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RESEARCH ARTICLE

Effectiveness of Yoga Exercises in Reducing Back Pain Levels Among Individuals Aged 18-30 in Yala Municipality

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ABSTRACT

This study is experimental research, specifically a one-group pretest-posttest design, investigating the effectiveness of yoga exercises in reducing back pain levels among individuals aged 18-30 residing in Yala Municipality. The experiment was conducted twice weekly, with each session lasting 30 minutes, for a duration of two months. Data was collected before and after the intervention and recorded using a tracking table. The data analysis involved calculating the mean, standard deviation, and performing a Paired Sample t-test. The sample group consisted of 30 individuals, aged 18-30, living in Yala Municipality, Mueang District, Yala Province, who experience stage 1 back pain and agreed to participate in the study. The researcher used purposive sampling to select the participants and personally conducted the exercise sessions. A yoga exercise program specifically designed for the target group included six poses: Half Moon Pose, Bridge Pose (effective for back pain relief), Camel Pose, Supine Twist, Cow Pose, and Cobra Pose. The study results indicated that the yoga exercise program effectively reduced back pain levels among participants aged 18-30 in Yala Municipality. A statistically significant difference ($p < 0.05$) was observed in the average back pain scores before and after the intervention, showing a decrease in pain levels. Participants were able to perform work and daily activities more comfortably.

INTRODUCTION

Back pain is one of the most common issues among patients with musculoskeletal disorders. Approximately 4 out of 5 adults have experienced back pain, a common cause of work absence and lost income. The lumbar spine consists of a complex structure of bones and muscles and serves as a connection between the upper body (thorax and arms) and lower body (pelvis and legs). This part of the spine plays a crucial role in movement, such as twisting, leaning, and bending, and provides the strength required for standing, walking, and lifting. Proper functioning of the lower back muscles and spine is essential for daily activities. When back pain occurs, it can impair normal functioning, making it difficult to walk or move and negatively impacting quality of life (Thaninnit Leerapan, Online : 2023).

In 2023, the musculoskeletal disorder rate from work-related issues in Yala Municipality, Yala Province, showed that among those aged 15-59, the prevalence rate was 6.60 per 100,000 population, while for those aged 60 and above, it was 3.34 per 100,000 (Yala Provincial Public Health Office, 2023). An occupational breakdown of musculoskeletal disorder rates in Yala showed the highest incidences in the following groups: (1) crop and vegetable farmers, rice field workers, with 2,050 patients; (2) general laborers, with 533 patients; and (3) students, with 94 patients (Yala Provincial Public Health Office, 2023).

Yoga is a practice that teaches individuals to live as holistically as possible. This includes self-awareness and reducing or eliminating conditions that diminish wholeness. Through its techniques, yoga emphasizes identifying the root causes of imbalances that lead to illness and restoring these to

a state of normalcy. Yoga is thus a discipline focused on the simultaneous development of mind and body and on therapeutic healing. Central to yoga is the principle of balance, where each yoga pose involves stretching and releasing in alternation (Siripimon Anchalisangkhas, Online : 2023).

The study of yoga exercise includes poses such as Downward-Facing Dog, Cobra, Cow, Half Moon, Camel, Bridge, and Supine Twist. Additionally, it explores the factors associated with back pain levels among individuals aged 18-30 in Yala Municipality. Factors associated with back pain in this group include weight, age, occupation, marital status, education level, history of back injury, work posture, working hours, and timing of pain occurrence. Factors found to be statistically insignificant at the 0.05 level in relation to back pain included gender, height, underlying health conditions, smoking, and alcohol consumption.

Given these reasons, the researcher recognized the importance of public health concerns and undertook this study to examine the effectiveness of yoga exercises in reducing back pain levels among individuals aged 18-30 in Yala Municipality. The study aims to compare the effectiveness of yoga exercises in reducing back pain levels in this population and to enhance quality of life. The research explores suitable yoga exercises for this target group that can be practiced independently and aid in relieving back pain.

Research Objective

To study and compare the effectiveness of yoga exercises in reducing back pain levels among individuals aged 18-30 in Yala Municipality.

Research Hypothesis

Yoga poses, including Downward-Facing Dog, Cobra, Cow, Half Moon, Camel, Bridge, and Supine Twist, can reduce back pain.

Conceptual Framework of the Research

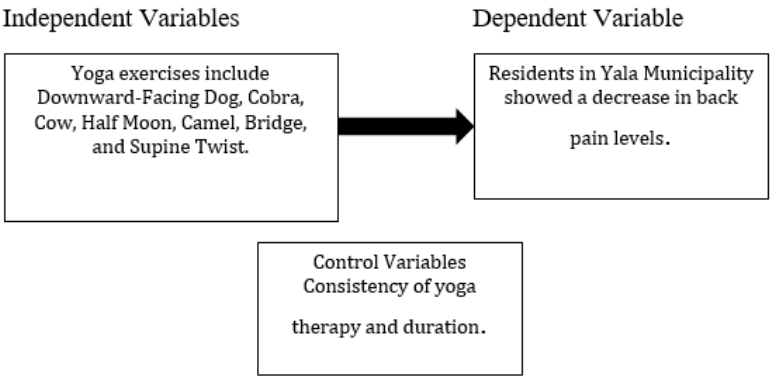

Figure 1: Conceptual Framework of the Research

RESEARCH METHODOLOGY

This study is experimental research utilizing a one-group pretest-posttest design to assess the effectiveness of yoga exercises. Data collection and experimentation involved using a questionnaire and a yoga exercise program. The program lasted for two months, with two 30-minute sessions each week, to determine its effectiveness in reducing back pain among individuals aged 18-30 in Yala Municipality. Data were collected from 30 participants, following these steps:

Pre-experiment Phase

The researcher prepared a questionnaire on personal factors and back pain levels for individuals aged 18-30 residing in Yala Municipality.

The researcher administered the questionnaire to gather personal factors and back pain levels from the sample group.

The data collected from the questionnaire were reviewed for accuracy before statistical analysis.

Experimental Phase

The researcher conducted the yoga sessions twice a week, each lasting 30 minutes, over a two-month period.

Post-experiment Phase

Results were recorded after the yoga sessions.

Population and Sample

The population consisted of individuals aged 18-30 residing in Yala Municipality, with a total population of 12,363 people (Yala Municipality Registration Office, 2022).

The sample included 35 individuals aged 18-30 residing in Yala Municipality with stage 1 back pain who agreed to participate in the study. Participants were selected through purposive sampling based on the following criteria:

Inclusion Criteria

Voluntary participation. Female participants aged 18-30, mentally and physically capable, residing in Yala Municipality. Experience of continuous back pain for less than six weeks (stage 1 back pain). No severe underlying health conditions. No history of surgery. Residing within Yala Municipality, including working adults and students.

Exclusion Criteria

1. Severe illness (e.g., fever, chest pain).
2. Underlying health conditions (e.g., heart disease, hypertension, asthma).
3. Absence from more than four sessions.
4. Adverse physical side effects beyond yoga-related impacts.
5. Unavailability or loss of contact.

Research Instruments

The tools used in this study include:

A questionnaire divided into three sections:

Section 1.1: Personal information questionnaire.

Section 1.2: Questionnaire on back pain levels.

Section 1.3: Post-exercise back pain assessment.

A yoga exercise guide detailing poses including

Figure 1: Downward-Facing Dog Pose

Figure 2: Cobra Pose

Figure 3: Cow Pose

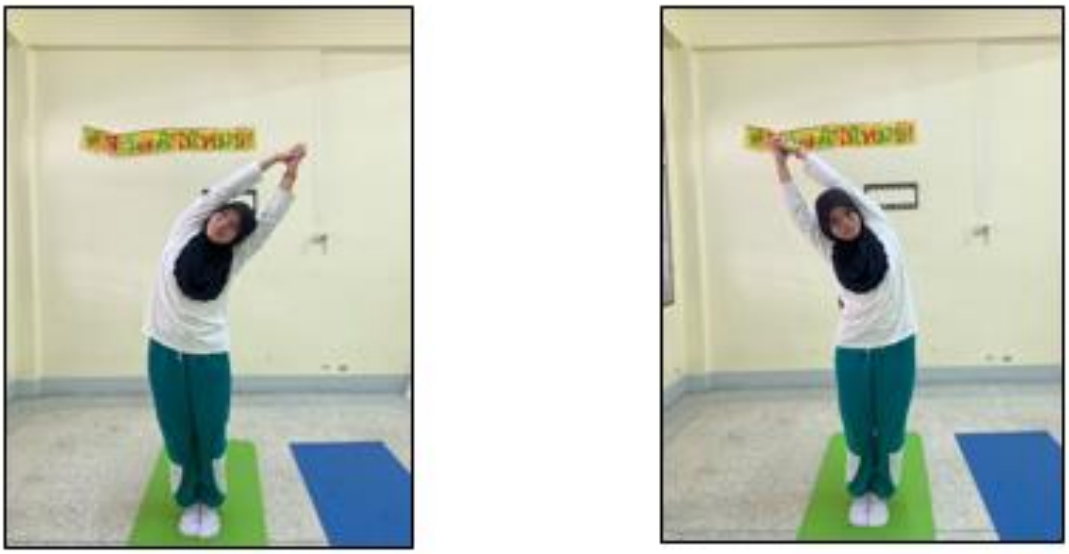

Figure 4: Half Moon Pose

Figure 5 : Camel Pose

Figure 6 : Bridge Pose

Figure 7 : Supine Twist Pose

Data Analysis

Data analysis includes calculating the mean, standard deviation, and the Paired t-test statistic.

Research Ethics / Protection of Participants' Rights

The researcher submitted the research proposal for approval by the Human Research Ethics Committee at Sirindhorn College of Public Health, Yala. The ethics approval number is SCPHYLIRB-2566/003, granted on February 10, 2023.

Research Results

The main findings of this research are summarized as follows:

Table 1: Comparison of back pain levels before and after the experiment

factor	**Pain level**				***df***	***p-value***
	ก่อน		หลัง			
	M	***SD***	***M***	***SD***		
Weight	44.61	4.52	44.31	4.55	15	.005
Age	49.30	4.69	48.99	4.70	3	.000
Occupation	44.61	4.52	44.31	4.55	15	.005
Work Posture	49.30	4.69	48.99	4.70	3	.000
History of Back Injury	43.24	4.88	43.04	5.02	3.26	.001
Nature of Work	43.24	4.88	43.04	5.02	3.26	.000
Number of Working Hours	44.61	4.52	44.31	4.55	15	.005

From Table 1, it was found that after practicing yoga, the back pain levels of individuals aged 18-30 in Yala Municipality decreased significantly at the .05 level. Participants weighing 50-59 kg tended to experience initial back pain (acute back pain lasting less than six weeks) more frequently than those weighing 30-39 kg.

Participants aged 18-25 had a greater reduction in back pain than those aged 26-30.

Participants with an associate's or bachelor's degree tended to experience initial back pain more frequently than those with a high school diploma.

Participants with a history of back injuries tended to experience more back pain than those without such a history.

Participants with a seated work posture had a greater reduction in back pain than those with a standing posture.

Participants who primarily worked at a computer tended to experience more back pain than those engaged in other activities, such as using a mobile phone.

Participants working less than eight hours a day tended to experience a greater reduction in back pain than those working more than eight hours a day.

DISCUSSION

The data analysis highlighted important findings that the researcher discussed to establish conclusions based on supporting or conflicting literature and related research. Testing the difference in mean values before and after yoga exercises using the Paired t-test, the findings are discussed as follows :

Comparison of the Effectiveness of Yoga Exercises in Reducing Back Pain Levels Among Individuals Aged 18-30 in Yala Municipality. The study found that after practicing yoga, back pain levels among individuals aged 18-30 in Yala Municipality decreased significantly at the .05 level. It was observed that participants weighing 50-59 kg tended to experience initial back pain (acute back pain lasting less than six weeks) more frequently than those weighing 30-39 kg. Participants aged 18-25 showed a greater reduction in back pain than those aged 26-30.

These findings align with the research by Sirichok Pathee (2017), who studied risk behaviors for back pain among longan farmers undergoing physical therapy at Ban Hong Hospital in Lamphun Province. The study found that 68.42% of the farmers with back pain and 63.16% of those without back pain had underlying health conditions. Among those with back pain, 47.37% had been farming for 20-29 years, followed by 21.05% who had farmed for 10-19 years. Among those without back pain, the majority (36.84%) had farmed for 10-19 years, followed by 23.68% who had farmed for 30 years or more.

Most farmers, both with (76.32%) and without back pain (71.05%), worked 8-10 hours a day, while 18.42% of those with back pain and 21.05% of those without back pain worked over 10 hours daily. The p-value indicated no significant differences in gender, age, BMI, marital status, education level, monthly income, daily working hours, farm ownership, years in farming, secondary jobs, or health conditions between those with and without back pain ($p > 0.05$). However, those with back pain exercised significantly less than those without ($p < 0.05$).

Participants with a history of back injuries were more likely to experience back pain than those without such a history. Additionally, those with a seated work posture experienced a greater reduction in back pain than those with a standing posture, consistent with the findings of Ratana Moolkam. (2013 : 75-76). Their study on the effects of yoga on neck and shoulder pain among office workers using computers found that the experimental group had significantly lower average scores for neck and shoulder pain than the control group at the 0.01 significance level.

The experimental group, consisting of 26 participants with an average age of 33.23 years, showed a significant reduction in neck and shoulder pain over 6, 8, 10, and 12 weeks of yoga exercises. In contrast, the control group, also with 26 participants and an average age of 33.27 years, did not experience such improvements. Both groups consisted entirely of women, with around 50% of each group having a bachelor's degree and a similar marital status distribution (50% married). The experimental group worked between 25-48 hours per week (average 43.27 hours), while the control group worked 30-48 hours per week (average 45.46 hours). Within the experimental group, there was a statistically significant decrease in average neck and shoulder pain scores in weeks 6, 8, 10, and 12 ($p < 0.05$). In contrast, the control group showed a significant increase in neck pain scores in week 8 ($p < 0.05$). Participants working primarily at a computer experienced more back pain than

those performing other activities, such as using a mobile phone. Those working less than eight hours a day experienced a greater reduction in back pain than those working more than eight hours a day.

This aligns with the findings of Jirawat Tiwawatpakorn et al. (2021: 40), who studied the development and effectiveness of a back pain relief program in patients with chronic lower back pain in Hat Yai. The experimental group in their study experienced significant reductions in pain and disability scores and an increase in quality of life scores at the 0.001 significance level when comparing three time points: before participation, two months after, and six months after.

The experimental group showed a significant increase in lumbar spine mobility in the forward-bending position at the 0.001 level between baseline, two months, and six months. However, no significant differences were observed in the control group ($p = 0.30$). For the control group, significant reductions in pain, disability, and quality of life scores were found at the 0.001 level between baseline, two months, and six months, though no significant differences were observed at the two-month follow-up ($p = 0.15$, $p = 0.08$, $p = 1.00$, and $p = 0.20$, respectively).

Recommendations for Applying Research Findings

Yoga exercises for back pain relief should be promoted to groups beyond those aged 18-30 in Yala Municipality, allowing the public to engage in self-care.

Suggestions for Future Research

Yoga exercises should be studied for back pain relief across all age groups. Future studies could explore alternative exercise forms to support public health and prevent back pain.

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