

Team learning and self-management for video display terminal employees with chronic neck-shoulders pain

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Abstract. In Latvia occupational musculoskeletal disorder – chronic neck-shoulders pain (NSP) – is a common complaint in the general population, also in video display terminal (VDT) employees in their giving age, working in bank and agriculture system, and such patients with chronic NSP load markedly the public health care service. The biopsychosocial influence on pain for VDT employees is team learning (TL) with self-management (SM) strategies: pain-blocking imagery, mind-body relaxation, cognitive restructuring of unpleasant physical and emotional experience, improvement of workplace relations and organizational culture. The aim of the research was to evaluate the effectiveness of using TL and SM one month course for bank and agricultural advisory services VDT employees, females and males, suffering from chronic moderate NSP. The structured self-administrated questionnaire was carried out to find out which body parts suffer from pain during workload, information on work-related ergonomic and psychosocial risk factors was collected during face to face interviews. During testing for TL and SM course with follow-up assessment was selected 21 VDT employees (females = 11, males = 10; age between 22 and 50). The intensity of NSP was determined by using the Numeric Pain Rating Scale (NPRS), life quality assessment was analysed with Quality of Life Scale (QOLS), p-value, confidence interval was calculated. Patients were asked to keep a Pain Diary during treatment course. The results indicated decrease in neck-shoulders pain intensity, and positive quality of life changes after TL and SM intervention in video display terminal (VDT) employees. Statistically significant reduction in pain intensity after TL and SM intervention by the biopsychosocial influence on pain according NPRS was among males, and the life quality according to QOLS score – among females. The necessity to perform patient's objective clinical examinations, subjective tests of self-esteem, to keep a Pain Diary during treatment course has been proved in our research.

Key words: chronic moderate neck-shoulders pain, video display terminal employees, team learning, self-management.

INTRODUCTION

The experience of pain at work is a complex phenomenon, which includes bodily as well as psychosocial and ergonomic risk factors components. There are physical, psychosocial, and individual risk factors of chronic moderate NSP (Ariëns et al., 2001; Larsson et al., 2007;). Continual negative stress at work can also cause muscle tension

with pain and depressed mood (Banks & Kerns, 1996). Nowadays chronic moderate pain is defined as pain that has lasted longer than three to six months, with scored pain intensity at moderate (5–7) on a scale of 1 (no pain) to 10 (worst imaginable) (Thienhaus & Cole, 2002). A chronic pain patient is an individual with sensitized nervous system and illness behavior experience (Marras et al., 2000; Roja et al., 2007). The biopsychosocial influence on pain for such employees in the multidisciplinary treatment of pain's complex is team learning (TL) with self-management (SM) strategies: pain-blocking imagery, cognitive restructuring of unpleasant physical and emotional experience with social distress reduction therapy, improvement of workplace relations and organizational culture by education of VDT employees about their unhealthy stereotypical work conditions, specific characteristics of work strain, interpersonal conflicts, and how to conduct best practice (Korth, 2000; Vince, 2001). Hence, the aim of the research was to evaluate the effectiveness of using TL and SM intervention for bank and agricultural advisory services VDT employees in their giving age suffering from chronic moderate NSP.

MATERIALS AND METHODS

During one year period (2014) 31 patients (females = 16, males = 15), age between 22 and 50, bank and agricultural advisory services VDT employees suffering from chronic moderate NSP, took part in our investigation. Mean duration of pain was $5.1 \pm \text{SD } 1.5$ months and mean duration of professional experience was $9.2 \pm \text{SD } 3.0$. The inclusion criteria for investigation were: chronic moderate NSP; full consent to participate in the study, in accordance with the revised Helsinki Declaration, article II; all employees wished non-pharmacologic chronic pain relief by TL and SM, because they have had a negative previous experience with medication therapy.

The exclusion criteria for investigation were: acute NSP; cervical herniated disc symptoms in the neck; muscle disease; high blood pressure; oncologic problems; psychiatric disease; having not been to mandatory medical examinations.

The structured self-administrated Standardized Nordic questionnaire was carried out to find out which body parts suffer from pain during workload with maladaptive thoughts and unhealthy postures at workplace (Kuorinka et al., 1987).

Information on work-related ergonomic and psychosocial risk factors was collected during face to face interviews. During testing for TL and SM course with follow-up assessment at 3 and 6 months by taking into account the exclusion criteria for investigation was selected 21 bank and agricultural advisory services VDT employees (females = 11, males = 10). The intensity of NSP before and after TL and SM session was determined by using the Numeric Pain Rating Scale (McCaffery & Beebe, 1989): the patient is asked to indicate the intensity of current, best, and worst pain levels experienced over the past 24 hours on a scale of 0 (no pains) to 10 (worst pain imaginable).

Life quality assessment with The American Chronic Pain Association Quality of Life Scale (QOLS; Cowan et al., 2003) was realized in males and females by self-administered interview format before and after TL and SM course: QOLS is meant to help individuals by measuring each 10 activity levels (to work, to socialize, to exercise functions, to perform household chores), and consists of 0 to 10 variables (0 = 'non-functioning; feel hopeless and helpless about the life' and 10 = 'normal daily activities,

job, social and family life'). Highest score possible is 100 (in conformity with 0 to 10 numeric rating scales for each 10 questionnaires), therefore, QOLS rating scores in results figure are displayed as Total scores/10. Patients were asked to keep a Pain Diary during treatment course. The acquired results were processed, using statistical data processing software SPSS.16 (SPSS Inc., Chicago, IL) according to popular descriptive statistical methods; p-value, confidence interval (95% CI) was calculated, reliability interval (inter-rater agreement) was calculated, and Cohen's Kappa (k) coefficient was determined (coefficient identifies connectivity of the experimental data, the number of participants and the correlation of the participants' acceptance of the experimental data) (Landis, 1977; Thompson et al., 1998).

RESULTS AND DISCUSSION

It was found that 31 bank and agricultural advisory services VDT employees in their giving age suffering from chronic moderate NSP had unpleasant physical and emotional experience with stereotyped maladaptive, depressive thoughts about pain, stressful unhealthy postures at workplace.

VDT employees complained about chronic NSP in the last six months, caused by workload, psychosocial and individual risk factors, duration of computer use was 6–7 hours per day. All employees wished non-pharmacologic chronic pain relief by biopsychosocial influence on pain. During testing for TL and SM one month course 10 employees (5 females and 5 males) had exclusion criteria for investigation, biopsychosocial influence on pain was denied for such individuals, and they were sent to additional examinations in order to particularize diagnosis. 21 employees (11 females and 10 males) were under one month TL and SM course evaluation (4 sessions, once a week, 60 minutes long one session) by mind-body relaxation training with pain-blocking imagery, cognitive restructuring of unpleasant physical and emotional experience with positive self-influence, improvement of workplace relations and organizational culture.

The results (seen in Fig. 1) indicated decrease in pain intensity from 5.57 at the beginning of TL and SM course till 1.14 ($p < 0.05$) at the end of TL and SM course in 9 females (81%), and accordingly in 8 males (80%) – from 6.33 till 1.0 ($p < 0.05$). Statistically significant reduction in pain intensity after TL and SM intervention by the biopsychosocial influence on pain according to NPRS was among bank and agricultural advisory services VDT male employees. These results can be explained with analysis of the females' Pain Diary entry which is giving evidence that responsibilities for managing the work-family interface typically fall on women's shoulders: negative job and family stress can cause muscle tension with pain. It is in accordance with research data about generations of female workers, which have no skills to manage their occupational careers along with their family 'career', occupational and family goals (Thompson et al., 1999).

Analysis of the acquired QOLS scores in statistically significant the age groups allows concluding that after TL and SM one month course for 7 females (63%; $n = 11$) and 3 males (30%; $n = 10$) the life quality according to QOLS increased, significantly – for females (seen in Fig. 2 and Fig. 3). These results can be explained with analysis of the females' and males' Pain Diary entry which is giving evidence that VDT male employees, chronic pain patients, in the age between 23 and 44 still feel hopeless and helpless about the life also after the neck-shoulder chronic pain reduction. It is in accordance with research data about depressed males of working age in the workplace

without employee-focused intervention approach for prevention of job-related psychological complaints (Furlan et al., 2012).

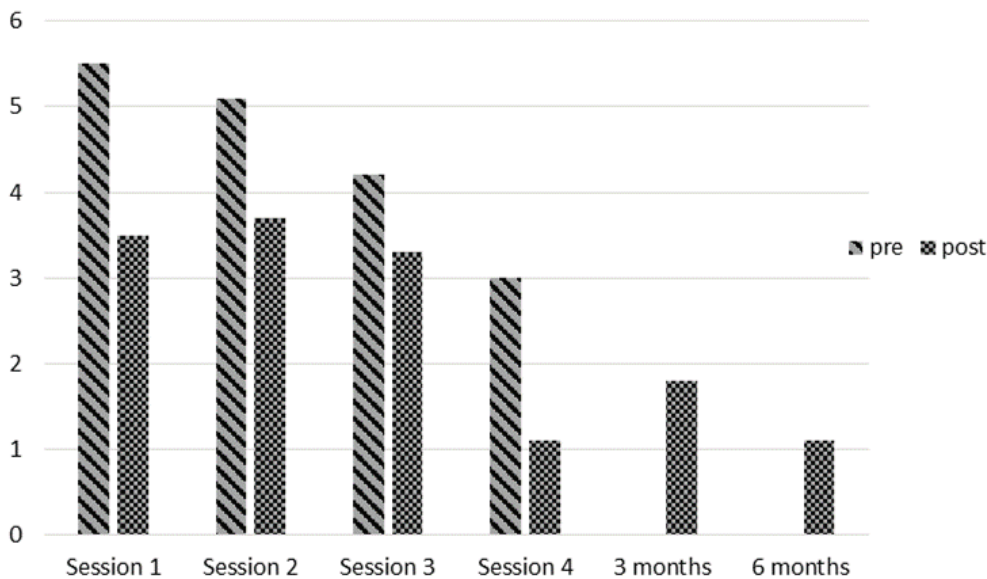


Figure 1. Pre- to post-intervention changes in composite pain intensity during one month TL and SM sessions with follow-up after 3 and 6 months in VDT female employees according to NPRS (vertical axis: pain intensity; 95% confidence interval: CI).

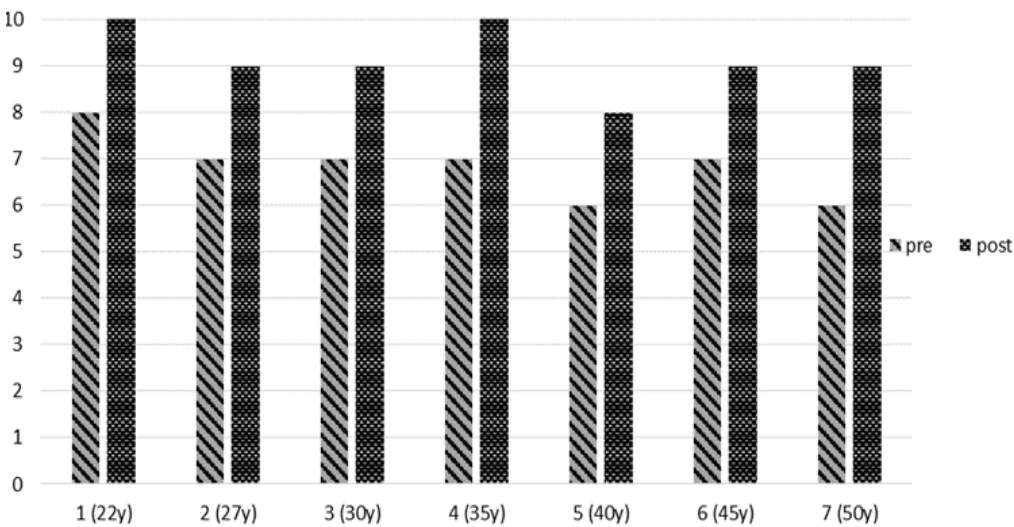


Figure 2. Mean QOLS scores for females before and after TL and SM course (vertical axis: QOLS scores/ 10; $p < 0.05$; Cohen's Kappa – κ varies 0.76–0.88).

Our study checked out that VDT employees suffering from pain at the beginning of the TL and SM course had unpleasant physical and emotional experience at the end of the workday, but such mental and physical fatigue after the workday diminished at the conclusion of the one month TL and SM course. Self-reported ergonomic and psychosocial risk factors associated with NSP during a working day in both sexes were ‘prolong sitting, static posture, twisting posture’, ‘limited rest period’, ‘stressful situations as high demands, time pressure, job strain, conflict of generations, low social support from superiors and colleagues’, and ‘dissatisfaction with job and family life’. It is in accordance with recent research about chronic working in the sitting position, called ‘forced position’ as a cause for pain in the musculoskeletal system, about stressful working environment as a cause for pain in musculoskeletal system, also as a cause for seediness and bad occupational health (Bergquist, 1984; Bongers et al., 2006; Sirge et al., 2014).

The necessity to perform patient's objective clinical examinations, subjective tests of self-esteem, to keep a Pain Diary during TL and SM course has been proved in our research. Bank and agricultural advisory services VDT employees noted in their Pain Diaries that there were no assessment of postural stress of the trunk and upper limbs in connection with musculoskeletal disorders, there were no prevention of musculoskeletal disorders and negative psychosocial risk factors in their workplaces, in that connection they noted that TL and SM course with education of VDT employees about their unhealthy stereotypical work conditions and how to conduct best practice helped to improve workplace relations and organizational culture.

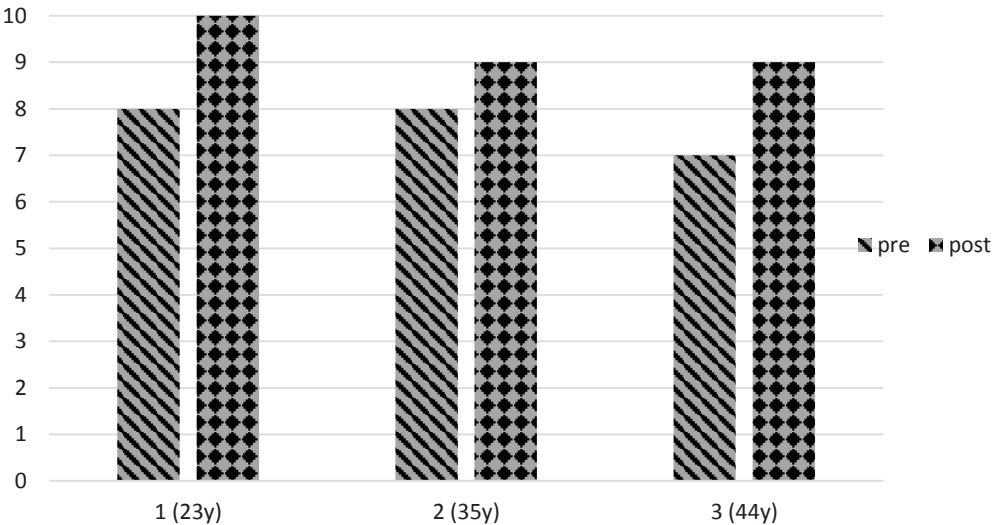


Figure 3. Mean QOLS scores for males before and after TL and SM course (vertical axis: QOLS scores/ 10; $p < 0.05$; Cohen’s Kappa – κ varies 0.67-0.86).

Mind-body self-practice and workout for shoulders and arms (by keeping the shoulders relaxed during use the keyboards, by moving shoulders, and the like) for employees was very important for reducing the intensity and suffering associated with

chronic pain, and helping with posture. Females and males in their Pain Diaries noted that TL and SM with education was possibility to form effective break time without addiction from necessity to have a smoke or to hurry up backlog (81% of females and 70% of males before TL and SM course had addiction during break time to have a smoke or to hurry up backlog).

Follow-up assessment at 3 and 6 months after TL and SM course indicated lasting reduction in pain intensity for males and females, which can be explained by benefits of positive self-influence during TL and SM intervention and by activation the participation of the employed persons and employers together with the health care specialists in the creation of safer work environment. It is in accordance with recent research about educational and practical work importance for VDT employees in connection with possibility to form positive individual brainwork and conduct it without postural stress of the trunk, neck and shoulders (Dainoff, 2000; Robertson et al., 2003; Roja et al., 2009).

CONCLUSIONS

From this study, it has been concluded that use of TL and SM one month course for VDT employees in their giving age suffering from chronic moderate neck-shoulders pain is an effective biopsychosocial influence on pain in the multidisciplinary treatment of pain's complex. Positive self-influence regarding bank and agricultural advisory services VDT employees of both genders during the TM and SM course with social distress reduction therapy allowed for developing healthy self-evaluation and new ways of social communication that was proved in our research by the follow-up data.

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