THE PREVALENCE AND FUNCTIONAL IMPACT OF MUSCULOSKELETAL CONDITIONS AMONGST PEOPLE ATTENDING A COMMUNITY HEALTH CENTRE IN BLOEMFONTEIN, FREE STATE

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ABSTRACT

Objectives: To determine the prevalence and functional impact of musculoskeletal conditions amongst people attending a Community Health Centre [CHC] in Bloemfontein, Free State. Musculoskeletal conditions [MSC] are viewed as posing an enormous burden on governments, and communities’ as one of the major causes of disability in both developed and developing countries. Prior research has mostly been conducted in areas other than Sub-Saharan Africa, therefore leading to a large gap in available literature. Further research may aid in creating awareness of the Quadruple burden that exists in Africa, specifically highlighting MSC and the impact thereof.

Methods: A quantitative cross-sectional epidemiological study was conducted using standardised questionnaires during a structured interview. Phase I was conducted to determine the prevalence of MSC and if indicated, Phase II was used to determine the functional impact thereof. A sample of convenience was utilised and consisted of 323 participants who attended the CHC during the time of data collection. Descriptive statistics were used to analyse the data, namely means, medians, frequencies and percentages.

Results: Three hundred and twenty-three participants completed phase I of the questionnaire of which 45.82% reported the presence of MSC during the past three months, not relating to an injury. Of these participants those with MSC experienced mild to moderate functional impact according to the Disability Index [DI].

Conclusion: A high prevalence of MSC was evident amongst those attending the CHC. Therefore, through holistic management, creating awareness of MSC and the impact thereof, strategies may be implemented at CHC to assist those suffering from the condition.

Key Words: Musculoskeletal conditions, Prevalence, Functional Impact, South Africa

1. INTRODUCTION

South Africa is currently plagued with a quadruple burden of disease which consists of communicable, non communicable diseases, injuries as well as HIV/AIDS which is understandably the most prominent contributor thereof (1). However, an evident health transition is underway as the growing threat of non communicable diseases such as musculoskeletal conditions [MSC], have begun to parallel and surpass the HIV/AIDS burden (1). In 2000, 30% of deaths in South Africa were attributed to HIV while MSC accounted for 37% thereof (1). MSC is the umbrella term used to describe a wide variety of conditions which affect many anatomical structures (2). European statistics regarding the prevalence of chronic musculoskeletal pain [MSP], a consequence of MSC, stood at 30% Norway, 18% Netherlands, 21% Austria and 15% in France (3). The South African Department of Health had already cited in 2006 that 30% of consultations at Primary Health Care Services were regarding musculoskeletal complaints (4). In 2010, a study conducted in two resource restricted areas in Cape Town had found the prevalence of MSC amongst participants to be 36% (5).

The impact of MSC on the individuals functioning and life as a whole is severe, influencing all spheres of their life. Implications include common limitations and incapacibilities such as difficulty performing general activities of daily living [ADL], community involvement as well as activities affecting occupations and quality of life (1,6,7). MSC are also reported to have serious effects regarding emotions, with reports of depression and anxiety developing due to living with chronic pain (8). This in turn affects social interaction, the ability to work and earn an income to support oneself and family.

Several factors are thought to influence and contribute to MSC, affecting all nations, ethnic groups, ages and genders and are the leading cause of disability and time off work (5). Limited literature is available in Africa and more specifically South Africa due to a lack of funding,
data and skills needed to fill the large gap in literature \(^{(1,9)}\). Therefore, the aim of the study was to determine the prevalence and functional impact of musculoskeletal conditions amongst people attending a Community Health Centre in Bloemfontein.

2. MATERIALS AND METHODS

2.1 Research setting

A quantitative cross-sectional epidemiological study was conducted at the Manguang University of the Free State Community Partnership Program [MUCPP] Community Health Centre [CHC] in Bloemfontein. This CHC was chosen as MUCPP provides various services to a monthly population ranging between 19 000- 22 000. Various clinics are held within this CHC, thus enhancing the variance in the population.

2.2 Sample

A sample of convenience was used and the sample comprised of all individuals over the age of 18 years who visited MUCPP during data collection. Individuals were also required to understand English, Afrikaans or Sesotho and not consider themselves too ill to participate. A sample of 500 individuals was estimated.

2.3 Measurement Instrument

The selected measurement tool was developed and comprised of two validated and reliable questionnaires, the COPCord as well as the Stanford Health Assessment Questionnaire [HAQ]. Questionnaires were forward and back translated into the appropriate languages of Afrikaans and Sesotho to meet local needs. Phase I of the COPCord was completed by all participants and served as the screening phase to identify any MSC. If any MSC were identified, participants went on to complete phase II. Questionnaires were completed by means of a structured interview to enhance comprehension of questions and prevent incomplete questionnaires. With regard to the HAQ, the Disability Index [DI] was calculated based on the following categories: dressing, arising, eating, walking, hygiene, reach and grip. Scores ranged from 0 [no disability] to 3 [Unable to perform] in each category.

2.4 Procedure

Ethical approval was obtained from the Ethics committee of the faculty of Health Sciences, University of the Free State, relevant CHC authorities as well as informed consent from all participants. Days of data collection began with a general address to both patients and staff explaining the aim of the study. Researchers then approached willing participants in the line [where they waited for medical assistance]. The structured interview commenced privately after the distribution of information documents. Each participant completed phase I of the questionnaire and if they qualified i.e. had experienced pain, aching, tightness and or swelling in and around the joints or back within the last three months not relating to injury, the researcher continued to complete phase II of the questionnaire.

The pilot study consisted of 25 participants and was completed in November 2012. These results were not included in the final results as minor changes were made.

2.5 Statistical analysis

Descriptive statistics namely means and standard deviations or medians and percentiles were calculated for continuous data. Frequencies and percentages were calculated for categorical data. The analysis was done by the Department of Biostatistics of the University of the Free State.

3. RESULTS

3.1 Total Sample

A total of 326 participants were approached of which 323 were included as 3 participants failed to comply with the inclusion criteria. Of the 323 participants, 148 indicated a presence of MSC, not relating to injury within the last three months. Ages of the participants ranged from 19 to 82, with an average age of 46 years. In terms of gender and race, 64% were female while 98% of the entire population fell within the ethnically black category. In terms of education, 89% of the participants were literate i.e. able to read and write and 20.41% of participants had obtained a grade 12 level of education. The most common reasons for visiting the CHC included medication collection or consultation with a doctor or nurse regarding the participants’ relevant medical condition(s). The most common conditions reported by participants included joint/muscle pain [47%], high blood pressure [46.4%], HIV [16%] and Diabetes Mellitus [13.3%].
3.2 Presence of MSC

One hundred and forty eight of the 323 participants went onto complete phase II, resulting in a MSC prevalence of 45.82%, of these 64% were female. The 95% confidence interval regarding the prevalence of MSC was found to be [40.5%; 51.35%]. Back, knee, wrist, elbow and ankle pain were the most commonly reported complaints. Eighty four percent of the participants experienced tightness in their joints in the morning and the majority indicated the tightness to last more than 30 minutes. The tightness subsided after exercise or movement of the joint in 91% of the participants, while pain was experienced to be the most intense first thing in the morning in 45% of the participants. Forty six percent of the participants had already been diagnosed with arthritis.

3.3 Functional outcomes

The majority of participants [with a presence of MSC] found the activities within the following subheadings to be carried out without any difficulty: dressing and grooming, eating, hygiene and grip. Although the majority could perform these tasks with ease, 45.27% and 46.94% of participants reported difficulty when standing up straight from a chair as well as walking outdoors on flat ground respectively. Activities, considered by the participants, to be carried out with difficulty included: getting in and out of bed [53.74%], climbing five steps [59.45%], walking on unstable surfaces [59.18%], picking up clothes from the floor [53%] and being able to get in and out of a bus/taxi/car [55.17%]. When asked if participants were able to sit cross-legged on the floor and get up, 47.62% experienced difficulty while 18.37% were not able to perform this task at all. With regard to reaching activities, 55.78% experienced some difficulty when picking up a two kilogram object. Therefore, the overall mean Disability Index [DI] for the study indicated a mild to moderate functional impact within the participants reporting a presence of MSC.

4, DISCUSSION

Important results were uncovered through the study indicating just less than half [45.82%] of the 323 participants indicating a presence of MSC. This prevalence was 12.82% higher than the prevalence found by Parker and Jelsma during a study conducted in Cape Town [2010] as well as other results found in America, namely USA [24%], Mexico [17%] and the Philippines [16%] [10, 11, 12]. The difference may be attributed to the vast diversity of the populations in terms of ethnicity, culture as well as environmental factors. The average age of participants reporting a presence of MSC, was 53 which was similar to the mean age of 55 years found by Parker and Jelsma in 2010, this reiterating that aging is associated with degeneration of the neuromuscular joint protective mechanism, thus leading to impairment and increasing joint instability [13, 14].

Of the 45.82% [i.e. 148 participants] indicating a presence of MSC, 64% were female. This links to a predominately female sample group but also to previous studies which suggested that females are more inclined to make use of the public health services due to the burden known as the “grandmother’s curse” falling on middle aged to elderly women which involves taking care of HIV orphaned children along with any degenerative conditions they might have [5, 13, 14, 15, 16]. Of those who reported a presence of MSC, the most commonly reported complaint was that of pain within the back [42.57%] and knee joints [38.51%][see table 1], which concurs with previous research [10,17].

Research has also indicated a possible link between joint pain and symptoms of depression and anxiety. These symptoms commonly come to the fore in individuals living with MSP, even in those without a history of mental health problems which was prevalent in 32% of the participants. Sleep disturbances [as seen in 73.5% of participants] can further exacerbate these symptoms as inadequate amounts of sleep are thought to cause an increase in daily stress, impaired memory as well as cognitive ability [9]. Participants were also influenced in terms of social relations, financial positions and the ability to work. Although many participants had indicated a moderate to severe influence of ability to work, 72% of the participants were not required to stop working, which may possibly be attributed to their poor socio-economic status. Also 93% of participants with a presence of MSC did not find it necessary to change their current occupation which is contrary to literature as cited by Brooks [2005], which indicated that MSC accounted for 20% of job losses in Europe in 2005.

Participants indicated that the more physical activities and transitional movements were more difficult in nature [see figure 1]. Specific activities of daily living considered to be carried out with difficulty included getting in and out of bed [53.74%], climbing five steps [59.45%], walking on unstable surfaces [59.18%]

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as well as picking up clothes from the floor [53.31%] and being able to get in and out of a bus, taxi or car [55.21%]. Therefore, a mild to moderate functional impact was found according to the Disability Index [DI]. This resultant functional impact is contrary as previous research suggested that a greater functional impact occurs amongst individuals living in lower socioeconomic areas (19).

Also of interest were the results regarding Chronic Diseases of Lifestyle [CDL]) i.e. Hypertension and Type II Diabetes Mellitus amongst participants suffering from MSC. It appears that there could be a possible link between MSC and CDL as in each category of CDL, namely hypertension and Type II Diabetes Mellitus, the participants reporting a presence of MSC had a higher rate of prevalence when compared to those without i.e. 31.5% and 12.9% respectively. These results concur with that of previous research (1, 3, 7, 14, 18, 20). However, to determine this possible correlation, further research is required.

Limitations which were experienced during the conducting of the study involved the sample size, timeframe and recruitment of subjects. Although an estimated 500 participants was suggested, a smaller sample size was obtained due to time constraints regarding the total time spent on each structured interview, depending on the participant’s level of comprehension. It must also be noted that during the time of data collection, pension collection for the end of the month also took place, resulting in a lower population attending MUCPP on that specific day.

Recommendations would be for possible follow up and/or related studies to be conducted in various geographical regions in South Africa in order to compare results. This may serve as a catalyst initiating the drive for literature within the field of MSC. It will also be of benefit to perform this study at more than one CHC in order to compare results within the Free State and Bloemfontein area specifically. Questions pertaining to activity levels of participants could also be included as there is sufficient evidence regarding the influence of sedentary lifestyle and the impact thereof on MSC.

In conclusion, the prevalence of MSC at MUCPP was found to be 45.82% which is considerably higher than previous studies conducted in South Africa (5). The DI indicated a mild to moderate functional impact. These results indicate the need for holistic management by an interdisciplinary team of Health Care practitioners in order to address physical, psychological and social aspects affected. In order to manage the high rates of prevalence and reduce the functional impact of MSC, it is strongly suggested that education within the community regarding MSC, the symptoms and management thereof be implemented through awareness campaigns, community empowerment as well as posters/pamphlets, co-ordinated by the various interdisciplinary team members. Education regarding Physiotherapy services, within the MSC field, amongst fellow health care practitioners may lead to more referrals to physiotherapy services, therefore directly reaching a greater percentage of those suffering from MSC and indirectly reducing the functional burden thereof.

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REFERENCES


### Table 1: Joints involved, reported by participants (n=148)

<table>
<thead>
<tr>
<th>Joints</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neck</td>
<td>11</td>
<td>7.4</td>
</tr>
<tr>
<td>Shoulder</td>
<td>24</td>
<td>16.2</td>
</tr>
<tr>
<td>Elbow</td>
<td>38</td>
<td>25.7</td>
</tr>
<tr>
<td>Wrist</td>
<td>21</td>
<td>20.9</td>
</tr>
<tr>
<td>Hand</td>
<td>13</td>
<td>8.8</td>
</tr>
<tr>
<td>Back</td>
<td>63</td>
<td>42.6</td>
</tr>
<tr>
<td>Hips</td>
<td>14</td>
<td>9.5</td>
</tr>
<tr>
<td>Knee</td>
<td>57</td>
<td>38.5</td>
</tr>
<tr>
<td>Ankle</td>
<td>29</td>
<td>19.6</td>
</tr>
<tr>
<td>Foot</td>
<td>5</td>
<td>3.4</td>
</tr>
</tbody>
</table>

### Figure 1: Functional activities on the HAQ of those presenting with MSC

- Can't do it
- With difficulty
- Can do it

Percentage (%)

- Get in and out of a bus/taxi/car
- Run errands and shop
- Work in office/house
- Bend down to pick up clothing from the floor
- Reach and get down pick up a 2 kg object
- Get on and off the toilet
- Wash and dry your body
- Take a bath
- Walk in unstable surfaces
- Climb up 5 steps
- Walking outdoors on flat ground
- Lift a full cup or glass to your mouth
- Sit cross-legged on the floor and get up
- Get in and out of bed
- Stand up straight from a chair
- Comb your hair
- Wash your hair
- Dress yourself, including doing buttons and tying.