

Lower back pain in the elderly in institutionalised centres



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DISCUSSION

INTRODUCTION

In this section, the result findings will be discussed. The aims of this study was to determine the prevalence of LBP among the institutionalized centers in Malaysia, to compare the muscle changes in term of muscle control, flexibility and strength between two groups of elderly; LBP group and non-LBP group, and to determine the functional status of the elderly in institutionalized centers. The discussion will be focused on the finding of comparison for muscle changes between both groups and also the functional status of elderly in institutionalized centers.

According to Malaysian Department of Statistics, the population of Malaysian will be increased by 2020. The annual growth rate of the elderly increased from 3. 1% in 1980-1990's periods to 4. 0% in period between years 2000-2010. The leading factor for this life expectancy improvement was low fertility and mortality. By the year of 2020, Malaysia would qualify to be an aging population where the population of elderly reached nearly 7% and 5 years later will be increased over 9% (Tengku Aizan et al., 2006). Recent studies on global prevalence of LBP was found that with the highest prevalence among those aged 40-80 years and among female individuals, LBP became the major problem throughout the world (Hoy et al., 2012). People with LBP has been found to had changes in automatic control of TrA (Jacobs, Hammerman-rozenberg, Cohen, & Stessman, 2006), reduced trunk muscle strength (Bel et al., 2010), and spinal stiffness (Freddolini, Strike, & Lee, 2014). However, none of the study done in Malaysia concentrates on

elderly aged 60 and above especially elderly in institutionalized centers. Therefore, our understanding of the muscles changes happened between LBP elderly population and healthy population especially in Asian country is critically ill.

PREVALENCE OF LOW BACK PAIN

There has been undefined conclusion for the epidemiology for back pain especially in elderly. The present study found similar findings with other Hirsch, (1959) that the prevalence of LBP peak in the middle and declined after 60 years old. In this study, the prevalence for elderly who had LBP was 62.6% of total sample. Traditionally, it stated that back pain is common in early adulthood, peaks in middle age and declines in beyond than 60 years (Papageorgiou et al., 1995; Hirsch, 1959). Others stated that there may be because of degenerative spine and brain that caused reduces levels of back pain. Elderly also had tendency to have an age-related decline in pain sensitivity. In contrast, study done by Adams et al., proclaimed that ageing is not closely related with back pain (Wiesel, 2013). However, based on personal opinion by Dr. Richard, he agrees with study by Papageorgiou et al., (1995). In this study, the results presented that the prevalence of LBP was higher in elderly with age range from 60-69 years old than more than 70 years old. The prevalence of pain is gradually decrease with age as in this study the number of subjects was limited for age more than 80 years. A study found that symptoms of back pain began in the late twenties, highest between the ages of thirty to fifty years and then the decline or remain stable with age (Wiesel, 2013). However, when the researchers looked at the prevalence of severe back pain, it was highest among seniors, increasing <https://assignbuster.com/lower-back-pain-in-the-elderly-in-institutionalised-centres/>

from 5. 4% in those aged 40 years or less to 10% in persons over 80 years of age (MacFarlane et al., 2012).

MUSCLE CHANGES BETWEEN LBP AND NON-LBP GROUPS

The main results showed that there is no significant difference in term of muscle changes between LBP and non-LBP elderly except for muscle control and muscle flexibility for left side flexion. Although many studies had been done on trunk muscle strength for patients with LBP, there is no reliable opinion concluded (Ikeda et al., 1994; Goto, 2001; Sakamoto et al., 1991; Ito et al., 2001; Ota, 2011; Murakami et al., 2011). Contrary to the previous study, the present study found similar finding of trunk muscle strength between both group LBP and non-LBP. Interestingly, study done by Lee et al, (1999) showed that there was a difference in trunk muscle strength where extensor muscle strength is lower than flexor muscle strength. Besides, other study done by Demoulin et al., (2007) also showed positive finding where LBP and muscle changes (fatigue) that lead to muscle weakness are correlated and was supported with study by Fryer et al., (2004) where decreased trunk muscle strength and muscle activity were associated with LBP. The result from this study is differ from other previous studies because of this result was affected by aging factor. Most of the previous study were done among the young and middle age population (Keller et al., 2004; Klein, Snyder-Mackler, Roy, & DeLuca, 1991; Taechasubamorn, Nopkesorn, & Pannarunothai, 2010; Yasuda, Minami, & Daikuya, 2013) and there is very limited for studies done among geriatrics population.

Study by Ferreira et al., (2004) demonstrated evidence for changes in automatic control of TrA in individual with LBP where individual with LBP had reduced abdominal muscles recruitment and TrA muscle activity (P. H. Ferreira, Ferreira, & Hodges, 2004; Hodges, 1996) . Their study supported this study, as the result in this study for muscle control showed significant difference between both groups. Thus, it showed that LBP group had lower muscle control than non-LBP group. It can be one of causes that will lead to LBP as Cholewicki, (1996) and Panjabi, (1992) had expressed in their studies that possible causes of some low back pain disorders and chronic back pain are motor control errors and muscular dysfunction (Cholewicki, Panjabi, & Khachatryan, 1997). The PBU was used in this study as it showed high reliability with Intraclass Correlation Coefficient (ICC2, 1) of 0. 74 (95% CI 0. 54 to 0. 85) and 0. 76 (95% CI 0. 58 to 0. 86) (Olavo et al., 2012). It provides strong support that proved the result of this study. Another study was done to measure the precision muscle control in healthy and low back pain patients using a spiral-tracking task and trunk muscle electromyography and was found that tracking errors were higher in the LBP patients and increased with trunk inclination compared to healthy controls (Willigenburg, Kingma, Hoozemans, & Dieën, 2013). Thus, the results from this study can be additional evidence that showed the difference of trunk muscle control between LBP and non-LBP individuals. Interestingly, a research on postural activity of abdominal muscles was differ between body position and these showed various contribution of abdominal muscle regions to stability of the trunk (Urquhart, Hodges, & Story, 2005).

The result for trunk muscle flexibility in this study showed similar results except for trunk left side flexion where it showed significant difference ($p < 0.05$) between both groups. Even though the digital inclinometer (DI) used was proved to provide valid and reliable measurement for trunk range of motion ($ICC = 0.89$, $p\text{-value} = < 0.0001$) (Azadinia, Kamyab, & Behtash, 2014), it might showed significant differences because of increased stiffness of the trunk. Although others spinal ROM showed insignificant results, it has demonstrated positively that elderly had general reduced spinal ROM. It was proven with most recent study done to measure stiffness properties of the trunk in people with LBP, where the trunk stiffness was increased in LBP subjects ($p < 0.05$). Previous studies done by Keller et al., (1987), Latimer et al., (1996), Colloca and Keller, (2001), and Shum et al., (2013) also supported the finding of this research (Freddolini, Strike, & Lee, 2014). The reduction in spinal ROM was also affected by deterioration of back muscle strength and osteoporosis (Imagama et al., 2011). As the age grows, the aging process takes place (Brundtland, n. d.), thus explains why the elderly in this research had reduced spinal ROM and no difference either in LBP or non-LBP individuals.

FUNCTIONAL STATUS AMONG ELDERLY IN INSTITUTIONALIZED CENTERS

Age-related diminished physical fitness has showed contribution to the development of sarcopenia, frailty and reduced functional status (Garatachea & Lucia, 2013). The gait speed test using 10 m walk test, upper limbs strength test using hand dynamometer, lower limb strength using 30 sec sit-to-stand test, and seat-reach test was used in the study field. These subjects were ranged from age of 60 and above. In the study sample, there <https://assignbuster.com/lower-back-pain-in-the-elderly-in-institutionalised-centres/>

is no significant difference of functional status between both groups LBP and non LBP except for gait speed test and right hand grip strength. According to Kubicki's (2014) in his study stated that a study done by Fried et al., (2001) showed that a score for the gait speed test that under 0.65 m by second reveals a frailty status (Kubicki, 2014).

LIMITATION OF STUDY

The limitation of the current study was lack of probability sampling method as this study used convenient sampling method. It caused the unequal distribution of both groups sample which may lead to non-significant results at the end. The size, convenience, and homogeneity of the sample limit the generalizability of this study.

Another limitation was that the measurement was done by different researches which have caused some error during the measurement due to different level of skills. Due to the lack of training for the tools from the experts and inexperience researches, limited tools and modified position, the study was under-powered, and thus, did not reach statistical significance. Other than that, the duration for data collection was too short with lead to reduced man-power. Subject's consents also became one of the limitations in this study. Research that involves human being was challenging as dealing with unstable emotion especially elderly. A lot of subjects were refused to participate in this research because of depression and unstable emotion.

In addition, previous research done among the institutionalized centers in Malaysia was very limited which lead to limitation of evidence to support this research. Most of the study done was among the healthy and young
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population, and elderly without back pain in community dwelling. Very limited source was present in the time being that study on the comparison between elderly in community setting and institutionalized setting especially in Malaysia. On the other hand, to compare more precise the differences between LBP and healthy subjects, more complex methods using higher order kinematics should be done to assess spinal biomechanical function. This has been attempted by few researches and the conclude that to achieve better evaluation and discrimination, more complex tasks such complex motion parameters were needed (Mieritz et al., 2014).

Even though the normality was not normally distributed and the results was insignificant when comparing both groups, however this is first evidence of comparison on muscle changes among elderly with LBP and non-LBP among our local institutionalized center. The results should serve as a basis for future studies with larger population and normal distribution to investigate further this matter. Thus, further investigation and research need to be done among the Malaysian population especially in elderly setting and institutionalized setting. These will help in future research development and better management for the elderly population as the elderly population has been increased dramatically.

CONCLUSION

The main findings of this study show higher prevalence of low back pain among the elderly in institutionalized centers. Muscle changes generally happened in elderly as the aging process takes place. There is no significant difference when comparing both groups except for muscle control and left

side trunk flexion. Only gait speed showed difference between both groups where LBP individuals had slower gait speed compared to non-LBP individual. Therefore, for planning of intervention for LBP elderly, they should consider gait speed as their one of outcome measure.