

Original article

Gender based variations of mulligan mobilization with movement on chronic nonspecific low back pain

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Abstract

Objective: To discover the adequacy of mulligan mobilization with movement to lessen the pain to enhance the functional activities, to enhance the ROM of lumbar vertebra and to expand the back muscle function on subjects with chronic nonspecific low back pain. **Background of the study:** These days, a large portion of the populations are experiencing low back pain comprehensively. It has turned into a main source for inability most likely the population influencing from low back pain has been thought to be understudies and stationary employment laborers. Along these lines investigation goes for diminishing the likelihood of low back pain in those populations by mediating with a method mulligan mobilization with movement (MWM). **Materials and methods:** This was an experimental examination with sixty subjects between the age group of 18-50 (males and females) with chronic nonspecific low back pain(Natour et al 2015). The length of the examination is thrice a week for four weeks. The examination was hung on Dr.MGR Educational and Research Institute. The subjects in avoidance criteria are specific low back pain (spondylosis, radiculopathy, and spondylolisthesis), intellectual issue, pregnancy. VAS scale, Modified Oswestry Low Back Pain Disability Questionnaire and Finger to Floor test (FFT) were utilized as a result measures. **Result:** There is vast improvement in the post-test estimations of the VAS Score, MODQ, and FFT of Group A when comparing with Group B. On correlation there is distinction in Group A than Group B. In this way the after effect of the investigation has been found to enhance useful functional activity, ROM and lessens pain. **Conclusion:** Outcome has been proposed that Mulligan Mobilization with Movement (MWM) with SNAG to the Group A has given huge difference and more noteworthy change when compared with Group B.

Keywords: Mulligan MWM; VAS Scale; MODQ; FFT.

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Introduction

Nonspecific low back pain is described by the back pain which isn't owed to a critical unmistakable pathology with or without leg pain(e.g.: infection, malignancy, fracture of spine, osteoporosis, anatomical distortion like scoliosis, radicular syndrome, inflammatory disorder)¹. Low back pain has been considered as the main source of incapacity causing trouble on the general public and the patients,

it has turned out to be one of the significant hazardous musculoskeletal issues, in which individuals feels hard to do their ADL activities and to go to work causing non-attendance.

In agreement to epidemiological examinations in any event once in their life time grown-ups have encountered low back pain of around 65% to 90%^{2,3}. The information reports that around 15% of grown-ups have experienced incessant low back pain in

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which pain goes on for about more than 2 weeks⁴. In a multiyear follow up in the vicinity of 34% and 51% of office laborers in India have encountered low back pain which exists before a year and 20 to 23% of specialists gripes about the repeat of pain among them 33% of patients had not recovered totally a year after the event of the pain^{5,6,7}. The lifetime prevalence of NSLBP has been accounted for to be 61% in Spain, 65% in Norway, 46% in United Kingdom, 34.5% in United States of america^{8,9,10,11} as like in low wage nations it demonstrates comparable outcomes, the pervasiveness rate is around 58% in South Africa, 57.8% in Kuwait, 25% in Nigeria^{12,13,14}. In India, around 60% of individuals influenced by low back pain and it has turned out to be one of the real reason which influences people groups at all strata in the society¹⁵.

Volinn et al in 1997, has explored that the predominance of low back pain in low pay nations is bring down when contrasted and the high salary nations which constitutes scarcely of around 15% of the total population. The existence time pervasiveness of low back pain overall estimation fluctuates from 50 to 85%¹⁶. Banerjee et al 2012 states the level of utilitarian impediment caused by musculoskeletal clutters like low back pain has been accounted for as 9.5% in dressing, 11-16% in washing hair, half ascending from bed, 6% nourishing themselves, 39% in strolling, 10% in scrubbing down, 37% in can, 47% in ascending from seat, 55% in ascending from floor, 30% in voyaging, 47% in rest unsettling influences.

Numerous medicines are accessible for low back pain which incorporates exercise treatment, massage treatment, ergonomic exhortation, electrotherapy, and spinal manipulative treatment. The spinal manipulative treatment (activation and control strategies) have demonstrated a compelling bring about lessening the pain and disability anyway the instrument behind this impact isn't surely knew it has been hypothesized¹⁷. The contrast amongst control and preparation is speed, power and adequacy to the focused on vertebra in which activation requires low speed, either small or large amplitude oscillatory movements connected somewhere around motion(ROM)¹⁸.

The Mulligan's Mobilization with Movement gives early recovery from pain by coasting the joint the impeded way of the specific joint by methods for dynamic and inactive development in a pain free range¹⁹. MWM can be connected to both the

peripheral and the spine when it is connected to the spine then it can be called as SNAG (Sustained Natural Apophyseal Glide)²⁰. The coast is given at the focal point of the spine close to the feature or spinous process and it ought to be kept up all through the development alongside the dynamic movement by the patient in a painfree range with some consistent passive pressure to the joint connected by the therapist expands the joint play which brings about expanded sustenance of the joint by the development of synovial liquid shows in the middle of the joint which suggests early recovery from the pain and the hidden reason. The MWM is given to the subjects with unending nonspecific low back pain and the progressions found were noted by utilizing Modified Oswestry Low Back Pain Disability Questionnaire(MODQ) to translate the functional activities of the subjects, visual analogue scale(VAS) to break down the pain force of the subjects with NSLBP, Finger to Floor test(FFT) for estimating the range of movement (ROM) as a goal estimation, they will be taken from them when the treatment with MWM and the pre and post test results will be thought about.

The aim of the investigation goes for the impact of Mulligan Mobilization with Movement (MWM) to enhance functional activities and to lessen pain on both the genders(male and female) with chronic nonspecific low back pain. The low back pain is treated with MWM alongside SNAG to the vertebra. The null hypothesis expresses that there was no critical impact among male and female while performing mulligan Mobilization with Movement.

Methodology

This was a comparative pre and post test type experiment study plan. The examination was hung on Dr.MGR Educational and Research Institute with sixty subjects incorporated into the investigation between the age group of 18-50(males and females) with chronic nonspecific low back pain. They were surveyed for rejection criteria which includes subjects with particular low back pain(radiculopathy, lumbar spondylosis, spondylolisthesis, spondylitis, tumor, break, fiery disarranges, contamination), subjects with the age amass <18 and >50, intense NSLBP <6 weeks, pregnancy, cardiopulmonary infection, neurologic shortfalls, caudaequina disorder, mental confusion. In this manner sixty subjects were incorporated into the examination. In the wake of getting assent from the subjects about disclosing the methodology going to be given for them they were dispensed into two groups. In group A 30 male subjects

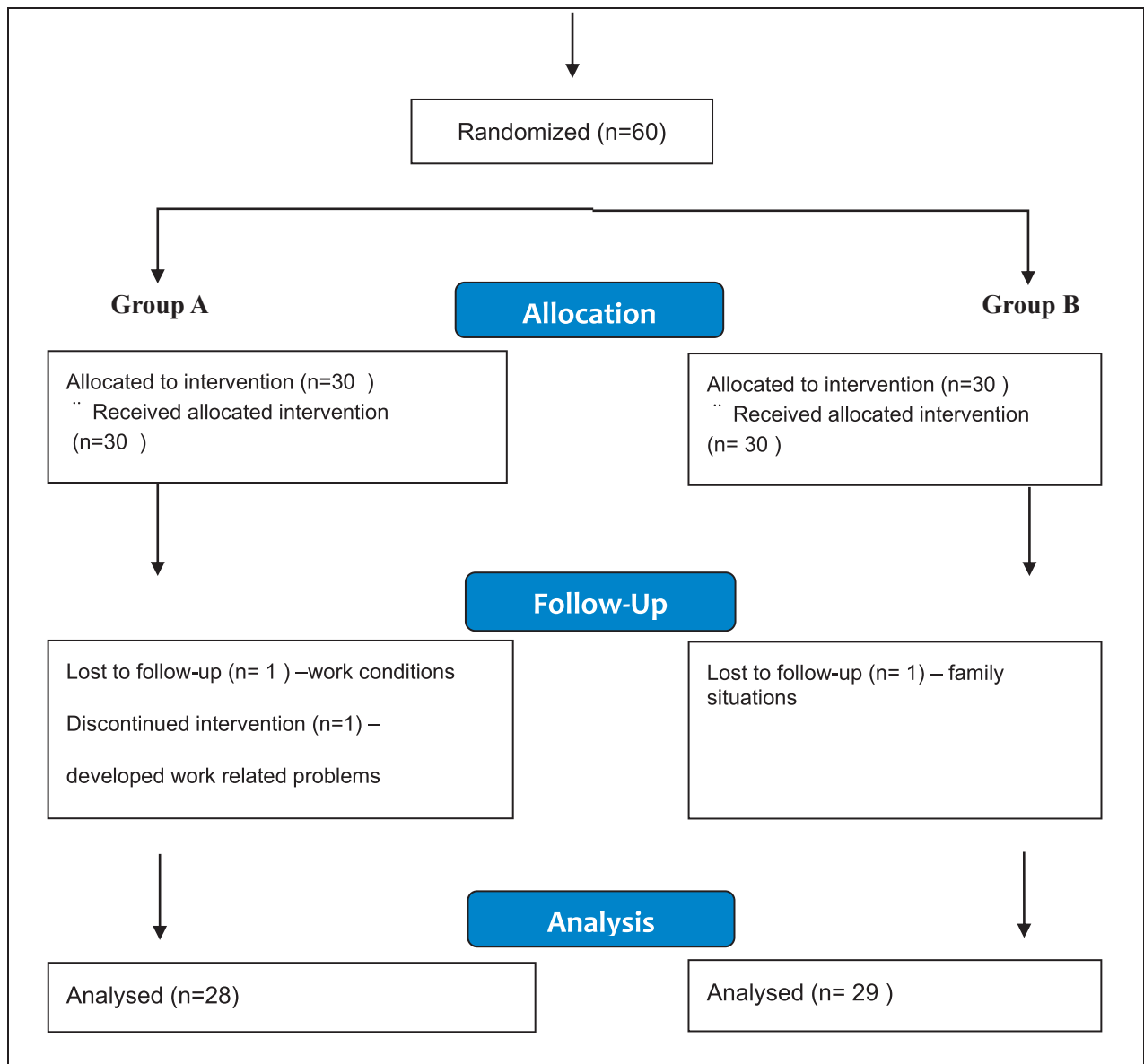


Fig: 1:Consort flow chart of the study

were incorporated and in group B 30 female subjects were taken with chronic NSLBP and the two groups were given Mulligan mobilization with movement. MODQ, FFT, and VAS Scale was utilized as a result measures. The treatment sessions incorporates three sessions in seven days with alternate days with 10 repetitions per day for about a month. Toward the finish of fourth week they were again evaluated for their enhancement in ROM, ADLs, and decrease in the pain utilizing the result measures.

Intervention

The 60 subjects with chronic nonspecific low back pain were incorporated into the investigation and they were quickly evaluated for any rejection criteria engaged with the examination and they were barred

in the event that they fallen under the avoidance criteria. The statistic information was gathered from the samples simply in the wake of getting sign from assent shape and they were allotted into two groups. In Group-A male 30 samples were incorporated and in Group-B 30 samples were incorporated, in each gathering 30 tests was taken. Tests was then given Modified Oswestry Low Back Pain Disability Questionnaire (MODQ) which comprises of 10 questions, VAS scale for estimating the power of pain which ranges from 0-10 cm scale, Finger to Floor test(FFT) was performed for surveying their range of movement which has been estimated utilizing an inch tape. Prior to the subjects were given the intercession they were given finished data about the examination.

The investigation was directed for a 4weeks with three times in seven days for alternative days which involves 10 repetitions per day with interims in the middle.

Group A Male subjects with NSLBP was given Mulligan Mobilization with Movement(MWM) for 10 repetitions per day with alternative sessions for three times in a week and follow up for a 4 weeks. Group B Female subjects with NSLBP was given Mulligan Mobilization with Movement(MWM) for 10 repetitions per day with alternative sessions for three times in a week and follow up for a 4 weeks.

The situation of the subject was sitting in the table with the feet supporting on a seat for better adjustment and the specialist standing postero-horizontally to the patient in walk position. The mulligan belt is anchored around the subject pelvis on ASIS and the specialist gluteus overlay. The preparation (MWM) was performed from L1 to L4 portions, the hypothenar hand of the therapist was set under the spinous procedure of the section included. The zone

where the confinement has been felt was noted then the repetition was given on that zone.

Despite the fact that, not every one of the subjects dispensed for intercession ready to catch up as a result of their work conditions, depression and family conditions particularly if there should be an occurrence of females.

The post treatment scores were gathered utilizing the result measures following 4 weeks. Both pre and post treatment scores were looked at and examined.

Figure Legends:

Statistical analysis:

The data collected was tabulated and analyzed using both descriptive and interferential statistics. All parameters were analyzed using the statistical package for social science (SPSS). Paired t-test, independent sample tests, NPar test and Mann-Whitney test was adopted to find the statistical difference between the two groups (Group A& Group B).

TABLE 1: Comparison of pre and post test scores of VAS, MODQ & FFT using T-test between Group A and Group B

VARIABLES		*GROUP-A		*GROUP-B		t-TEST	SIGNIFICANCE
		MEAN	SD	MEAN	SD		
VAS	PRE TEST	5.94	0.73	6.11	0.64	0.91	.366
	POST TEST	4.72	0.74	5.60	0.62	4.79	.000
MODQ	PRE TEST	47.53	3.30	45.89	3.05	1.94	.057
	POST TEST	31.75	1.10	35.65	2.58	7.37	.000
FFT	PRE TEST	21.02	5.13	19.31	4.58	1.32	.191
	POST TEST	12.40	3.22	15.94	4.51	3.39	.000

Table 2: Comparison Of Paired Samples Of Pre And Post Test Values Using T-Test And Independent Sample Test Between Group A Variables

GROUP-A	PRE TEST		POST TEST		t-TEST	SIGNIFICANCE
	MEAN	SD	MEAN	SD		
VAS	5.94	0.73	4.72	0.74	17.49	.000
MODQ	47.53	3.30	31.75	1.10	26.57	.000
FFT	21.02	5.13	12.40	3.22	13.92	.000

Table 3: Comparison Of Paired Samples Of Pre And Post Test Values Using T-Test And Independent Sample Test Between Group B Variables

GROUP-B	PRE TEST		POST TEST		t-TEST	SIGNIFICANCE
	MEAN	SD	MEAN	SD		
VAS	6.11	0.64	5.59	0.62	13.22	.000
MODQ	45.89	3.05	35.65	2.58	21.55	.000
FFT	19.31	4.58	15.94	4.51	16.13	.000

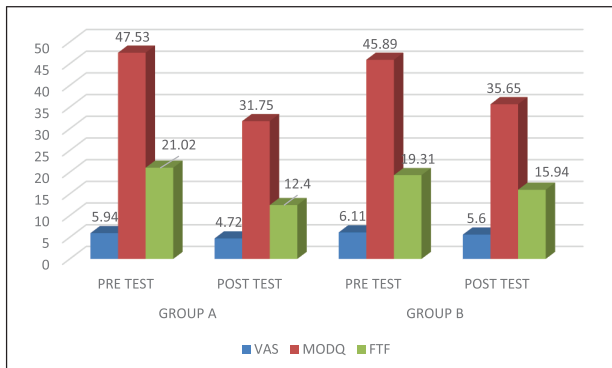


Fig: 2 - Graph- I Comparison Of Pre And Post Test Values Of Vas, Modq & Fft SCORES Between Group A & Group B

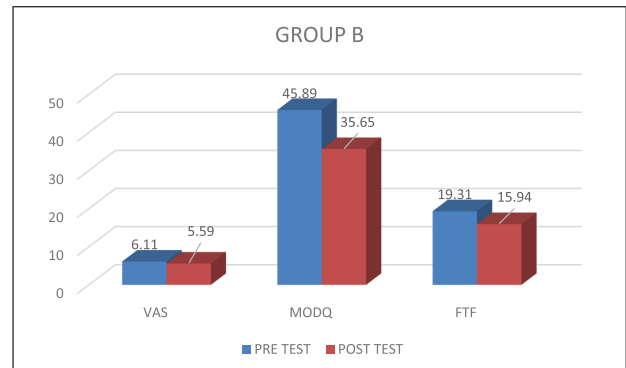


Fig: 4 - Graph- Iii COMPARISON OF PRE AND POST TEST VALUES OF Vas, Modq & Fft SCORES BETWEEN GROUP B

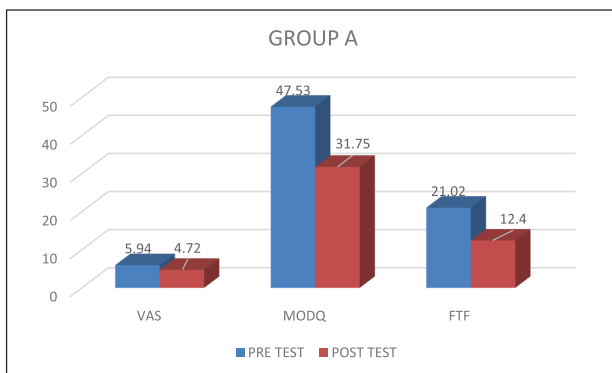


Fig: 3 - Graph- Ii COMPARISON OF PRE AND POST TEST VALUES OF Vas, Modq & Fft SCORES BETWEEN GROUP A

Ethical clearance: The study was approved by Institutional Review Board of Faculty of Physiotherapy, Dr. MGR Educational & Research Institute, Chennai.

Result

The pre test estimations of mean and standard deviation for VAS Scale, finger to floor test were evaluated after the a month of the examination, they indicated profoundly noteworthy distinction and change in post test estimations of VAS and finger to floor trial of Group A when contrasted and Group

B and there is likewise critical change in the post test estimations of Modified Oswestry Low Back Pain Disability Questionnaire in Group A when contrasted and the post test estimations of Group B. Consequently the invalid theory was rejected. The qualities were investigated and the information's was organized.

Patients were observed to be enhanced in the everyday action and they were additionally accompanied relief from discomfort utilizing Mulligan Mobilization with Movement (MWM) with SNAG strategy. Along these lines the finish of the examination expresses that there is noteworthy impact and change in Group A than contrasted and the Group B.

Discussion

Low back pain is a standout amongst the most well-known issues among the population. The motivation behind the present examination was to enquire impact of Mulligan Mobilization with Movement (MWM) on patients with nonspecific low back pain in view of the gender orientation contrasts. The estimation for the impairment in NSLBP was discounted utilizing the VAS scale, MODQ, and FFT. The treatment has been allowed for a month utilizing the mulligan Mobilization with movement (MWM) to the lumbar spine for Group A and Group B.

After the four weeks of the study, Group A has provided better results to the mulligan mobilization with movement (MWM) with SNAG than the Group A. According to the tables and graphs there has been found to be significant difference in both the groups. Table 1 shows the significance of VAS score for Group A post test values mean [4.72] and SD [0.74] when compared with the post test values of Group B with mean [5.60] and SD [0.62] thus while comparing the pre and post test values of both the groups it shows high significant in Group A on comparing. Table 2 shows the significance of MODQ for both the group, in Group A the post test values represents mean [31.75] and SD [1.10] when compared with the post test values of Group B mean [35.65] and SD [2.58] thus it shows significant difference in Group A while comparing pre and post test values with the Group B. Table 3 shows the significance of FFT for both the group, in Group A the post test values represents mean [12.40] and SD [3.22] when compared with the post test values of Group B mean [15.94] and SD [4.51] thus it shows highly significant difference in

Group A while comparing the pre and post test values with the Group B. thus it shows significant difference in Group A while comparing the pre and post test values with Group B. Thus on comparing all the three graphs of the VAS, MODQ, and FFT between the groups and their pre & post test values, Group A has shown significant effect and improvement than the Group B.

There was nearness of number of concentrates to research about the impact of preparation regarding the matters yet they did not depend on genders^{21, 22}. But rather these examinations were not discounted the particular gender based impact for MWM. The essential parameters utilized as a part of this investigation was pain, Functional inability and ROM as this is the real issue found in the subjects with low back pain. The aftereffect of the examination experienced has proposed that there is change in the useful movement, ROM and furthermore lessening in pain in both the groups. In any case, more noteworthy change was observed to be expanded in the Group A. Hussien et al on his study describes that adding lumbar SNAG to a treatment will lessen the low back pain and useful disability²².

As known, aspect joint of lumbar spine give steadiness, pain and proprioception along these lines preparing the influenced feature joint with SNAG assumes an essential part in lessening the capsular strain and consequently enhances the joint mobility^{23, 24}. The capacity to perform trunk development increments in LBP patients as performing SNAG may decrease mental dread and expands fearlessness among them, along these lines enhances utilitarian movement and lessens pain²⁵

In light of the consequence of the investigation the male gender orientations on Group A has indicated critical outcome than the female gender on Group B along these lines exchange speculation has been acknowledged and null hypothesis has rejected. In the chart VAS and FFT has enhanced increasingly when contrasted and alternate parameters like MODQ.

Conclusion

The examination reasoned that the Mulligan Mobilization with Movement to the lumbar spine with the SNAG method had given noteworthy impact in lessening of pain, change in range of movement (ROM), and change in Functional activities of back

muscles in subjects with Chronic nonspecific low back pain and furthermore it uncovers critical contrast in both the groups. The substitute speculation has been acknowledged. This outcome has been proposed that Mulligan Mobilization with Movement (MWM) with SNAG to the Group A has given huge difference and more noteworthy change when compared with

Group B.

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Conflicts of interest: All contributing authors declare that they have no conflicts of interest.

Author's contribution: All authors have equally contributed for the above study.

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