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Conference Proceedings

**INTERNATIONAL BUSINESS ECONOMIC TOURISM SCIENCES TECHNOLOGY
HUMANITIES SOCIAL SCIENCES AND EDUCATION RESEARCH CONFERENCE**

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The International Education Social Sciences and Humanities Research Conference

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INTRODUCTION

We would like to welcome our colleagues to the International Business Tourism Transport Technology Social Sciences Humanities Education Research Conference. It is the seven series in 2016 of Conference on Business Tourism and Apply Sciences was held in Amsterdam. As always many members of the ICBTS 2016 community look forward to meeting, sharing and exchanging their research ideas and results in both a formal and informal setting which the conference provides. Likewise, the concept of alternating the international conference every one month on April to November between Europe and the rest of the world is now well established. This year's event in London (UK) Paris (France) Munich (Germany) Amsterdam (Netherlands) Boston (USA) Toronto (Canada) London (United Kingdom) Zurich (Switzerland) Berlin (Germany) Tokyo (Japan) and another continues with the cultural following the very successful and productive event held in London-Zurich in August 2016 in the field of various types for international academic research conference on Business Economics Social Sciences Humanities Education and Apply Sciences. As usual The ICBTS 2016 brings together leading academics, researchers and practitioners to exchange ideas, views and the latest research in the field of Business Tourism and Apply Sciences.

The theme of this event The 2016 ICBTS International Business Tourism Social Sciences Humanities and Education Research Conference is "Opportunities and Development of Global Business Economics Social Sciences Humanities and Education" It is also represents an emerging and highly challenging area of research and practice for both academics and practitioners a like, The current industrial context is characterized by increasing global competition, decreasing product life cycles, Global Business, Tourism Development, Social Sciences Humanities Education Apply Sciences and Technology collaborative networked organizations, higher levels of uncertainties and, above all, and customers. In our view holding this event in Tokyo represents a timely opportunity for academics and researchers to explore pertinent issues surrounding Business Economics Tourism Social Sciences Humanities Education Sciences and Technology.

Potential authors were invited to submit an abstract to the International Conference Session Chairs. All abstracts were reviewed by two experts from the International review committee and final papers were further reviewed by this volume with 30 contributing authors coming from 18 countries. This book of proceedings has been organized according to following categories:

- Business
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Philipp-Müller-Str. 14
23966 Wismar
Haus 19, Raum 113
phone.: +49 (3841) 753 - 7578

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Dr. Chayanan Kerdpitak

CK Research Consultant
Bangkok, Thailand
Tel.+66 087 0287 287
Email: icbts@icbttconference.com
Email: conferenceteam@icbtsconference.com

Proceeding Editors

Prof. Dr. Gilbert Nartea

Lincoln University, New Zealand
Phone +64 3 4230233

Proceeding Editors & Program Chair

Dr. Vipin Nadda

University of Sunderland, United Kingdom
Phone 02075317333
Email: vipin.nadda@sunderland.ac.uk

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SPEAKER BACKGROUND



Professor Dr. Ebrahim Soltani

Prof. Dr. Ebrahim Soltani is a Professor of Business School at University of Kent Canterbury in England and he is Department Chair - Quality & Operations Management at Hamdan Bin Mohammed Smart University Dubai of United Arab Emirate. He was appointed associate professor in business management, total quality management, and operation management in 1989 at the University of Kent, he continued his research in the field of operation management, business management. He has published over 50 papers and reports in such journals as International Journal of Technology and Production Research. He supervised a considerable number of PhD theses and is a consultant on industrial and production industry in England and United Arab Emirate.

SPEAKER BACKGROUND



Professor Dr. Kai Heuer

Prof. Dr. Kai Heuer is full professor for business administration at the Business Faculty of Wismar University in Germany. Before, he served as a full professor at the Environmental Campus of Trier University of Applied Sciences. He studied business administration in Germany and the U.S.A. and holds an MBA and a doctoral degree. He has management experience from leading positions in different companies and as business consultant. His research areas are management accounting, organizational development, and international management where he has published numerous papers, reports and textbooks. He is the head of Master Program in Business at Wismar University and a member of the Schmalenbach-Society for Business Economics, Cologne; managing director of the Institute of Health-, Senior- and Social Management; and a former member of the board of the Centre for Aviation Law and Management.

SPEAKER BACKGROUND



Dr. Tariq Khan

Dr Tariq Khan is a Lecturer and Director of Postgraduate Programmes of Business School in Brunel University, Uxbridge, London, United Kingdom. He received his BEng in Aerospace Engineering from Kingston University, his MSc in Manufacturing Technology from University of Warwick, and his PhD in Intelligent Education Systems from University of Salford. He subsequently worked as a research associate in Heriot-Watt University Edinburgh and as a senior lecturer at London Metropolitan University. He has specialist teaching in Business Process Modelling, Web Programming ,Software Engineering, Classical Logic, Human Computer Studies. He has Book and published over 20 papers and reports in such journals as Information Systems Evaluation and Integration (ISEing). He supervised a considerable number of PhD theses and is a consultant on business and supply chain and engineering industry in England and United Kingdom.

SPEAKER BACKGROUND



Dr. Chayanan Kerdpitak

Dr. Chayanan Kerdpitak is a Lecturer and management committee of Doctor of Business Administration Programmes of College Management Innovation in Valaya Alongkorn Rajabhat University in Thailand and a management committee of CK Research Consultant in Bangkok. I was a Lecturer of Principle Marketing, Sales Management, Consumer Behavior, and Marketing Research at The Suan Dusit University in Thailand. She received a Ph.D. in the field of Business Logistics within Industrial at Ramkhamhaeng University, Thailand. She has published over 20 proceeding paper and some reports in such journals as International Journal Business and Economics Research. She has been a consultant on Import Automobile Industry from Germany for International Marketing and Marketing Research. Chayanan graduated a B.B.A and M.B.A in Business Administration from The Ramkhamhaeng University, Bangkok, Thailand (Major in Marketing).

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EFFECT OF AROMA OIL MASSAGE AND HERBAL COMPRESSION WITH ANALGESIC DRUGS ON PAIN IN PERSONS WITH LOW BACK PAIN

Ladaval Ounprasertpong Nicharojana* & Chanvate sathaputh MD**

*RN, PhD, Assist. Prof. Dr. College of Allied Health Science, Suan Sunantha Rajabhat University, Thailand.
E-mail: ladaval.ou@ssru.ac.th

**Lecturer. College of Allied Health Science, Suan Sunantha Rajabhat University,
Bangkok, Thailand. E-mail: Chanvate.sa@ssru.ac.th

ABSTRACT

This experimental research aimed to examine the effect of aroma oil massage and herbal compression with analgesic drugs on pain in persons with low back pain. The 60 samples were randomly assigned to experimental and control group in equal number. The experimental group received 20 minutes aroma oil massage and 10 minutes herbal compression for 3 days consecutively together with diclofenac 25 mg. and tolperisone 50 mg. 1 tablet 3 times a day after meal. The control group received diclofenac 25 mg. and tolperisone 50 mg. 1 tablet 3 times a day after meals for 3 days consecutively. The instruments used for this research were aroma oil massage, herbal compression, hand book of an aroma oil massage and herbal compression, a demographic data form, a low back pain assessment form, and a medication record.

Data were analyzed using frequency, percentage, independent t-test, and paired t-test. The results revealed that the mean difference of pain score in the experimental group was lower than the control group with statistical significance ($t= 7.860, p< .001$). Additionally, in the experimental group, it was found that after the experiment, the average mean of pain score were lower than those before the experiment with statistical significance ($t= 25.981, p< .001$ and $t= 13.347, p< .001$, respectively).

This study showed that the aroma oil massage and herbal compression could alleviate low back pain in persons with low back pain. Meanwhile, the persons with low back pain feel comfortable from aroma oil massage and herbal compression. The results provided the evidence that aroma oil massage and herbal compression could complement with pharmacologic treatment for relieving pain. Also, this complementary medicine could be recommended to enhance caring and fulfill holistic completion in persons with low back pain.

Keywords--Aroma oil massage, Herbal compression, Low back pain, Complementary medicine

BACKGROUND AND SIGNIFICANCE OF THE PROBLEM

Low back pain is the problem of the musculoskeletal system especially on back spine which are the structure of the body that movement all day long. Consequently, these parts are prone to injury¹. Although low back pain is not life threatening, improper management or unmanaged pain can leave persons with low back pain at risk for recurrent pain or relapse at a rate as high as 70-80%². Low back pain can be encountered in people of all occupations. Malposition can caused low back pain due to muscle spasm. Low back pain in which 10-20% of people with acute back pain have chronic symptoms because the symptoms are not treated until completely cured⁴. According to a survey on Thai medical services during 2007-2011, the symptoms causing patients to seek physician were back, waist and hip pain⁵. And according to a report in 2009, 16,789,872 peoples reported illnesses involving the musculoskeletal system and connective tissues at a rate of 67.15%⁶.

The most common cause of low back pain are malposition⁷, overuse⁸, obesity⁹ and stress⁹. Although low back pain is not a life threaten but it has tremendous impact on a patient's lifestyle causing physical, mental and socio-économique problems¹⁰. The aforementioned physical discomfort and limited activity make the patient could not go to work effectively. Consequently, mental impacts cause by reduced self-worth which further affects work-related duties and economic extravagance spent for medical treatment and burden family members.

Current low back pain treatment is composed of pharmacological and non-pharmacological treatments.¹¹ Pharmacological treatment especially non-steroidal anti-inflammatory drug may result in complications such as gastrointestinal bleeding, inflammation of the liver, renal impairment and potentially life-threatening allergies to medication^{3,12}. Non-pharmacological treatments include offering advice on weight reduction, correct posture and movement, physical therapy and alternative medicine. In particular, aroma oil massage and herbal compression together with analgesic drugs as a complementary medicine to enhance treatment effectiveness for low back pain. Pharmacologic and non-pharmacologic treatment together for fulfil treatment and holistic care. Those are the concept of no singular medical science in the world is capable to treat or cure every ailment. Every medical science has its weaknesses and gaps. How can we fulfil the gap of knowledge or enhance the effectiveness of treatment¹³. According to the reports on studies conducted by the World Health Organization (WHO)¹⁴ (2006) and and Gaston – Johansson¹⁵ (2005) cited in Ladaval Ounprasertpong Nicharojana¹⁶, analgesic drugs were found to be considered a significant contribution to pain relief with effectiveness at a rate of 70 - 90 percent. Another 10-30 percent left, however, report analgesic drugs as being unable to relieve pain completely. This point of view, non-pharmacologic treatment must be considered in order to help and fulfil for pain management. Those are the concept of Complementary and Alternative Medicine for holistic care¹³. The abovementioned concurs with the policy of the Ministry of Public Health of Thai medical services in order to promote people and health care staff for using Thai traditional Medicine and Alternative Medicine as a complementary therapy and primary medical care¹⁷. According to the background and significance of the problem as stated above and previous literature reviews, insufficient data has been discovered in the form of evidence-based practice to prove the effects of aroma oil massage and herbal compression with analgesic drugs on low back pain. Thus, the researcher is interested in conducting additional study to test the hypothesis for confirm the effects of aroma oil massage and herbal compression on pain in person with low back pain with scientific evidence.

CONCEPTUAL FRAMEWORK OF THE STUDY

This study investigated the effect of aroma oil massage and herbal compression with analgesic drugs on low back pain in persons with low back pain. The framework based on the concept of complementary and alternative medicine, pharmacologic and non-pharmacologic treatment combination. Explain by the Gate Control Theory¹⁸, Aroma oil massage with kaffir fragranced mixed with lavender used to apply Swedish massage composed of stroking/effleurage, superficial stroking, deep stroking, compression movement, kneading/petrissage, picking up and rolling¹⁶. The neurotransmissions of pain sent by the A-alpha and A-beta nerves result in increased secretions from the brain to the SG cells to reduce the nerve impulse to T-cell and effect to gate closes¹⁹.

Aroma massage, herbal compression is applied. The main components of the herbal compresses are Thai Plai oil and Turmeric which has anti-inflammatory effects; and acts as a natural steroid and Wax leaved climber helps relax hardened muscle. In addition, camphor is used to help relieve pain and acts as a local anesthetic. Heat and the properties of the aforementioned herbs is deeply absorbed by the skin (1-2 centimeters) into the tissues at the compression site with sodium as the conductor of the heat from the process of compression. Hence, the skin in the compression area rises in temperature to 40-42 degrees Celsius¹⁶, thereby causing the muscles, tendons and connective tissues to relax. The blood vessels dilate more, which sends nutrients to the aching muscles, tendons and connective tissues as inflammatory substances such as prostaglandins and bradykinin, etc. are drained. Once these substances are reduced, the tissues will receive more oxygen²⁰ and reduce low back pain. Furthermore, herbal compresses contain the aromatic fragrances of Thai plai oil, kaffir peel, turmeric, camphor and lavender oil mixed with the aroma oils used in massage. There are the aromatic sense go to the nostril and olfactory nerve will send to limbic system in mid brain to secrete endorphin with has morphine-like substance effect, enkephalin and serotonin effects will uplift the emotion and feel relax¹⁶.

In addition, diclofenac sodium has the effect of inhibiting the production of the enzyme, cyclooxygenase that is used in the chemical transformation of arachidonic acid into the substrate in the production of prostaglandins, a substance causing pain and inflammation leading to low back pain. Furthermore, receipt of tolperisone hydrochloride has the effect of reducing the attachment of acetylcholine to the receptor cells of the striated muscles, thereby leading to sodium-potassium exchanges as the sodium-

analysis table²³ in which power = .80; significance = .0, one –tailed; and substituted made in Glass’s formula²⁴ (Glass, 1979).

The effect Size (ES) was calculated at 2.41 with one way. When compared to the table designating the sample size by using t-test, a sample group size of twenty subjects was obtained. In order to ensure the research had a sample group size sufficiently large in line with preliminary agreement of parametric statistics and to compensate for sample attrition, two sample groups with thirty subjects each were set for a total of sixty peoples. Both groups received one tablet of 25-mg diclofenac sodium and one tablet of 50-mg Tolperisone HCl three times a day for three days. For the experimental group received extra aroma oil massage for 30 minute combine with herbal compress 10 minute per day for 3 days. All of the subjects were instructed to do not receive treatment or any therapy for low back pain elsewhere or by other methods. The sample was randomized into two group and selected purposively according to inclusion criteria. The population used in this study diagnosed with low back pain and pain score ≥ 6 point of numeric pain scale, body mass index in between 18.5 - 25 kg/m². Willingness to participate in the research during the designated time schedule with signed consent. Restrictions concerning massage and herbal compression: High fever of 38.5 degrees Celsius or more, Pregnancy and Heart disease or epilepsy.

The instrumentation employed in this study was divided into two parts, namely, 1) instruments used in data collection and 2) instruments used in conducting research. The instruments for data collection comprised of Demographic Data Questionnaires composed of data on gender, age, religion, marital status, educational attainment, occupation, family income, duration of low back pain, cause of low back pain, medication side-effects, low back pain management method and history of chronic disease. The questionnaires content questions concerning low back pain. Content validity was examined by a panel of three experts.

Low Back Pain Assessment Questionnaire – A numeric pain intensity scale with scores ranging from 0-10 points was used McCaffery & Pasero, 1999 in which the left-hand side meant “no pain” and the right-hand side meant “most pain”. The subjects with low back pain were instructed to mark the spot indicating their pain intensity on the aforementioned scale. The interpretation criteria for pain intensity was as follows: 0 points indicated no pain; 1-3 points indicated mild pain; 4 - 6 points indicated moderate pain; 7 - 9 points indicated intense pain; and 10 points indicated unendurable pain.

Conducting Instruments was 1.The aroma oil massage instruments comprised of the following equipment:

1. Aroma massage oil mixed by the researcher with the eight drops each of kaffir and lavender scents with 30 milliliters of sesame oil as the carrier. 2) large cloth for body cover.

2. The herbal compression instruments comprised of the following equipment: 1) two dry herbal ball contained 100 grams composed of 31.25 grams of Thai plai oil, 6.68 grams of turmeric, 9.37 grams of kaffir peel; 4.68 grams of wax leaved climbers ½ teaspoon of camphor, ½ teaspoon of salt and other ingredients. Which had been certified by Thai Community Product Standards, No. TCPS. 176/2546. An aroma oil massage and herbal compression handbook developed by the researcher which was modified from video on a complete version of aromatic oil massage and aromatherapy and symptom relief by Assistant Professor, Dr. Ladaval Ounprasertpong Nicharojana (2009).

Two Sets of Research Assistants –The first set of research assistants were professional nurses who had been nurses for three years and received explanations and instructions on the guidelines and procedures for data collection. The aforementioned performed the tasks of collecting the sample group’s demographic data and assessment of low back pain. The second set of research assistants were traditional Thai medicine staff who had received skills training in aroma oil massage and herbal compression from the researcher performed the aromatic oil massage and herbal compression on the subjects. Each research assistant massaged not more than five people per day for thirty minutes per person with 15-minute breaks between massages.

Data Collection for pre phase of study, researcher and research assistant were train in aroma oil massage and how to mix aroma oil and how to use Thai herbal compress. Pretest data collection was conducted before assigning the participants to the control and experimental groups. Conducting interviewed on demographic data and assessed low back pain score in the control and experimental groups. Testing for allergic reaction before using aroma oil massage for the experimental group.

Experimental phase, both groups received one tablet of 25-mg diclofenac sodium and one tablet of 50-mg tolperisone HCl three times a day for three days. For the experimental group received extra treatment with aroma oil massage 30 minute follow by 10 minutes of Thai herbal ball compress 10 minutes once daily.

Post-Test Data Collection, - After three days of experimentation, the researcher and research assistants conducted interviews on demographic data and assessed pain level in the control and experimental groups.

The data was analyzed by computer program package. Basic data for sample group presented in the form of descriptive statistics, amount and percentage. Comparison of difference in mean of pain score in between group was carried out by independent t test. Before and after intervention group was analyzed by paired t test.

RESULTS

Finding the results showed that the sample group was composed of 60 subjects. Thirty of the subjects were assigned to the control group and the other thirty subjects were assigned to the experimental group. Demographic data on gender, age, religion, marital status, educational, occupation and average family income were tested for similarities among the variables by using chi-square statistics, no differences with statistical significance were encountered at $p > .05$ ($\chi^2 = .268$, $p = .605$, $\chi^2 = 2.819$, $p = .244$, $\chi^2 = .077$, $p = .781$, $\chi^2 = -$, $p = 1.000$, $\chi^2 = .444$, $p = .801$, $\chi^2 = 1.418$, $p = .4921$, respectively. The findings after experiment, level of pain score in both group lower than pretest as shown in the Table 1

Table 1
Number and percentage of sample group classified by pre- and post-test low back pain intensity

Level of Pain Severity	Control Group (n= 30)		Experimental Group (n=30)		Entire Sample Group (n=60)	
	Amount	%	Amount	%	Amount	%
Pre-Test Level of Back Pain Severity						
Moderate Pain (4 - 6)	18	60.00	17	56.67	35	58.33
Extreme Pain (7 - 9)	12	40.00	13	43.33	25	41.67
Post-Test Level of Back Pain Severity						
Mild Pain (1 - 3)	12	40.00	30	100.00	42	70.00
Moderate Pain (4 - 6)	15	50.00			15	25.00
Extreme Pain (7 - 9)	3	10.00			3	5.00

Table 2
Comparison of the mean pre- and post-test back pain scores between the control and experimental groups using paired t-test

Variable	Control Group (n=30)				Experimental Group (n=30)				t	p
	Min	Max	Mean	S.D.	Min	Max	Mean	S.D.		
Low Back Pain										
Pre-Test	6	8	6.47	.629	6	8	6.50	.630	-2.205	.838
Post-Test	3	7	5.17	.874	2	3	2.47	.507	14.630	<.001
Pre- and Post-Test Differences in Low Back Pain										
	3	1	1.30	.245	4	5	4.03	.123	7.86	<.001

The comparison of the pre-and post-test mean back pain scores revealed the low back pain of the experimental group receiving aroma oil massage and herbal compression with analgesic drugs were lower than before the experiment with statistical significance ($p < .001$) as shown in Table 3.

Table 3

Comparison of the pre-and post-test mean back pain scores in experimental group by using paired t-test

Variable	Mean	S.D.	Mean difference	S.D. Mean difference	t	p
Back Pain score						
Pre-Test	6.50	.63	4.03	.12	25.981	<.001
Post-Test	2.47	.51				

DISCUSSION OF THE FINDINGS

This finding may be explain that aroma oil massage and herbal compression with analgesic drugs more effective than the group of using analgesic drug only with statistical significance ($p < .001$). Also post test in experimental group after receiving aroma oil massage and herbal compression with analgesic drugs pain score level lower than pretest test with statistical significance ($p < .001$). Since aroma massage could relax the back muscle. Herbal ball can stimulate the blood circulation to enhance nutrient to muscle cell and also enhance relaxation and get rid of stress. During the process of massage with stroking, kneading, picking up and rolling could be stimulate A alpha, A beta nerve fiber and SG cell then inhibit nerve impulse to T cell and close GATE control. This finding showed the evidence base of analgesic drugs combination with massage was better than only analgesic drug for reducing low back pain. Then it is possible for set up clinical guideline for low back pain problem in using complementary therapy to enhance quality of life. Given the optimal benefit and safety. We recommend the training program for health care personnel. It is necessary for implementation of aroma oil massage and herbal compression for simplicity and safety. Curriculum specification for aroma oil massage and herbal compression should be taught in order to improve the capacity of health care provider for caring low back pain patient with complementary therapy.

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