parameters** | **Values** |
| Female[2] | 87 (107) |
| Age in years[1] | 52.3±13.2 (25-87) |
| Disease duration in years[3] | 7[4-14] |
| RF positive[2] | 81,3(100) |
| Anti-CCP positive[2] | 83,7(103) |
| TJC28[3] | 5[2-10] |
| SJC28[3] | 0[0-2] |
| PGA[3] | 50[25-65] |
| EGA[3] | 50[30-70] |
| VAS pain[3] | 50[30-60] |
| ESR mm/h[1] | 41±28.3(1-118) |
| CRP mg/l[3] | 9.3[5-29] |
| SDAI[3] | 11[6-18] |
| CDAI[3] | 12.6[10-22] |
| DAS28 ESR[1] | 4.6±1.5(1.2-8.2) |
| HAQ[1] | 1.3±0.7(0.2-2.80) |
| Drugs treatment[2] | |
| Cs DMARDs | 90.2(111) |
| Methotrexate | 88.6(109) |
| Salazopyrin | 22(27) |
| Antimalarial drug | 6.5(8) |
| Leflunomide | 2.2(3) |
| b DMARDs | 8.1(10) |
| Steroids[2]/daily dose range in mg[3] | 85.4(105)/10[7.5-10] |
| NSAIDS[2] | 13(16) |
| Analgesics[2] | 68.3(84) |
| 1: mean and standard deviation, 2: percentage and number, 3: median and quartiles | |

| **Table 2:** Fall prevalence, DAS 28 ESR and CDAI levels, TIT, TUG, and CRT in different age groups | | | | | | |
|---|---|---|---|---|---|---|
| | **<40 years** | **41-50 years** | **51-60 years** | **61-70 years** | **>70 years** | **p value** |
| | (n=23) | (n=29) | (n=31) | (n=33) | (n=7) | |
| Fear of fall %(n) | 17.4(4) | 13.8(4) | 35.5(11) | 66.7(22) | 4(57.1) | <0.001* |
| Fall %(n) | 17.4(4) | 20.7(6) | 16.1(5) | 18.2(6) | 28.6(2) | 0.95 |
| DAS28 ESR | 4.5±1.7 | 4.2±1.3 | 4.5±1.4 | 5.1±1.4 | 4.8±1.7 | 0.31 |
| CDAI | 17.2±11.9 | 14±8 | 16.9±12.3 | 17[13-27][1] | 25.8±17.7 | 0.22 |
| TIT | 23.9±5.2 | 26[18-28][1] | 24±4.2 | 21.3±3.5 | 15.5±7.6 | 0.001* |
| TUG (sec) | 18±6 | 18±6 | 16.1±5.1 | 18.4±5.9 | 24±9.5 | 0.006* |
| CRT (sec) | 12±4 | 12.1±3.1 | 13.5±5.3 | 16.3±4.7 | 13.8±1.4 | 0.001* |
| 1: medians values, *p<0.005 | | | | | | |

| **Table 3:** Correlation between fall assessment and different parameters of disease | | | | | | |
|---|---|---|---|---|---|---|
| | **CRT** | | **TIT** | | **TUG** | |
| | p value | r | p value | r | p value | r |
| DAI | 0.428 | 0.081 | <0.001** | -0.421 | 0.001** | 0.292 |
| SDAI | 0.465 | 0.074 | <0.001** | -0.375 | 0.004** | 0.259 |
| DAS ESR 28 | 0.001** | 0.327 | <0.001** | -0.511 | <0.001** | 0.334 |
| HAQ | <0.001** | 0.411 | <0.001** | -0.648 | <0.001** | 0.537 |
| ACPA | 0.224 | 0.136 | 0.167 | -0.137 | 0.293 | 0.105 |
| FR | 0.830 | -0.025 | 0.164 | -0.139 | 0.505 | 0.067 |
| ESR | <0.001** | 0.390 | <0.001** | -0.326 | 0.014* | 0.221 |
| CRP | 0.125 | 0.216 | <0.001** | -0.395 | 0.001** | 0.309 |
| PGA | 0.144 | 0.148 | <0.001** | -0.481 | <0.001** | 0.375 |
| EGA | 0.007** | 0.270 | <0.001** | -0.482 | <0.001** | 0.338 |
| VAS pain | 0.040* | 0.207* | <0.001** | -0.444 | <0.001** | 0.326 |
| Disease duration | 0.001** | 0.343** | <0.001** | -0.400 | <0.001** | 0.363 |
| TJC | 0.582 | 0.056 | <0.001** | -0.358 | 0.004** | 0.260 |
| SJC | 0.627 | 0.049 | 0.020 | -0.210 | 0.254 | 0.104 |
| **p value ≤0.01, *p value ≤0.05 | | | | | | |

| **Table 4:** Comparison of the results achieved in different stages of disease activity | | | |
|---|---|---|---|
| | **CRT median (n)** | **TIT median (n)** | **TUG median (n)** |
| **CDAI** | | | |
| Remission | 10.5(7) | 28(9) | 14(9) |
| Low activity | 11.9(23) | 27(23) | 14(23) |
| Moderate activity | 12.9(48) | 23(61) | 17(61) |
| High activity | 15(21) | 19(30) | 19(30) |
| **SDAI** | | | |
| Remission | 9.4(10) | 28(12) | 15(12) |
| Low activity | 13(47) | 25(53) | 14(53) |
| Moderate activity | 13(25) | 21.5(36) | 17(36) |
| High activity | 12(17) | 19(22) | 19(22) |
| **DAS 28 ESR** | | | |
| Remission | 8.6(9) | 28(9) | 12(9) |
| Low activity | 14(7) | 21(9) | 20(9) |
| Moderate activity | 12.6(50) | 26(58) | 15(58) |
| High activity | 13(33) | 19(47) | 20(47) |

| **Table 5:** Association between fall assessment, disease activity and HAQ | | | | | |
|---|---|---|---|---|---|
| | **CRT** | **TIT** | **TUG** | **Tandem stance** | **Tandem walk test** |
| SDAI | p=0.014 | p<0.001* | p=0.017 | p<0.001* | p<0.001* |
| CDAI | p=0.025 | p=0.001 | P=0.001 | p<0.001* | p=0.002 |
| DAS 28 ESR | p<0.001* | p<0.001* | p<0.001* | p<0.001* | p<0.001* |
| HAQ | p<0.001* | p<0.001* | p<0.001* | p<0.001* | p<0.001* |

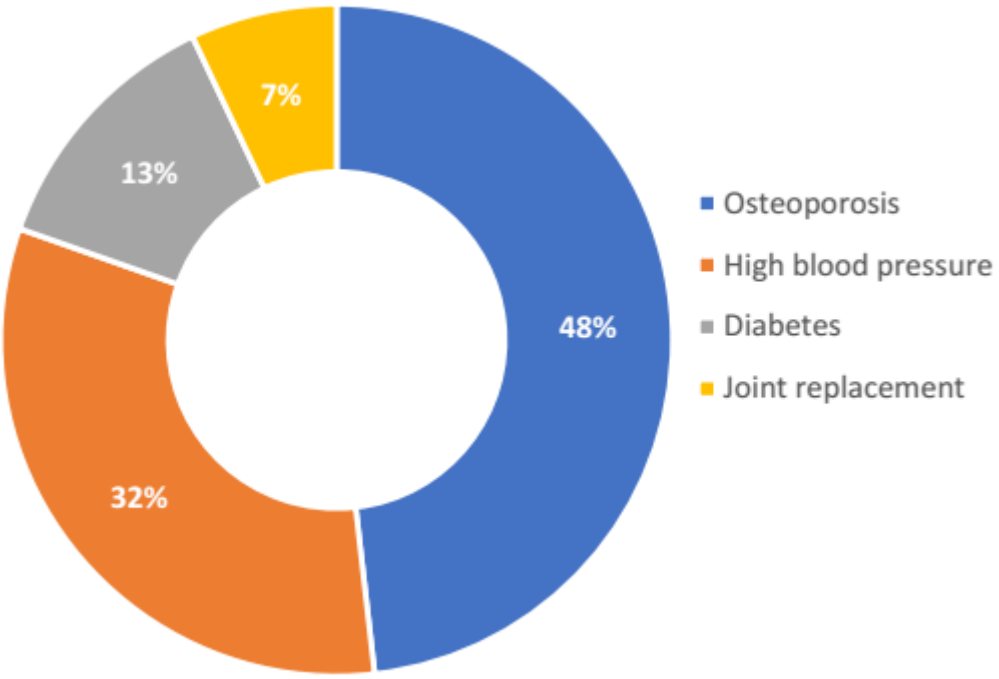


**Figure 1**: Comorbidities prevalence in our study

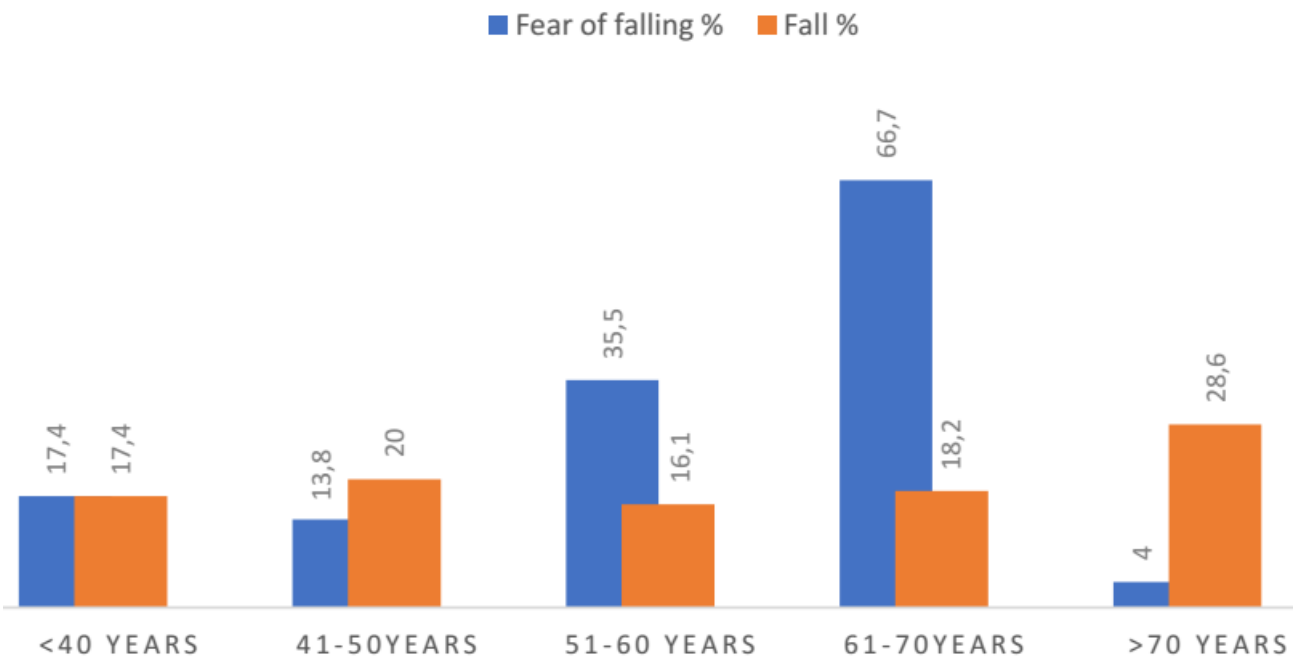


**Figure 2**: Fall and fear of falling prevalence

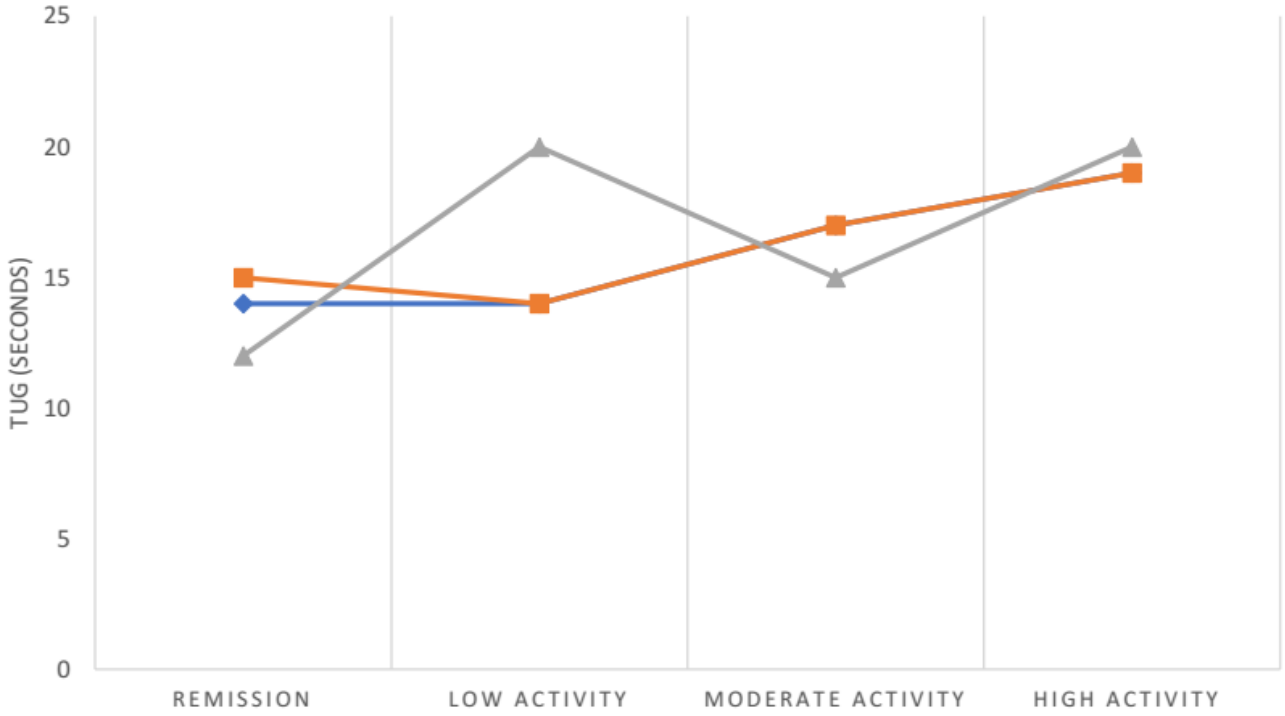


**Figure 3**: TUG results (seconds) in different stages of disease activity