

## Original Research Article

# Assessment of health related quality of life in patients with cervical dystonia and writer's cramp

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**Received:** 18 October 2016

**Accepted:** 26 October 2016

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### ABSTRACT

**Background:** There is paucity of literature regarding data about clinical and demographic factors affecting HRQoL with assessment with validated specific tool in patients with CD and WC especially from India.

**Methods:** Demographic, clinical details, SF-36 and BDI score were noted in included patients. CD and WC severity scale were assessed by TWSTRS and BFM scale respectively. Disease specific quality of life in patients with CD was assessed by CDQ-24.

**Results:** All 32 patients with CD scored significantly worse in all the eight domains of the SF-36. Patients with CD had significantly worse (mean BDI 12.14±6.7 versus 5.09±4.8; P<0.001) score. In CD group 15.62% have no depression, while 34.37% had mild and 34.37% had moderate to severe depression. Patients with CD had significantly worse CDQ-24 score (mean 50.96±20.47 versus 6.89±6.33); (P<0.001). TWSTRS score had negative correlation with BDI and CDQ-24. All 60 patients with WC scored significantly worse in all domains of the SF-36 except 3 domain physical functioning (p=0.80), bodily pain (p=0.122) and vitality (p=0.97). Among WC patients 45% have no depression, 21.67% had mild and 23.35% had moderate to severe depression. BFM had significant negative correlation with all SF-36 subscale except role emotional (p=0.059).

**Conclusions:** Patients with CD and WC suffered from significant impairment in HRQoL with moderate to severe depression. The validated specific scale provides further evidence for profound impact of above mentioned dystonias on physical, psychological and social aspect of quality of life.

**Keywords:** BDI, BFM, CD, CDQ-24, HRQoL, TWSTRS, WC

### INTRODUCTION

Dystonia is defined as a “neurologic syndrome characterized by involuntary, sustained, patterned contractions of opposing muscles, causing twisting and repetitive movement or abnormal postures”.<sup>1</sup>

Primary dystonia is one of the most prevalent movement disorders. Worldwide prevalence of focal dystonia varies from 3-732 per 1,00,000 population from various studies.<sup>2-4</sup> In only Indian community based study, crude

prevalence rate of focal dystonia is 43.9 per 1,00,000 population.<sup>5</sup> In majority of studies cervical dystonia (CD) and blepharospasm (BSP) are found to be common dystonia accounting for about 75% of cases with primary focal dystonia. Indian study by Das et al, shows that writer's cramp and blepharospasm are the most common focal dystonia.<sup>5</sup> Cervical dystonia (CD) is a focal dystonia causing involuntary activation of the muscles of the neck and shoulders resulting in abnormal, sustained, and painful posturing of the head, neck, and shoulders. Writer's cramp (WC) is a task-specific, focal hand

dystonia. It is characterized by involuntary, repetitive or sustained contractions of finger, hand or arm muscles that occur during writing and produce abnormal postures or movements that interfere with normal handwriting.<sup>6-8</sup>

Two categories are recognized: simple writer's cramp, in which dystonic posturing of the hand and arm occurs only during writing, and complex or dystonic writer's cramp, in which the condition manifests also during other manual tasks and sometimes with spontaneous abnormal posturing. However, a third type having progressive writers' cramp also described in which difficulty began with writing difficulties alone, but subsequently problems were encountered with other motor tasks.

In most cases dystonia responsible for considerable morbidity in terms of pain, low self-esteem, depression, embarrassment and poor social interaction.<sup>6,7</sup> Health-related QOL (HRQoL) is a multi-dimensional concept that encompasses the subjective assessment of the impact of illness or treatment across the physical, psychological, social and somatic domains of functioning and the well being.<sup>9</sup> There is paucity of literature regarding health related quality of life in focal dystonia especially from India. Little is known about the clinical and demographic factors associated with poor HRQoL and depression in patients with focal dystonia. There is no Indian literature about quality of life in any focal dystonias. This study was conducted to assess HRQOL in its global and disease specific aspect by previously validated instruments in patients with cervical dystonia and writer's cramp.

## METHODS

The study was performed between July 2014 to July 2016 by MDS superspeciality clinic, neurology Unit, B. R. D. Medical College, Gorakhpur based on patients who referred from obstetric and gynecology and medicine outdoor unit. Subjects with cervical dystonia and writer's cramp as well as age and gender matched healthy controls were enrolled. All the patients aged >15 years with clinical diagnosis of focal dystonias by movement disorder specialist, were screened for the enrollment in the study. Uneducated patient, those could not read questionnaires, cases that had associated other neurological or debilitating systemic disorders, secondary / pediatrics dystonias, pregnancy or received botulinum toxin within 6 months or underwent surgical treatment were excluded from the study. Ethical clearance was taken from institutional ethical committee (IEC) of B. R. D. Medical college, Gorakhpur. Written informed consent was taken after explaining nature and need of the study. Finally study patients were enrolled after fulfilling the inclusion and exclusion criteria.

### Study questionnaire

After enrollment, demographic and clinical details of cases were noted down in a preset form designed for the

study. Each patient filled SF-36 (for HRQoL), BDI (Beck Depression Inventory for depression). Disease specific quality of life scale CDQ-24 was used for assessing CD. TWSTRS severity scale for cervical dystonia and BFM severity scale for writer's cramp was filled by investigator during same session.

### Global HRQoL

SF-36<sup>R</sup> (short form 36) is acceptable, internally consistent, valid and reliable measure of the health status of patients.<sup>10</sup> SF-36<sup>R</sup> a 36 item, self report generic measure that provides a profile assessment of health – related quality measuring 8 multi-item variables, which includes; physical functioning (PF) 10 items; role limitation due to physical problem (RP, 4 items), bodily pain (BP, 2 items), general perception of health (GH, 5 items), vitality (VT, 4 items), social functioning (SF, 2 items), role limitation due to emotional problem (RE, 3 items) & mental health (MH, 5 items). A score ranging from 0 (worst health) to 100 (best health) is generated for each domain/subscale.

### Disease specific quality of life scales

The severity of cervical dystonia was assessed by Toronto western spasmodic torticollis rating scale (TWSTRS) which includes torticollis severity scale (max=33), disability scale (max=30), pain scale (max=20).

Writer's cramps severity was measured by the Burke Fahn-Marsden (BFM) scale

### Statistical analysis

Comparison between all of the variables described earlier for patients versus control was carried out using t-test and X (Chi-square) test for continuous and categorical variables, respectively. Association between SF36 & CDQ-24 scales and variables addressing disease duration, age of onset and severity were evaluated by Pearson correlation coefficients. P values of 0.05 or less (2-sided) were considered statistically significant.

## RESULTS

### Cervical dystonia

All patients with CD scored significantly worse in all the eight domains of the SF-36 as compared with age and sex matched control population (P<0.001) (Table 2).

There was no significant correlation of SF-36 domains score with age. Except general health where (p =0.03). This may be due to aging effect. However age of onset reveal significant correlation with SF-36 domains including RP, GH, SF, RE. There was no correlation of SF-36 domains with gender, marital status, or duration of disease educational and occupational status (p>0.05).

Patients with CD had significantly worse (mean BDI 12.14±6.7 versus 5.09±4.8; P<0.001) score as compared to patients in control group (Table 2). In CD group 15.62% have no depression, while 34.37% had mild and 34.37 % had moderate to severe depression.

Patients with CD had significantly worse CDQ-24 score (mean 50.96±20.47 versus 6.89±6.33); P<0.001) as compared to patients in control group (Table 2).

**Table 1: Demographic characteristics among patients with cervical dystonia and CD - controls.**

| Demographic characteristics            | CD            | CD -control   |
|--|---------------|---------------|
| Number (n)                             | 32            | 32            |
| Age mean (SD) years                    | 44.28 (14.64) | 46.41 (10.88) |
| <b>Age groups (years) (%)</b>          |               |               |
| ≤20                                    | 9.37          | 3.12          |
| 21-39                                  | 21.87         | 25            |
| 40-49                                  | 25            | 37.5          |
| 50-59                                  | 28.12         | 18.75         |
| ≥ 60                                   | 15.62         | 18.75         |
| <b>Sex (%)</b>                         |               |               |
| Male                                   | 87.5          | 84.37         |
| Female                                 | 12.5          | 15.63         |
| <b>Education (%)</b>                   |               |               |
| ≤12 <sup>th</sup> standard             | 31.25         | 31.25         |
| Graduate                               | 50            | 53.12         |
| Post graduate or higher                | 8.75          | 5.62          |
| <b>Marital status, No (%)</b>          |               |               |
| Married                                | 84.37         | 90.62         |
| Non-married                            | 15.63         | 9.38          |
| <b>Employment status (%)</b>           |               |               |
| Employed                               | 25            | 37.5          |
| Unemployed                             | 75            | 62.5          |
| Age of onset mean, SD                  | 39.66 (4.31)  | NA            |
| <b>Age of onset groups (years) (%)</b> |               |               |
| ≤20                                    | 12.5          |               |
| 21-39                                  | 28.12         |               |
| 40-49                                  | 34.37         | NA            |
| 50-59                                  | 15.62         |               |
| ≥60                                    | 9.37          |               |
| Duration mean, SD                      | 4.69 (3.32)   | NA            |
| <b>Duration groups (years) (%)</b>     |               |               |
| ≤2                                     | 31.25         |               |
| 3-5                                    | 43.75         | NA            |
| >5                                     | 25            |               |

The each domain of CDQ-24 scale including stigma, emotional well-being pain, ADL, social functioning also had significantly worse score than control population (p<0.001) (Table 2). Mean TWSTRS score was 43.55±15.26. Disease severity TWSTRS score had also significant negative correlation with all SF-36 subscale except general health (p =0.667). TWSTRS score had negative correlation with BDI and CDQ-24 and its domains score (p<0.001). There was no correlation of disease severity with age, gender, marital status, age at

onset or duration of disease educational and occupational status (p>0.05).

**Table 2: QOL characteristics among patients with cervical dystonia and controls.**

|  | CD            | CD-controls  | P value |
|--|---------------|--------------|---------|
| <b>SF 36 subscale, mean (SD)</b>   |               |              |         |
| Physical functioning (PF)  | 71.4 (26.4)   | 83.6 (13.8)  | <0.001  |
| Role-physical (RP)   | 46.4 (27.5)   | 73.9 (22.5)  | <0.001  |
| Bodily Pain (BP)   | 57.2 (26.4)   | 84.1 (19.2)  | <0.001  |
| General health (GH)  | 34.8 (11.1)   | 67.6 (21.5)  | <0.001  |
| Vitality (VT)  | 55.7 (26.4)   | 63.5 (23.1)  | <0.001  |
| Social Functioning (SF)  | 66.1 (22.2)   | 79.5 (17.5)  | <0.001  |
| Role emotional (RE)  | 45.2 (33.6)   | 82.5 (23.4)  | <0.005  |
| Mental health (MH)   | 61.4 (15.6)   | 70.2 (15.4)  | <0.005  |
| <b>BDI mean (SD)</b>   | 12.14 (6.7)   | 5.09 (4.8)   | <0.001  |
| <b>BDI groups %</b>  |               |              |         |
| 1 - 10: Normal   | 15.62         | 87.5         |         |
| 11-16: Mild mood disturbance   | 11 (34.37)    | 12.5         |         |
| 17 - 20: Borderline depression   | 5.62          | 3.12         |         |
| 21 - 30: Moderate depression   | 28.12         | 3.12         |         |
| 31 - 40: Severe depression   | 6.25          | 0            |         |
| Over 40: Extreme depression  | 0             | 0            |         |
| <b>CDQ 24 scale mean(SD)</b>   |               |              |         |
| Stigma   | 55.68 (21.93) | 2.73 (3.90)  | <0.001  |
| Emotional Well being   | 57.50 (23.38) | 12.34 (7.83) | <0.001  |
| Pain   | 44.53 (27.15) | 9.63 (7.95)  | <0.001  |
| ADL  | 56.25 (23.92) | 9.76 (4.18)  | <0.001  |
| Social family life   | 40.82 (22.34) | 0            | <0.001  |
| Total CDQ-24 score   | 50.96 (20.47) | 6.89 (6.33)  | <0.001  |
| <b>Toronto Western spasmodic torticollis rating scale (TWSTRS) Mean (SD)</b> |               |              |         |
| TSS  | 18.75 (5.77)  | NA           |         |
| Disability scale   | 14.72 (5.70)  | NA           |         |
| Pain scale   | 10.34 (5.92)  | NA           |         |
| <b>Total TWSRS scale</b>   | 43.55 (15.26) | NA           |         |

**Writer's cramp**

All patients with WC scored significantly worse in all the eight domains of the SF-36 as compared with age and sex matched control population except three domain physical functioning ( $p=0.80$ ), bodily pain ( $p=0.122$ ) and vitality ( $p=0.97$ ) (Table 4). Patients with WC had significantly worse (mean BDI  $13.37\pm 1.15$  versus  $4.85\pm 8.19$ ; ( $P<0.001$ )) score as compared to patients in control group. (Table 4). In WC patients 45% have no depression, while

21.67% had mild and 23.35% had moderate to severe depression. Disease severity Burke Fahn- Marsden scale mean score was  $4.33\pm 2.21$ . BFM had significant negative correlation with all SF-36 subscale except role emotional ( $p=0.059$ ) (Table 3). BFM score also reveal negative correlation with BDI ( $p<0.05$ ). There was no correlation of disease severity with age, gender, marital status, age at onset or duration of disease educational and occupational status ( $p>0.05$ ).

**Table 3: Demographic characteristics among patients with writer's cramp and WC – controls.**

| Demographic characteristics            | WC            | WC-control  |
|--|---------------|---|
| Number (n)                             | 60            | 62  |
| Age mean (SD)                          | 39.97 (14.31) | 43.93 (13.85)   |
| <b>Age groups (%)</b>                  |               |   |
| ≤20 years                              | 3.33          | 1.61  |
| 21-39 years                            | 46.67         | 33.87   |
| 40-49 years                            | 23.33         | 32.26   |
| 50-59 years                            | 21.67         | Except three domain physical functioning ( $p=0.80$ ), bodily pain ( $p=0.122$ ) and vitality ( $p=0.97$ ). 20.97 |
| ≥ 60 years                             | 5.0           | 11.29   |
| <b>Sex (%)</b>                         |               |   |
| Male                                   | 57 (95)       | 54 (87.1)   |
| Female                                 | 3 (5)         | 8 (12.9)  |
| <b>Education (%)</b>                   |               |   |
| ≤ 12 <sup>th</sup> standard            | 15            | 30.64   |
| Graduate                               | 56.67         | 56.45   |
| Post graduate or higher                | 28.33         | 12.9  |
| <b>Marital status (%)</b>              |               |   |
| Married                                | 93.33         | 91.93   |
| Non-married                            | 6.67          | 8.06  |
| <b>Employment status (%)</b>           |               |   |
| Employed                               | 51.67         | 61.67   |
| Unemployed                             | 48.33         | 38.33   |
| Age of onset mean SD                   | 35.38(14.060) | NA  |
| <b>Age of onset groups (years) (%)</b> |               |   |
| ≤20                                    | 3.33          |   |
| 40-49                                  | 70            |   |
| 40-49                                  | 61.67         |   |
| 50-59                                  | 30            | NA  |
| ≥ 60                                   | 5             |   |
| Duration mean SD                       | 4.8 (3.58)    | NA  |
| <b>Duration groups (years) (%)</b>     |               |   |
| ≤2                                     | 9 (15)        |   |
| 3-5                                    | 34 (56.67)    | NA  |
| >5                                     | 17 (28.33)    |   |

Writer's cramp patients were divided in 3 groups-simple, progressive and complex or dystonic. Among 60 patients 34 were in simple, 18 progressive and 8 in dystonic group. Patients with progressive WC scored significantly worse in all the domains of the SF-36 except role

emotional ( $p=0.064$ ) as compared with simple WC (Table 5).

Patients with dystonic WC also scored significantly worse in all the domains of the SF-36 except role

emotional ( $p=0.064$ ) and vitality ( $p=0.107$ ) as compared with simple WC (Table 5). However no difference observed among complex and dystonic WC groups.

Patients with progressive WC had significantly worse (mean BDI  $17.5\pm6.58$  versus  $8.38\pm5.02$ ;  $P<0.001$ ) score as compared to patients with simple WC. Patients with dystonic WC had significantly worse (mean BDI  $25.25\pm11.02$  versus  $8.38\pm5.02$ ;  $P<0.001$ ) score as

compared to patients with simple WC. BDI score was also significantly worse in dystonic groups compared to complex WC ( $P=0.041$ ) (Table 5). Among simple progressive and dystonic WC group mild depression were found in 29.41%, 11.11% and 33.33 % while moderate to severe depression in 2.94%, 38.87% and 65% respectively.

**Table 4: QOL characteristics among patients with Writer's cramp and controls.**

|  | WC            | WC- controls  | p value |
|--|---------------|---------------|---------|
| <b>SF 36 subscale, mean (SD)</b>               |               |               |         |
| Physical Functioning(PF)                       | 77.33 (19.94) | 83.48 (18.48) | <0.80   |
| Role Physical (RP)                             | 56.22 (40.79) | 73.66 (25.66) | <0.05   |
| Bodily Pain (BP)                               | 67.10 (23.79) | 73.92 (24.51) | <0.1221 |
| General Health (GH)                            | 55.75 (27.08) | 71.13 (20.44) | <0.001  |
| Vitality (VT)                                  | 55.08 (21.93) | 62.30 (25.55) | <0.971  |
| Social Functioning (SF)                        | 65.61 (20.26) | 81.15 (16.87) | <0.001  |
| Role Emotional (RE)                            | 61.66 (36.74) | 82.03 (26.13) | <0.001  |
| Mental Health (MH)                             | 58.13 (21.83) | 76.97 (16.82) | <0.001  |
| <b>BDI mean (SD)</b>                           | 13.37 (1.15)  | 4.85 (8.19)   | <0.001  |
| <b>BDI groups, , %</b>                         |               |               |         |
| 1 - 10: Normal                                 | 45            | 91.67         |         |
| 11-16: Mild mood disturbance                   | 21.67         | 6.67          |         |
| 17 - 20: Borderline depression                 | 1%            | 3.3           |         |
| 21 - 30: Moderate Depression                   | 18.33         | 1.67          |         |
| 31 - 40: Severe depression                     | 5%            | 0             |         |
| over 40: Extreme depression                    | 0             | 0)            |         |
| <b>Burke Fahn-Marsden (BFM) scale mean(SD)</b> |               |               |         |
| Provoking factor                               | 1.52 (0.65)   | NA            |         |
| Severity factor                                | 2.78 (0.49)   | NA            |         |
| Total BFM score                                | 4.33 (2.21)   | NA            |         |

**Table 5: QOL characteristics among patients in simple, progressive and dystonic WC groups.**

|                                       | Simple WC     | Progressive WC | Dystonic WC   | p value |
|---------------------------------------|---------------|----------------|---------------|---------|
| <b>SF 36 subscale, mean (SD)</b>      |               |                |               |         |
| Physical Functioning(PF)              | 83.97 (18.08) | 71.94 (18.24)  | 61.25(20.48)  | <0.001  |
| Role Physical (RP)                    | 76.64 (28.29) | 29.11 (36.55)  | 21.87 (36.44) | <0.001  |
| Bodily Pain (BP)                      | 76.97 (18.03) | 51.77 (22.41)  | 46.12 (28.13) | <0.009  |
| General Health (GH)                   | 69.56 (20.31) | 40.05 (23.31)  | 32.37 (27.04) | <0.001  |
| Vitality (VT)                         | 61.61 (20.06) | 46.67 (21.42)  | 46.25 (23.71) | <0.014  |
| Social Functioning (SF)               | 72.39 (14.97) | 55.55 (24.34)  | 59.37 (20.86) | <0.077  |
| Role Emotional (RE)                   | 70.57 (27.39) | 51.85 (34.73)  | 45.82 (30.55) | <0.031  |
| Mental Health (MH)                    | 66.00 (19.22) | 46.67 (19.83)  | 50.50 (24.74) | <0.114  |
| <b>BDI mean (SD)</b>                  | 8.38 (5.02)   | 17.5 (6.58)    | 25.25 (11.02) | <0.001  |
| <b>BDI groups %</b>                   |               |                |               |         |
| 1 - 10: Normal                        | 64.7          | 22.22          | 33.33         | <0.001  |
| 11-16: Mild mood disturbance          | 29.41         | 11.11          | 33.33         | <0.001  |
| 17 - 20: Borderline depression        | 2.94          | 27.78          | 37.5          | <0.001  |
| 21 - 30: Moderate Depression          | 2.94          | 38.89          | 37.5          | <0.001  |
| 31 - 40: Severe depression            | 0             | 0              | 37.5          | <0.001  |
| Over 40: Extreme depression           | 0             | 0              | 0             | <0.001  |
| <b>Burke Fahn-Marsden (BFM) scale</b> |               |                |               |         |
| Total BFM score                       | 2.82 (0.46)   | 5.1 (1.02)     | 8.75 (1.67)   | 0.013   |

**Table 6: Important worldwide studies in focal dystonia.**

| Author                          | No.                           | Scale used   | Comments  |
|---------------------------------|-------------------------------|--------------|---|
| <b>Cervical dystonia</b>        |                               |              |   |
| Mueller J et al <sup>14</sup>   | BS=89<br>CD=131<br>Total= 220 | SF-36<br>BDI | CD/BS: baseline score very low as compared to age-matched community sample.<br>Depression: CD/BS=47 & 37%<br>BS: SF-36 score: F< M<br>CD: SF-36, BDI: equal<br>Btx A: Significant improvement of clinical symptoms in BS/ CD.<br>HR-QoL did not improve in BSP.   |
| Camfield MA et al <sup>16</sup> | N=289                         | SF-36        | Age-related deterioration of QOL for both physical functioning and general health.<br>Male had better scores than females<br>Patients with CD scored worse than general population.<br>CD patients scored best for physical function score and worst for mental health and emotional role limitation compared with other neurological condition |

## DISCUSSION

This study clearly demonstrates that patients with cervical dystonia and writer's cramp suffered from significant impairment in HRQoL. SF-36 and its both physical mental domains and sub domains reveal significant impairment as compared to healthy control population. Similar reduced HRQoL has been described in 2 other studies (Table 6). A study by Muller J et al reveal that CD patient score worse in all eight domains of SF-36 as compared with the normal population. A study by Reimer's et al also found that compared with controls both patient groups suffered from statistically significant impaired global HRQL (SF-36) in role physical, general health, vitality and mental health domains ( $p < 0.05$ ). This indicates that these dystonias affect a person's physical life as well as social and mental state. This could be because of facial disfigurement & feeling of attracting others attention.

Higher proportion of patients with both dystonias suffered from moderate to severe depression compared to their control which was statistically significant. Moderate to severe depression was more in CD group. Possible cause of this finding may be due to associated neck pain and impaired mental and social life and persistent feeling of deterioration in appearance. Although cervical dystonia is usually non-progressive and limited to involuntary muscle spasm of the neck, but it had significant detrimental effect on QoL. Our study demonstrates the negative impact of CD on patient's HRQL in all domains of SF-36 when compared to controls (Table 2). In our study BDI score negatively correlated with all domains of SF-36. The linear regression analysis also showed depression to be an important predictor of poor HRQL in CD. It was speculated that depression constitutes a reaction to the presence of postural abnormalities of the head.<sup>11-13</sup> The

incidence of depression was relatively high (84.38%) in our study.

However incidence of depression was 47.6% in Muller et al and 24% in Nickel T et al.<sup>14,15</sup>

Another largest series (n=289) by Ben-Shlomo et al and Pekmezovic T et al, reveal anxiety and depression on multivariate regression analysis as best predictor of poor HRQL as in our study.<sup>16,18</sup> Our study did not find demographic factors including age, sex, educational level, or social factors to be factors predictive of worse HRQL. However role limitation and mental health subscore was found to be worsen with age and age of onset in Slawek J et al study, a pattern that may be related due to aging itself.<sup>17</sup> There was no correlation SF-36 domains score and disease duration ( $p > 0.05$ ) as similarly reported in Slawek J et al study.<sup>17</sup> CDQ-24, first fully validated diseases specific scale developed by Muller J et al in 2002, was not used in any of the above mentioned study. Our study demonstrate that mean total CDQ-24 and its five domains including stigma, emotional well-being, pain, ADL, social functioning score were significantly worse in cervical dystonia group than control population ( $p < 0.001$ ) (Table 2). However, emotional well-being and ADL were most severely affected subdomain of CDQ-24. There was significantly positive correlation between CDQ-24 sub domains and disease severity TWSTRS scale. Various study regarding writer's cramp and botulinum toxin effect was done in past, but there is paucity of data with reference to quality of life and depression in these patients. In our study all SF-36 domains were significantly achieved worse score as compared with control population except three domain physical functioning ( $p = 0.80$ ), bodily pain ( $p = 0.122$ ) and vitality ( $p = 0.97$ ). BFM had significant negative correlation with all SF-36 subscale except role emotional ( $p = 0.059$ ) (Table 4).

The incidence of depression was relatively high (84.38%) in our study. However incidence of depression was 55% among which 21.67% had mild depression and 33.33% with moderate to severe depression. The associated depression may be due to patient apprehension and limited ability in performing specific task. We also studied writer's cramp patients after dividing into 3 main broad groups-simple, progressive, complex or dystonic. Writer's cramp patients further divided in 3 groups-simple, progressive and complex or dystonic. Patients with progressive WC all SF-36 domains had worse score except role emotional while in dystonic groups HRQL (SF-36) significantly impairment seen in all domains except role emotional and vitality. Moderate to severe depression was observed more in dystonic writer's cramp groups compared to simple and progressive.

## CONCLUSION

The present study's results regarding HRQoL in its global and disease specific aspect provides further evidence for profound impact of above mentioned dystonias on physical, psychological and social aspect of quality of life. This study indicates that psychological counseling of patients, their family members and treatment aiming to treat depression may be a part of comprehensive treatment approach for these patients. Treatment effect should also improve quality of life of patients which is found lacking in several treatment trials of botulinum toxin indicating requirement of much more broad and comprehensive approach.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

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**Cite this article as:** Singh PK, Singh R. Assessment of health related quality of life in patients with cervical dystonia and writer's cramp. *Int J Res Med Sci* 2016;4:5134-40.