

## Original Research

### Impact of different types of arthritis on functional ability of women patients: A Questionnaire based study

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#### ABSTRACT:

Arthritis is the type of disorder which directly affects the movement or functional ability of that particular joint. Due to tenderness and swelling of diseased joint unbearable pain is the first outcome experienced by the patient. The present study has been done to assess the effect of illness on the ability to function in daily life on the basis of the standard Health Assessment Questionnaire (HAQ) in women patients of rheumatoid arthritis (RA) and osteoarthritis (OA).

Based on this questionnaire a number of disabilities are seen in the RA and OA patients considered for this study. These disabilities include, but are not limited to, difficulties in functional capacity such as eating, walking and climbing, dressing and grooming etc.

Observations indicate that from the given HAQ disability Index, it could be inferred that maximum number of RA and OA patients faced difficulties in performing daily chores such as vacuuming, walking, climbing steps and arising from sitting/lying position due to severe joint swelling, pain and diminished range of motion. As musculoskeletal pain is a cardinal feature of RA, these patients experienced greater difficulty in daily life activities such as eating, gripping and opening objects, as compared to OA patients. Functional impairments such as bending down and arising from sitting and lying position was found to be more prevalent in OA patients as they frequently suffer from joint pain and stiffness. A significant number of RA patients were completely unable to perform activities such as daily chores and climbing steps. Out of given number of patients, some of them sought help of aids and devices such as cane and walker. Those RA patients who were completely unable to perform daily life activities were totally dependent on human help for completion of their tasks.

**Keywords:** Rheumatoid arthritis, Osteoarthritis, women patients, functional ability, The standard Health Assessment Questionnaire.

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#### INTRODUCTION

“Arthritis” is the term denotes the inflammation that affects joints and its surrounding connective tissue. Arthritis is of two types, namely osteoarthritis (OA) and rheumatoid arthritis (RA). Rheumatoid arthritis (RA) is an autoimmune disease related to characterized by destruction and joint swelling that affects approximately 0.5 to 1% of the human population, mostly in adults (Begovich et al., 2004; Alamanos & Drosos, 2005; Qin et al., 2015). Osteoarthritis is a common joint disease that results in joint pain, stiffness and damage of articular cartilage (Altman et al., 1986; Kafilet et al., 2003).

RA affects organs but its major influence is on hand and wrist joints mostly principal cause of affliction in

RA is dysfunctioning of hand (Dellhaget et al., 2001). Wrist joints, metacarpophalangeal (MCP) and proximal interphalangeal (ICP) are predominantly affected joints in hands that cause functional disability which further affects activities of daily life (Melvin, 1982).

Large number of rheumatoid arthritis patients encounter with impairment of upper and lower limbs which results in disability and gives rise to inability to work. It is well reported that in case of lower extremity, motor deficit lead to diminished task and impairment (Minor & Hewett, 1995; Bearneet et al., 2002). However, in case of upper extremity, minimal existence or result of sensorimotor deficit is known

though they lead to disability (Minor & Hewett, 1995) and task inability (Young et al., 2002).

RA patients are affected very often by illness, feebleness and confined mobility. About 80-90% RA patients have diminished hand performance (Brien et al., 2006). Impaired grip strength in RA occurs because of deviation of ulna with dislocation, minimized strength of flexor muscles and dysfunctioning of extensors, which results in lack of ability to unlock hand, therefore affecting capacity to perform daily activities (Atroshiet al., 2000; Bielefeld & Neumann, 2005; Fischer et al., 2007).

Osteoarthritis is widespread disease affecting old age people. It affects 18% of women and 9.6% of males above 60 years of age and results in degeneration of cartilage in joint that results in pain and depletion of functioning in hips and knees. Patients suffering from extreme pain undergoes surgery of joint replacement to get comfort (Woolf, & Pfleger, 2003). Since this problem leads to impairment of hip and knee, it results in difficulty with walking and stair climbing (Guccioneet al., 1994). OA leads to total replacement of hip and knee (Defrances, & Podgornik, 2006). Moreover, advancement in this disorder suggests that OA have influence on health of people in future (Lawrence et al., 2008).

RA is inflammation of musculoskeletal system which affects multiple joints. It has impact on around 0.3-1.0 % on population, frequency of malformation is more in females. Long lasting inflammation results in dysfunctioning of joints which can only be treated by drugs (Woolf, & Pfleger, 2003).

Progressive joint deformity involving swelling with increasing intensity of pain has been documented to be a hallmark of pathogenesis of osteoarthritis (Nevitt et al., 1995). Joint degeneration associated with osteoarthritis occurs primarily in the appendicular joints commonly in the hands, knees and hips (Felson et al., 2000).

## MATERIAL AND METHODS

### STUDY AREA AND SUBJECTS

The prime objective of present study is to see impact of rheumatoid arthritis and osteoarthritis on women patients ranging from 45-65 years of age. The cross-sectional study comprised female population from urban and rural areas of Punjab. The number of samples were 50 rheumatoid arthritis and 50 osteoarthritis patients. Data collection was done from various Orthopedic, General Civil/ Ayurvedic hospitals, Physiotherapy centers and on personal visit to patient's residence in Punjab state. The questionnaire was designed according to the native language of the subjects. All the subjects both patients and control group individuals were informed and their consent was taken prior to the inclusion in the study. The diagnosis of rheumatoid arthritis was confirmed using the classification criteria of the American College of Rheumatology by Arnett et al. 1988.

The standard Health Assessment Questionnaire (HAQ) is used in patients to assess the effect of illness on the ability to function in daily life. Based on this questionnaire a number of disabilities are seen in the RA and OA patients considered for this study. Women who were pregnant, not ambulant or taking oral corticosteroids, with bilateral shoulder surgery or severe shoulder disease or knee replacement were excluded.

## RESULTS

Table 1-5 shows the analysis of standard Health Assessment Questionnaire (HAQ) which is used in patients to assess the effect of illness on the ability to function in daily life. Results are discussed under following headings as follows:

### DRESSING & GROOMING (TABLE 1)

#### OA

Ability to dress and tie shoelaces in OA patients has been found to be 36% without any difficulty, 32% with some difficulty, 32% with much difficulty and 0% unable to do.

Ability to shampoo their hair was found to be 80% without any difficulty, 12% with some difficulty, 8% with much difficulty and 0% unable to do.

#### RA

However, Ability to dress and tie shoelaces in RA patients has been found to be 22% without any difficulty, 42% with some difficulty, 24% with much difficulty and 12% unable to do.

Ability to shampoo their hair was found to be 48% without any difficulty, 32% with some difficulty, 14% with much difficulty and 6% unable to do.

### ARISING (TABLE 1)

#### OA

Ability to arise from chair in OA patients has been found to be 16% without any difficulty, 40% with some difficulty, 44% with much difficulty and 0% unable to do.

Getting in and out of bed was found to be 14% without any difficulty, 42% with some difficulty, 44% with much difficulty and 0% unable to do.

#### RA

However, Ability to arise from chair in RA patients has been found to be 32% without any difficulty, 38% with some difficulty, 28% with much difficulty and 2% unable to do.

Getting in and out of bed was found to be 26% without any difficulty, 38% with some difficulty, 36% with much difficulty and 0% unable to do.

### EATING (TABLE 1)

#### OA

Ability to cut meat in OA patients has been found to be 76% without any difficulty, 22% with some difficulty, 2% with much difficulty and 0% unable to do.

Lifting a glass to mouth was found to be 86% without any difficulty, 12% with some difficulty, 2% with much difficulty and 0% unable to do.

Opening milk carton was found to be 86% without any difficulty, 12% with some difficulty, 2% with much difficulty and 0% unable to do.

**RA**

Ability to cut meat in RA patients has been found to be 24% without any difficulty, 36% with some difficulty, 30% with much difficulty and 10% unable to do.

Lifting a glass to mouth was found to be 36% without any difficulty, 32% with some difficulty, 26% with much difficulty and 6% unable to do.

Opening milk carton was found to be 42% without any difficulty, 28% with some difficulty, 24% with much difficulty and 6% unable to do.

**WALKING (TABLE 1)**

**OA**

Ability to walk on flat ground in OA patients has been found to be 16% without any difficulty, 46% with some difficulty, 38% with much difficulty and 0% unable to do.

Climbing 5 steps was found to be 12% without any difficulty, 24% with some difficulty, 58% with much difficulty and 6% unable to do.

**RA**

Ability to walk on flat ground in RA patients has been found to be 18% without any difficulty, 42% with some difficulty, 38% with much difficulty and 2% unable to do.

Climbing 5 steps was found to be 16% without any difficulty, 36% with some difficulty, 30% with much difficulty and 18% unable to do.

**HYGIENE (TABLE 1)**

**OA**

Ability to wash and dry body in OA patients has been found to be 76% without any difficulty, 22% with some difficulty, 2% with much difficulty and 0% unable to do.

Having tub bath was found to be 76% without any difficulty, 20% with some difficulty, 4% with much difficulty and 0% unable to do.

Ability to get on and off the toilet has been found to be 24% without any difficulty, 44% with some difficulty, 32% with much difficulty and 0% unable to do.

**RA**

Ability to wash and dry body in RA patients has been found to be 44% without any difficulty, 38% with some difficulty, 14% with much difficulty and 4% unable to do.

Having tub bath was found to be 44% without any difficulty, 40% with some difficulty, 12% with much difficulty and 4% unable to do.

Ability to get on and off the toilet has been found to be 30% without any difficulty, 32% with some difficulty, 34% with much difficulty and 4% unable to do.

**REACH (TABLE 1)**

**OA**

Ability to reach object above head in OA patients has been found to be 70% without any difficulty, 24%

with some difficulty, 4% with much difficulty and 2% unable to do.

Ability to bend down to pick clothes was found to be 14% without any difficulty, 36% with some difficulty, 50% with much difficulty and 0% unable to do.

**RA**

Ability to reach object above head in RA patients has been found to be 20% without any difficulty, 48% with some difficulty, 20% with much difficulty and 12% unable to do.

Ability to bend down to pick clothes was found to be 18% without any difficulty, 34% with some difficulty, 38% with much difficulty and 10% unable to do.

**GRIP (TABLE 1)**

**OA**

Ability to open car doors in OA patients has been found to be 84% without any difficulty, 16% with some difficulty, 0% with much difficulty and 0% unable to do.

Ability to open jars was found to be 86% without any difficulty, 14% with some difficulty, 0% with much difficulty and 0% unable to do.

Turning faucets on and off has been found to be 90% without any difficulty, 10% with some difficulty, 0% with much difficulty and 0% unable to do.

**RA**

Ability to open car doors in RA patients has been found to be 56% without any difficulty, 28% with some difficulty, 10% with much difficulty and 6% unable to do.

Ability to open jars was found to be 18% without any difficulty, 38% with some difficulty, 34% with much difficulty and 10% unable to do.

Turning faucets on and off has been found to be 62% without any difficulty, 28% with some difficulty, 6% with much difficulty and 4% unable to do.

**ACTIVITIES (TABLE 1)**

**OA**

Running errands and shop in OA patients has been found to be 38% without any difficulty, 46% with some difficulty, 16% with much difficulty and 0% unable to do.

Ability to get in and out of car was found to be 56% without any difficulty, 28% with some difficulty, 16% with much difficulty and 0% unable to do.

Doing chores and vacuuming has been found to be 4% without any difficulty, 22% with some difficulty, 54% with much difficulty and 20% unable to do.

**RA**

Running errands and shop in RA patients has been found to be 30% without any difficulty, 58% with some difficulty, 10% with much difficulty and 2% unable to do.

Ability to get in and out of car was found to be 24% without any difficulty, 52% with some difficulty, 22% with much difficulty and 2% unable to do.

Doing chores and vacuuming has been found to be 50% with much difficulty and 18% unable to do. 4% without any difficulty, 28% with some difficulty,

**Table 1: Stanford Health Assessment Analysis**

| Ability                        | Response %Age          |     |                 |     |                 |     |              |     |
|--------------------------------|------------------------|-----|-----------------|-----|-----------------|-----|--------------|-----|
|                                | Without Any Difficulty |     | Some Difficulty |     | Much Difficulty |     | Unable To Do |     |
|                                | OA                     | RA  | OA              | RA  | OA              | RA  | OA           | RA  |
| <b>DRESSING &amp; GROOMING</b> |                        |     |                 |     |                 |     |              |     |
| (1) Dress, tying shoelaces     | 36%                    | 22% | 32%             | 42% | 32%             | 24% | 0%           | 12% |
| (2) Shampoo hair               | 80%                    | 48% | 12%             | 32% | 8%              | 14% | 0%           | 6%  |
| <b>ARISING</b>                 |                        |     |                 |     |                 |     |              |     |
| (1) Straight chair             | 16%                    | 32% | 40%             | 38% | 44%             | 28% | 0%           | 2%  |
| (2) Get in and out of bed      | 14%                    | 26% | 42%             | 38% | 44%             | 36% | 0%           | 0%  |
| <b>EATING</b>                  |                        |     |                 |     |                 |     |              |     |
| (1) Cut your meat              | 76%                    | 24% | 22%             | 36% | 2%              | 30% | 0%           | 10% |
| (2) Lift a glass to mouth      | 86%                    | 36% | 12%             | 32% | 2%              | 26% | 0%           | 6%  |
| (3) Open milk carton           | 86%                    | 42% | 12%             | 28% | 2%              | 24% | 0%           | 6%  |
| <b>WALKING</b>                 |                        |     |                 |     |                 |     |              |     |
| (1) Walk on flat ground        | 16%                    | 18% | 46%             | 42% | 38%             | 38% | 0%           | 2%  |
| (2) Climb 5 steps              | 12%                    | 16% | 24%             | 36% | 58%             | 30% | 6%           | 18% |
| <b>HYGIENE</b>                 |                        |     |                 |     |                 |     |              |     |
| (1) Wash and dry body          | 76%                    | 44% | 22%             | 38% | 2%              | 14% | 0%           | 4%  |
| (2) Take a tub bath            | 76%                    | 44% | 20%             | 40% | 4%              | 12% | 0%           | 4%  |
| (3) On and off the toilet      | 24%                    | 30% | 44%             | 32% | 32%             | 34% | 0%           | 4%  |
| <b>REACH</b>                   |                        |     |                 |     |                 |     |              |     |
| (1) Object above head          | 70%                    | 20% | 24%             | 48% | 4%              | 20% | 2%           | 12% |
| (2) Bend down to pick clothes  | 14%                    | 18% | 36%             | 34% | 50%             | 38% | 0%           | 10% |
| <b>GRIP</b>                    |                        |     |                 |     |                 |     |              |     |
| (1) Open car doors             | 84%                    | 56% | 16%             | 28% | 0%              | 10% | 0%           | 6%  |
| (2) Open jars                  | 86%                    | 18% | 14%             | 38% | 0%              | 34% | 0%           | 10% |
| (3) Turn faucets on and off    | 90%                    | 62% | 10%             | 28% | 0%              | 6%  | 0%           | 4%  |
| <b>ACTIVITIES</b>              |                        |     |                 |     |                 |     |              |     |
| (1) Run errands and shop       | 38%                    | 30% | 46%             | 58% | 16%             | 10% | 0%           | 2%  |
| (2) In and out of car          | 56%                    | 24% | 28%             | 52% | 16%             | 22% | 0%           | 2%  |
| (3) Chores and vacuuming       | 4%                     | 4%  | 22%             | 28% | 54%             | 50% | 20%          | 18% |

**AIDS AND DEVICES**

**OA**

Table 2 indicates the %age distribution of patient’s ability in using various aids & devices. It has been found that out of total number of patients only 8% of OA patients seek help of cane, rest 92% of patients did not seek help from any aids and devices.

**RA**

In RA 14% of patients seek help of cane, 6% are dependent on walker and 4% of patients totally relied on human help. 76% of patients did not seek help either from humans or any aids or devices.

**Table 2: Stanford health assessment analysis**

| Aids & Devices               | Percentage Of Distribution |     |
|------------------------------|----------------------------|-----|
|                              | OA                         | RA  |
| Cane                         | 8%                         | 14% |
| Walker                       | 0%                         | 6%  |
| Crutches                     | 0%                         | 0%  |
| Wheel Chair                  | 0%                         | 0%  |
| Devices used for dressing    | 0%                         | 0%  |
| Built up or special utensils | 0%                         | 0%  |
| Special or built up chair    | 0%                         | 0%  |
| Other (Human help)           | 0%                         | 4%  |
| Other (No human help)        | 92%                        | 76% |

%age distribution of patient’s ability in using various daily life devices has been presented in **Table no. 3.**

**OA**

It has been found that at least 22% of OA patients seek help in raising the toilet seat. However, 78% of patients sought no human help.

**RA**

In RA 54% of patients did not seek any human help in using various daily life devices. Among the remaining 46% of patients, 20% needed help in opening jars, 18% sought help in raising toilet seat, 6% relied completely on human help and 2% of patients needed help in a bath tub.

**Table 3: Stanford Health Assessment Analysis**

| Aids & Devices                          | Percentage Of Distribution |     |
|---|----------------------------|-----|
|   | OA                         | RA  |
| Raised toilet seat                      | 22%                        | 18% |
| Bathtub seat                            | 0%                         | 2%  |
| Jar opener (for jars previously opened) | 0%                         | 20% |
| Bathtub bar                             | 0%                         | 0%  |
| Long-handled appliances for reach       | 0%                         | 0%  |
| Long-handled appliances in bathroom     | 0%                         | 0%  |
| Other (Human help)                      | 0%                         | 6%  |
| Other (No human help)                   | 78%                        | 54% |

**Table No. 4** indicates that in OA, a majority of 56% patients did not seek any help from either a human or a device. 40% of patients seek assistance in arising and 4% patients in walking.

**RA**

The (table 4) indicates that RA patients ask for help in various activities such as dressing, arising, walking

etc. It is seen that 12 % of RA patients needed assistance during dressing, 6% while arising, 4% in walking and 6% of patients were totally dependent on human help. Out of the total no. of patients 72 % required no aid.

**Table 4: Stanford Health Assessment Analysis**

| Help From Others      | Percentage Of Distribution |     |
|-----------------------|----------------------------|-----|
|                       | OA                         | RA  |
| Dressing & grooming   | 0%                         | 12% |
| Eating                | 0%                         | 0%  |
| Arising               | 40%                        | 6%  |
| Walking               | 4%                         | 4%  |
| Other (Human help)    | 0%                         | 6%  |
| Other (No human help) | 56%                        | 72% |

**Table no. 5** indicates that in OA, a majority of 76% patients were capable of functioning in daily life without any assistance. However, 24% patients showed the inability to do so. Among these 16% required help for errands and chores and 8% patients asked for assistance in reaching an object.

In RA a majority of 62% patients did require some assistance in completing their daily life activities.

Among these 32% patients depended on others for gripping and opening things, 18% needed help in errands and chores, 4% and 2% of patients sought assistance in reaching objects and maintaining hygiene, respectively. Only 38% of patients did not ask for any help from others.

**Table 5: Stanford Health Assessment Analysis**

| Help From Others            | Percentage Of Distribution |     |
|-----------------------------|----------------------------|-----|
|                             | OA                         | RA  |
| Hygiene                     | 0%                         | 2%  |
| Reach                       | 8%                         | 4%  |
| Gripping and opening things | 0%                         | 32% |
| Errands and chores          | 16%                        | 18% |
| Other (Human help)          | 0%                         | 6%  |
| Other (No human help)       | 76%                        | 38% |

## DISCUSSION

Osteoarthritis is a common joint disease that results in joint pain, stiffness and damage of articular cartilage (Altman et al., 1986; Kafil et al., 2003). It results in negative impact on life due to its affect on physical activity, range of motion and leads to impairment of hip and knee which results in difficulty with walking and stair climbing (Guccione et al., 1994; Jordan et al., 2009). Rheumatoid arthritis (RA) is an autoimmune disorder which affects organs but its main influence is on the joints involving hand and wrist joint. Principal cause of affliction in RA is dysfunctioning of hand (Dellhag et al., 2001). Wrist joints, metacarpophalangeal (MCP) and proximal interphalangeal (ICP) are predominantly affected joints in hands that cause functional disability which further affects activities of daily life (Melvin, 1982).

Maximum number of RA and OA patients faced difficulties in performing daily chores such as vacuuming, walking, climbing steps and arising from sitting/lying position due to severe joint swelling, pain and diminished range of motion.

Approximately, 80% of OA patients have restrictions for daily life activities, either for tasks or work. Disabilities related to Osteoarthritis have significant influence on retired as well as individuals involved in labour market (Fautrel et al., 2005). Age and number of distorted joints are the major predictor of work disability in RA patients. The probability of incapacity of work enlarge with age factor, severity of disease and decreased working hours (Reisine et al., 1995). Diminishing of physical functioning, loss of employment, less work productivity, difficulty in daily life activities and increased mortality is prominent characteristics of RA (Drossaers-Bakker et al., 2002; Verstappen et al., 2005; Katz et al., 2006). Yoga program is proved beneficial in RA patients resulting in reduced disability, improved functioning and change in RA factor levels (Telles et al., 2011)

## CONCLUSION

Maximum number of RA and OA patients faced difficulties in performing daily chores such as vacuuming, walking, climbing steps and arising from sitting/lying position due to severe joint swelling, pain and diminished range of motion. As musculoskeletal pain is a cardinal feature of RA, these patients experienced greater difficulty in daily life activities such as eating, gripping and opening objects, as compared to OA patients. Functional impairments such as bending down and arising from sitting and lying position was found to be more prevalent in OA patients as they frequently suffer from joint pain and stiffness. A significant number of RA patients were completely unable to perform activities such as daily chores and climbing steps. Out of given number of patients some patients sought help of aids and devices such as cane and walker.

Those RA patients who were completely unable to perform daily life activities were totally dependent on human help for completion of their tasks

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