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Case Study

A Clinical Case Presentation of Singnaad Gugglu, Rasna Saptak, Punarnava Ashtak Kwath & Baluka Swed in the Management of Amavat W.S.R Rheumatoid Arthritis

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Abstract Amavat is a disease which describe wildly in Madhav Nidan and mentioned as a Krichsadhaya Vyadhi in Ayurveda. Symptoms of Amawata like small joints pain, swelling, warmth and stiffness in the body and ultimately affecting the quality of life a person badly. In modern medical science we can compared with the rheumatoid arthritis and their treatment principle is steroids and NSAIDs are included. These drugs are harmful for patients' life for prolonged use. In ayurveda treatment principle and this present study was aimed at evaluating the efficacy of Singnaad Gugglu 500 mg BD with warm water for one month and Rasnasapatk & Punarnava Astak Kwath 15ml with equal quality of water BD for one month and Baluka Swed on whole body for 14 days. It's a clinical case study of one patient. The patient suffering from Amawata included in study were selected from University College of Ayurveda, Jodhpur during the period May 2017. Efficacy of both drugs are good and give significant result. All cardinal symptoms are subsiding and laboratory test is negative after 1 month.
Keywords *Amawata; Rheumatoid arthritis; Rasna saptak kwath; RA test; Singnaad gugglu*

1. Introduction

"Yugpatt kupitavantstrikasandhipraveshkoa |
Stabdham cha gurutogatramamawata cha uchyate ||" (Ma. Ni. 25/5) [6]

Provoking of doshas Aam and wat in body when its accumulates in koshat, trik and joints it is creates symptoms like oedema, pain, stiffness that is called Amawat. "Ayurveda the science of life is so called because it is the one which highlights Hita and Ahita. The concept of Ahita is the reason for various disease one among them being amawat. It is due to the formation of Aam which gets associate with dosh forming sama state and gets mobilized by vatadosha. It later enters the kaphasthan and produces the disease. Its clinical presentation resembles with the condition of Rheumatoid arthritis. The cause of Rheumatoid arthritis is unknown. However, it is a thought that, particularly in genetical predisposed individuals, some environmental antigenic trigger, probably a virus, stimulate the

production of auto-antibodies against the body own IGM immunoglobulin. The process can become self-perpetuating. The prominent features are the formation of immune complexes activates complement and attract neutrophils. Phagocytosis of immune complexes by neutrophils leads to releases of chemical mediators of inflammation stimulate the formation of a proliferative synovitis. This hypertrophic granulation tissue is called pannus. It is this process that is responsible for causing joint erosions.

According to Ayurveda all disease is initiate from loss of appetite and its a measure cause of Amawat. Vagbhatt explained Aam. Undigestive food part that accumulates in upper gestrium and responsible for provoke of doshas called as Aam:

"Ushmanoalpabalatven dhatumandhyamapachitam |
Dushatamaamashayagtamrasanaammprachkshate ||" (as. Hri. Su. 13/25) [4]

Ayurveda explains two important treatment modalities shaman and shodhan in the treatment of Amawat.

2. Materials and Methods

2.1. Case Report

Chief Complain

A male patient age 50 yrs. old visited OPD of Panchakarma, Dr. S.R. Rajasthan Ayurved University jodhpur presenting with complaint of multiple joint pain, swelling of joints, and stiffness of the joints since 4 months.

History of Present Illness

Four months before, the patient had a gradual onset of stiffness and pain in right wrist joint followed by symptoms in the left side. Gradually pain and stiffness developed in bilateral meta tarso phalangeal (MTP) joint, ankle joint, knee joint. The pain was severe that it was associate with swelling. Its aggravated-on exposure to cold. He feels much batter after ayurvedic medicine.

History of Past Illness

H/O Chikungunya 2 years ago.

Treatment History

H/O took treatment of chikungunya 2 years ago.
H/O taken pain killers for arthritis.

Personal History

Name - Mr. Rajendra Prasad OPD No. 28769
Age - 50 yrs. IPD NO. 1506
Sex - Male Date of admission 15/5/2017
Marital status - married
Occupation - Teacher

Blood pressure - 110/70 mm/hg
Pulse rate - 68/min.
Respiratory rate - 18/min.
Temperature - 96° F
Appetite - Poor
Bowel - 1-2 times/ day
Bladder - 4-5 times/day and 1-2 times /night
Sleep - Sound

Systemic Examination

Musculoskeletal System
Inspection - Swelling present on Wrist joint & knee joint.
Palpation - Tenderness on wrist & knee joint
Tenderness & pain also in cervical spine.
Range of movements - Painful movement between wrist, knee, ankle and MTP (meta tarso phalangeal) Joints.

Investigation

S. uric acid- 3.42 mg/dl
RA Test - 39.0 IV/ml (normal= <18)
C.R.P. Test- 4.20 mg/dl

Ashtaviddapariksha (Examination of 8 seats) [9]

1. Nadi (pulse) - Mandam (slow)
2. Mutra (urine) - Sukhapravriti
3. Mala (stool) - sukhapravriti
4. Jihwa (tongu) - upalepa (coated)
5. Shabda (voice) - vyakta/ spashat
6. Sparsh (touch) - sheet/ ruksha
7. Drik (eyes) - swetabh
8. Aakriti (Built) - Madhyam (medium)

Dashviddapariksha (Examination of 10 seats) [1]

1. Prakriti (constitution) - Vat-kapha
2. Vikriti (morbidities) - Dosha - Vatapradhantridosha
3. Dushaya - Rasa, Rakt, Asthi.
4. Satwa (psychic condition) - Madhyam
5. Sara (excellence of tissue elements) - Rakt/ sara/asthi
6. Samhanan (compactness of organ) - Madhyam
7. Pramana (measurement of organ) - Madhyam
8. Satmaya (homologation) - Sarva rasa (pravarsatmaya)
9. Aaharshakti (power of intake & digestion of food) - Madhyam
10. Vyayamshakti (power of performing exercise) - Pravar
11. Vaya (age) - Madhyam/yuvaa/50 years.

Diagnostics Criteria for Rheumatoid Arthritis

At least three joints involve
Middle age- 50 years.
Morning stiffness
Pain
Raised C.R.P & R.A. test (+) ve

Treatment

Duration - 4 weeks
Improvement - Pain, stiffness

Internal Medication

1. Singhnadguggulu - 500 mg bd after meal with warm water for a month.
2. Rasnasaptakkwath - 15 ml bd before meal with equal quantity of water for a month.
3. Punarnavaashtakkwath - 15 ml bd before meal with equal quantity of water for a month.

Table 1: *Singhnad guggul* [3]

S. No.	Ingredients	B.N.	Quantity
1.	Triphala - Amla	Emblica officinalis	1 part
2.	Vibhitak	Terminalia bellerica	1 part
3.	Haritaki	Terminalia chebula	1 part
4.	Gugglu (pure)	Commiphora mukul	1 part
5.	Gandhak (pure)		1 part
6.	Chitra tail (castor oil)	Ricinus communis	1 part

Table 2: *Rasnasaptakkwath* [7]

S. No.	Ingredients	B.N.	Quantity
1.	Rasna	Alpinia galanga(root)	1 part
2.	Trikantaka	Tribulus teristris (fruit)	1 part
3.	Guduchi	Tinospora cordifolia (steem)	1 part
4.	Eranda	Ricinus communis (root)	1 part
5.	Devdaru	Cedrus deodara (wood)	1 part
6.	Punarnava	Boerhavia diffusa (root)	1 part
7.	Aragvadha	Cassia fistula (root)	1 part
8.	Shunthi	Zingiber officinale(root)	1 part

Table 3: *Punarnavaashtakkwath* [8]

S. No.	Ingredients	B.N.	Quantity
1.	Punarnava	Boerhaavia diffusa	1 part
2.	Devdaru	Cedrus deodara	1 part
3.	Daru haridra	Berberis aristata	1 part
4.	Guduchi	Tinosphora cordifolia	1 part
5.	Patolapatra	Tricosanthes dioca	1 part
6.	Haritaki	Terminalia chebula	1 part
7.	Kutki	Picroorhiza curroa	1 part

8.	Neem twak	Azadirecta indica	1 part
9.	Nagara	Zingibe rofficinale	1 part

External Medication: Baluka Swed on whole body for 14 days.

Grading of Assessment of Disease

Table 4: *Grading of sandhishotha*

S. No.	Severity of swelling	Grade
1.	No swelling	0
2.	Slight swelling	1
3.	Moderate swelling	2
4.	Severe swelling	3

Table 5: *Grading of sandhigraha*

S. No.	Severity of swelling	Grade
1.	No stiffness	0
2.	5 min to 2 hours	1
3.	2 hours to 8 hours	2
4.	More than 8 hours	3

Table 6: *Grading of sandhishoola*

S. No.	Severity of swelling	Grade
1.	No pain	0
2.	Mild pain	1
3.	Moderate, but no difficulty in movements	2
4.	Slight difficulty in movement due to pain	3
5.	Severe pain with much difficulty	4

3. Observation and Results

The observation and result in the form of table as below.

Assessment of Subjective Criteria

Table 7: *Assessment of sandhishoola*

S. No.	Day of assessment	Name of joint	Grade
1.	1st day	MTP Joints	2
2.	7th day	MTP Joints	1
3.	14thday	MTP Joints	0
4.	21st day	MTP Joints	0
1.	1st day	Wrist joint	2
2.	7th day	Wrist joint	1
3.	14th day	Wrist joint	1
4.	21st day	Wrist joint	0
1	1st day	Knee joint	1
2	7th day	Knee joint	1

3	14th day	Knee joint	1
4	21st day	Knee joint	0
1	1st day	Ankle joint	2
2	7th day	Ankle joint	1
3	14th day	Ankle joint	1
4	21st day	Ankle joint	0

Table 8: *Assessment of sandhishotha*

S. No.	Day of assessment	Name of joint	Grade
1.	1st day	MTP Joints	3
2.	7th day	MTP Joints	2
3.	14th day	MTP Joints	1
4.	21st day	MTP Joints	1
5	28th day	MTP joints	0
1.	1st day	Wrist joint	2
2.	7th day	Wrist joint	2
3.	14th day	Wrist joint	1
4.	21st day	Wrist joint	1
5	28th day	Wrist joint	0
1	1st day	Knee joint	3
2	7th day	Knee joint	2
3	14th day	Knee joint	1
4	21st day	Knee joint	1
5	28th day	Knee joint	0
1	1st day	Ankle joint	2
2	7th day	Ankle joint	2
3	14th day	Ankle joint	1
4	21st day	Ankle joint	1
5	28th day	Ankle joint	1
6	34th day	Ankle joint	0

Table 9: *Assessment of objective criteria*

Criteria	BT	AT
RA	39.0 IV/ml	Negative (less than 16)
CRP Test	4.20mg/dl	Non-reactive
Uric acid	3.42mg/dl	3.48mg/dl

4. Discussion

The treatment of disease Amawata is first described in Chakradatt. Weather sign and symptoms described in Madhavnidan. Present study is a case presentation of patient Rajendra Prasad having symptoms like multiple joint pain, stiffness, swelling and other was fatigue (Angmard), anorexia (Aruchi) etc. that is other Aam features. Drug having Ushana, Teekshana, Deepana, Pachana, Shothahara properties can be the choice of drugs for the treatment of the complaints.

“Langhanam swedanm tiktam deepnaanikatuni cha |
Virechanam snehpanam bastayaammarute ||” (chakradutt 25/1) [2]

The combined efficacy of internal medication of Rasnasaptak Kwath, Punarnavaashtak Kwath, Singhnad guggul and external procedure like Balukaswed were tried in the patient. Internal

medication helped in reducing the Aam symptoms like reduced appetite, Jihwaupalepa, stiffness, swelling, anorexia etc. and Balukaswed helped in bringing Rookshata (dryness) as well as swedan to the body. So that the stiffness, swelling was reduced. And Singhnad guggul helped in reduction of pain. The assessment of the patient before and after treatment was taken which showed improvement in the subjective and objective criteria.

5. Conclusion

Hence it can be concluded that the combined effect of Rasnasapatakkwath, Punarnava Ashtakkawath, Singhnad guggul and Balukaswed is choice of drugs for the management of RA (Rheumatoid arthritis).

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Research Article

Comparison between the Improvements in Disease Activity Score 28 (DAS28) Using Erythrocyte Sedimentation Rate (DAS28-ESR) and Clinical Parameters in Cases of Waja-al-Mafasil (Rheumatoid Arthritis)

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Abstract *Waja-al-Mafasil* (Rheumatoid Arthritis) is a progressive, disabling, chronic multisystem disease of unknown cause characterized by pain, swelling and stiffness of synovial joints. The Disease Activity Score (DAS) is a major scoring system for evaluating disease activity of *Waja-al-Mafasil* (Rheumatoid Arthritis). DAS28 was originally using the erythrocyte sedimentation rate (ESR) as the inflammation marker and named DAS28-ESR. The aim of this study to compare the improvement in disease activity score 28 using erythrocyte sedimentation rate (DAS28-ESR) and clinical parameters in the patients of Rheumatoid Arthritis. Rheumatoid Arthritis patients registered in research OPD was used to calculate DAS28-ESR and clinical assessment. In this study, *Majun Jograj Gugal* (Semisolid) and *Raughan-e-Malkangani* (Oil) were administrated to patients for the period of twelve weeks. Improvements of DAS28-ESR were also evaluated according to the European League against Rheumatism response criteria and percentage improvement of clinical parameters in Rheumatoid Arthritis patients. Improvements in DAS28-ESR and Clinical Parameters criteria were compared by Woolf statistical test, Cohen's Kappa (κ) statistic for agreement and linear regression analysis. Classification of improvement in DAS28-ESR and clinical parameters among on the demographical characteristics and RA-Factor were generally identical (p-value >0.05) except patients' nature of work (p-value <0.05). Simple linear regression analysis showed a significant correlation between improvement between DAS28-ESR and clinical parameters (R^2 = 0.64; p-value <0.001). The Cohen's Kappa (κ) coefficient (95% CI) between of them was 0.43 (0.21 to 0.66), indicating good agreement (p-value <0.001). This study concluded that improvements in Disease Activity Score 28 (DAS28) using erythrocyte sedimentation rate (DAS28-ESR) and Clinical Parameters are same in cases of Rheumatoid Arthritis.

Keywords *Clinical Parameters; Disease Activity Score 28 (DAS-28); Improvement; Rheumatoid Arthritis (RA)*

1. Introduction

Waja-al-Mafasil (Rheumatoid Arthritis) is a progressive, disabling, chronic multisystem disease of unknown cause characterized by pain, swelling and stiffness of synovial joints. It is a common inflammatory disease characterized by poly-articular inflammation of the synovial tissue (Arnett et al., 1988). It is the most prevalent chronic disease of the world. In India, as per reports Arthritis affects 15% of total population. This prevalence is higher than many well-known diseases such as diabetes, AIDS and cancer. And in case of Bihar 1821 females per lakh than 1250 males per lakh are suffering from Arthritis as per the Annual Health Survey (2010-2011).

Unani system identifies and attributes diseases like *Waja'al-Mafasil* (rheumatoid arthritis) is a clinical condition of pain with or without stiffness in specific joint or more than one joint caused by accumulation of *Rutūbat Gharība* (foreign humour) in the joints. Indigestion, prolonged breast-feeding, poverty, getting wet, cold climate, worry etc are its predisposing factors. The diseases are due to the disproportionate distribution of humours or *Akhlat* (blood or *dam*, phlegm or *balgham*, bile or *safra*, black bile or *sauda)* inside the body. These humours, which are out of proportion, collect in various parts of the body, at times producing inflammation, and leading to presentation of various diseases. Arthritis is a troubling pain, which causes immobilization of the joint or cessation of function. In case of arthritis, the humours collect in the joints, thereby leading to pain, swelling and other articular tissue damage (Anjum et al., 2005).

According to the khilt waja al mufasil has four types which are *Balghamī*, *Damwī*, *Safrāwī* and *Sawdāwī*.

In *Waja'al-Mafāsil Balghamī*, colour of the skin over the affected joint is whitish and joint swelling is less. The pain is deep seated and the patients are often obese. Other symptoms of *Ghalaba-i-Balgham* (phlegm preponderance) are also present.

In *Waja'al-Mafāsil Damwī*, there is redness of the skin over the affected joint. Joint swelling is visibly marked and the pain is severe. Other symptoms of *Ghalaba-i-Dam* (blood preponderance) are also present.

In *Waja'al-Mafāsil Safrāwī*, there is a slight yellow discoloration of the skin over the affected joint. Joint swelling is less than that of *Damwī* type. Pain and burning sensation along with other symptoms of *Ghalaba-i-Safrā* (yellow bile preponderance) are also found.

In *Waja'al-Mafāsil Sawdāwī*, the skin over the affected joint is dry and blackish blue and joint swelling is hard. Other symptoms of *Ghalaba-i-Sawdā* (black bile preponderance) are also present (Khan et al., 2003; Ibn et al., 2007; Jurjani, 1887; Hakim, 1999; Razi, 2004). The Disease Activity Score (DAS) is a significant scoring system for evaluating disease activity of *Waja'al-Mafasil* (rheumatoid arthritis). The initial development of DAS was reported by van der Heijde et al in 1990 and 1992 (van der Heijde et al., 1990; van der Heijde et al., 1992) and then DAS was modified by a group of investigators from the Netherlands (Prevoo et al., 1995; van Gestel et al., 1996; Prevoo et al., 1996).

The use of DAS is officially recommended by the European League Against Rheumatism (EULAR) for evaluating disease activity and the improvement in disease activity in clinical trials and also in daily clinical practice. DAS combines tender and swollen joint counts, an inflammatory marker, and a patient-reported measure of general health. The first DAS was based on an examination of 44 joints (DAS44) (van der Heijde et al., 1990), and this was later followed by a reduced and simplified version based on 28 joints, DAS28 (Prevoo et al., 1995). Basically, DAS28 was using the erythrocyte

sedimentation rate (ESR) as the inflammation marker and named DAS28-ESR. DAS28-ESR was further extensively validated for its use in clinical trials (Prevoo et al., 1995; Prevoo et al., 1996; Cruyssen et al., 2005).

The disease activity score 28 (DAS-28) is based on 28 swollen joint counts (SJCs) and tender joint counts (TJCs), a self-determined assessment of patient general health on a visual analogue scale (VAS), and erythrocyte sedimentation rate (ESR) with a score ranging from 0 to 9.4 (van Gestel et al., 1998). Published thresholds define absolute DAS-28 scores representing remission (<2.6), mild (43.2), moderate or severe (>5.1) disease activity (Emery et al., 2009). The European League Against Rheumatism (EULAR) response criteria combine the DAS28 score at the time of evaluation with the change in DAS28 score between two-time points and to define improvement or response to treatment (Emery et al., 2009). While response categories and the sensitivity to change in absolute DAS-28 values are important outcomes when assessing treatment effect, in a number of European countries cross-sectional measurement of DAS-28 is crucial in determining which treatment a patient receives (Talstad et al., 1983). The DAS28 based on erythrocyte sedimentation rate (DAS28 (ESR)) has been extensively validated for its use in clinical trials in combination with the EULAR response criteria (Prevoo et al., 1995; Fransen and van Riel, 2005; Kushner, 1991; DAS-SCORE, 2017; Aletaha et al., 2010).

The aim of this study to compare the improvement in clinical parameters and disease activity score 28 using erythrocyte sedimentation rate (DAS28-ESR) in the patients of *Waja-al-Mafasil* (Rheumatoid Arthritis).

2. Materials and Methods

2.1. Study Place

An open level clinical study, approved by the institutional ethics committee, was carried- out on the patients of *Waja-al-Mafasil* (Rheumatoid Arthritis) in GOPD/IPD of Regional Research Institute of Unani Medicine, Patna during the 2014 to 2016.

2.2. Drugs Administrative

In this study unani pharmacopoeial formulation *Majun Jograj Gugal* was given 5 gm twice daily with water after meal and *Raughan-e-Malkangani* for local application in the patients of *Waja-al-Mafasil*. The total duration of treatment was 12 weeks. All clinical follow-ups were done once every 2 weeks.

2.3. Patients Selection

The patients were selected on the basis of inclusion and exclusion criteria in this protocol given below:

Inclusion Criteria

- Patients of either sex, in the age group between 18-65 years.
- Patients having *Waja'al-Mafasil* (rheumatoid arthritis) as defined by the following ACR-EULAR criteria (Aletaha et al., 2010)
  1) Definite clinical synovitis (pain, swelling, tenderness) in at least 1 joint
  2) Absence of an alternative diagnosis for the observed synovitis (arthritis)
  3) A total score of at least 6 from the individual scores in 4 domains:

a. Number and site of involved joints (range 0-5)
b. Serological abnormalities (range 0-3)
c. Elevated acute-phase reactants (range 0-1)
d. Duration of symptoms (range 0-1)

Exclusion Criteria

- Rheumatoid arthritis with extra-articular manifestations, joint deformities, and advanced radiological lesions (e.g. joint subluxation and collapse).
- Obese subjects (BMI ≥30)
- History or clinical evidence of any systemic inflammatory condition other than RA such as, juvenile chronic arthritis, spondyloarthropathy, IBD, psoriatic arthritis, active vasculitis, or gout that may interfere with evaluation.
- History or clinical evidence of any serious systemic illness, DM, TB, disseminated/ complicated herpes zoster (e.g., multi-dermatomal involvement, ophthalmic zoster, CNS involvement, or post-herpetic neuralgia), HIV infection or any other serious and/ or unstable illness that, in the opinion of the investigator, could constitute a risk when taking study drug or could interfere with the interpretation of data.
- Are currently receiving or have received intra-articular treatment (e.g., corticosteroids or hyaluronic acid), oral or parenteral corticosteroids, or NSAIDs within 2 weeks of study entry and DMARDs or IFN therapy within 4 weeks prior to study entry or are anticipated to require IFN therapy during the study.
- Screening laboratory test values, including SGOT, SGPT, ALP, S. creatinine, B. urea, and uric acid outside the reference range (raised >3 times the ULN) that, in the opinion of the investigator, could pose an unacceptable risk to the participant.
- History of hypersensitivity to study drug or any of its ingredients.
- Pregnant and lactating women
- H/o Addiction (alcohol, drugs)

2.4. ACR-EULAR Rheumatoid Arthritis Classification Criteria

1. Definite clinical synovitis (pain, swelling, tenderness) in at least 1 joint
2. Absence of an alternative diagnosis for the observed synovitis (arthritis)
3. A total score of at least 6 from the individual scores in 4 domains:
    a. Number and site of involved joints (range 0-5)
    b. Serological abnormalities (range 0-3)
    c. Elevated acute-phase reactants (range 0-1)
    d. Duration of symptoms (range 0-1)

2.5. Measures of Response Criteria on DAS28-ESR and Clinical Parameters

The improvement of disease using *Majun Jograj Gugal* and *Raughan-e-Malkangani* was assessed on clinical parameters of the Rheumatoid Arthritis. Clinical parameters included, Joint Tenderness, Joint Swelling, Early Morning Stiffness, Movement Restriction, Functional Disability and Joint Pain (on 0-100mm VAS). As, these clinical parameters differ in severity (such as absent, mild, moderate or severe) from patient to patient therefore severity of the clinical parameters were graded as absent=0, mild=1, moderate=2 and severe=3. The patients were followed up on 2^{nd}, 4^{th},….,12^{th} weeks and at every visit, they were clinically examined and asked about the improvement or worsening of their symptoms. And assessment of temperament of the patients was also done before and after the treatment.

The DAS28-ESR considers 28 tender and swollen joint counts, Patient's Global Assessment of Disease Activity(PGA) on VAS (0-100mm), plus levels of an acute phase reactant (ESR(mm/h)). DAS28(ESR) = 0.56*√(TJC28) + 0.28*√(SJC28) + 0.014*PGA + 0.70*ln(ESR), where TJC = tender joint count and SJC = swollen joint count. EULAR response states were classified as follows: good responders were patients with an improvement of >1.2 and a present score of ≤3.2; moderate responders were patients with an improvement of >0.6 to ≤1.2 and a present score of ≤5.1, or an improvement of >1.2 and a present score of >3.2; non responders were any patients with an improvement of ≤ 0.6, or patients with an improvement of >0.6 to ≤1.2 and a present score of >5.1. DAS28-defined remission was classified as a score of <2.6 (Chambers and Hastie, 1992).

Determine of percentage improvement base on clinical parameters in the patients were classified as following: good responders were patients with an improvement of ≥ 75%; moderate responders were patients with an improvement of >25% to <75 and non-responders were any patients with an improvement of ≤25%.

2.6. Statistical Analysis

All statistical analyses were carried out in R Software (version 3.3.2). Improvement of DAS28-ESR and clinical parameters over the classification of patients into disease activity were compared by Woolf statistical test (Woolf, 1955) on demographical characteristic of patients, RA-Factor & C-reactive protein(CRP), the hypothesis considered as null hypothesis (H0): The distribution among demographical Characteristic, RA-Factor & CRP and response of drugs are the identical in two different methodologies as response based on clinical parameters and DAS28-ESR vs alternative hypothesis (H1): The distribution among demographical Characteristic, RA-Factor & CRP and response of drugs are not identical in two different methodologies as response based on clinical parameters and DAS28-ESR, and values both of them compared by linear regression analysis (Chambers and Hastie, 1992). The null hypothesis set as Response based on clinical parameters and DAS28-ESR is identical on the distribution of demographical Characteristic, RA-Factor and CRP. The Cohen's Kappa (κ) statistic used to assess agreement between the improvement of DAS28-ESR and clinical parameters definitions over the classification of patients into disease activity (Landis and Koch, 1977).

3. Result and Discussion

3.1. Comparison between Response of the Drugs among of the Demographical Characteristics, RA-Factor and CRP based on DAS28-ESR and Clinical Parameters

In the sex distribution, moderate response based on DAS28-ESR was noted in 33 patients of female and 27 patients of male. Similarly, moderate response based on clinical parameters was noted in 48 patients of female and 12 patients of male. Generally, females are more prone to RA than male. The distribution between sex and drugs response were identical in two different methodologies as response based on DAS28-ESR and clinical parameters (p-value=0.73) (Table 1).

The highest numbers (16 & 24 patients) of moderate response were seen in the age group 31 to 40 years based on DAS28-ESR and respectively clinical parameters. The distribution between age group and drugs response were identical in two different methodologies as response based on DAS28-ESR and clinical parameters (p-value=0.12) (Table 1).

According to temperament, maximum number of patients belonged in balghami temperament (37 patients) out of which 24 patients have moderate response,13 patients have no response as per

DAS28-ESR and 30 patients have moderate response, 07 patients have no response as per clinical parameters. The distribution between temperament and drugs response were identical in two different methodologies as response based on DAS28-ESR and clinical parameters (p-value=0.89) (Table 1).

As per response of work, maximum number (55 patients) of moderate response was seen in sedentary work, out of which 28 patients have moderate response, 27 patients have no response as per DAS28-ESR and moderate response in 44 patients, no response in 11 patients as per clinical parameters. The distribution between temperament and drugs response were not same in two different methodologies as response based on DAS28-ESR and clinical parameters (p-value<0.05) (Table 1).

Table 1: *Effects of drugs response among the demographical characteristics, RA-Factor and CRP based on DAS28-ESR and clinical parameters*

Characteristic		Response based on DAS28-ESR			Response based on clinical parameters			Test statistic value	p-value
		Good Response (%)	Moderate Response (%)	No Response (%)	Good Response (%)	Moderate Response (%)	No Response (%)		
Sex	Male	-	9 (81.82)	2 (18.18)	-	8 (72.73)	3 (27.27)	2.35	0.12
	Female	-	33 (55.00)	27 (45.00)	-	48 (80.00)	12 (20.00)		
Age Group (Years)	18-30	-	7 (43.75)	9 (56.25)	-	10 (62.50)	6 (37.50)	0.11	0.73
	31-40	-	16 (57.14)	12 (42.86)	-	24 (85.71)	4 (14.29)		
	41-50	-	11 (57.89)	8 (42.11)	-	15 (78.95)	4 (21.05)		
	51-60	-	8 (100.00)	-	-	7 (87.50)	1 (12.50)		
Mizaj (Temperament)	Damvi (SANGUINE)	-	16 (57.14)	12 (42.86)	-	23 (82.14)	5 (17.86)	0.018	0.89
	Balghami (PHLEGMATIC)	-	24 (64.86)	13 (35.14)	-	30 (81.08)	7 (18.92)		
	Safravi (BILIOUS)	-	2 (40.00)	3 (60.00)	-	3 (60.00)	2 (40.00)		
	Saudavi (MELANCHOLIC)	-	-	1 (100.00)	-	-	1 (100.00)		
Nature of Work	Sedentary	-	28 (50.91)	27 (49.09)	-	44 (80.00)	11 (20.00)	4.42	0.035
	Moderate	-	14 (87.50)	2 (12.50)	-	12 (75.00)	4 (25.00)		
	Strenuous	-	-	-	-	-	-		
Chronicity (in month)	1 - 12	-	-	-	-	-	-	0.35	0.56
	13 - 24	-	1 (20.00)	4 (80.00)	-	3 (60.00)	2 (40.00)		
	> 24	-	41 (62.12)	25 (37.88)	-	53 (80.30)	13 (19.70)		
Occupation	House Wife	-	30 (56.60)	23 (43.40)	-	43 (81.13)	10 (18.87)	0.34	0.55
	Labour	-	1 (100.00)	-	-	1 (100.00)	-		
	Farmers	-	1 (100.00)	-	-	-	1 (100.00)		
	Business man/women	-	2 (66.67)	1 (30.33)	-	3 (100.00)	-		
	Teachers	-	-	2 (100.00)	-	1 (50.00)	1 (50.00)		
	Service man/women	-	1 (50.00)	1 (50.00)	-	2 (100.00)	-		
	Others	-	7 (77.78)	2 (22.22)	-	6 (66.67)	3 (33.33)		
Dietary Habits	Vegetarian	-	4 (100.00)	-	-	4 (100.00)	-	0.14	0.71
	Non-vegetarian	-	37 (56.92)	28 (43.08)	-	51 (78.46)	14 (21.54)		

	Mixed	-	1 (50.00)	1 (50.00)	-	1 (50.00)	1 (50.00)		
Family History of the disease	Absent	-	18 (51.43)	17 (48.57)	-	25 (71.43)	10 (28.57)	0.12	0.72
	Present	-	24 (66.67)	12 (33.33)	-	31 (86.11)	5 (13.89)		
RA-Factor	-ve	-	32 (58.18)	23 (41.82)	-	43 (78.18)	12 (21.82)	0.0001	0.99
	+ve	-	10 (62.50)	6 (37.50)	-	13 (81.25)	3 (18.75)		
CRP	-ve	-	32 (55.17)	26 (44.83)	-	46 (79.31)	12 (20.69)	1.23	0.26
	+ve	-	10 (76.92)	3 (23.08)	-	10 (76.92)	3 (23.08)		

According to chronicity, the maximum numbers of 66 patients were found in 24 months and above in chronicity, out of which 41 patients got moderate response, 25 patients got no response as per DAS28-ESR. Beside of that, 53 patients got moderate response, 13 patients got no response as per clinical parameters. The distribution between chronicity and drugs response were identical in two different methodologies as response based on DAS28-ESR and clinical parameters (p-value=0.56) (Table 1).

In this study, most of the patients were house wife (53 patients), out of which 30 patients got moderate response, 23 patients got no response as per DAS28-ESR. According to clinical parameter 43 patients have moderate response, 10 patients have no response. The distribution between occupation and drugs response were identical in two different methodologies as response based on DAS28-ESR and clinical parameters (p-value=0.55) (Table 1).

Table 2: *Comparison of the improvement in DAS28-ESR and clinical parameters*

		DAS28-ESR			
		Good Response (%)	**Moderate Response (%)**	**No Response (%)**	**Total (%)**
Clinical Parameters	Good Response (%)	-	-	-	-
	Moderate Response (%)	-	40 (56.33)	16 (22.54)	56 (78.87)
	No Response (%)	-	2 (2.82)	13 (18.31)	15 (21.13)
	Total (%)	-	42 (59.15)	29 (40.85)	71 (100.00)
Cohen's Kappa (κ) coefficient (95% CI) between the improvement in DAS28-ESR and clinical parameters: 0.43 (0.21 to 0.66), p-value <0.001)					

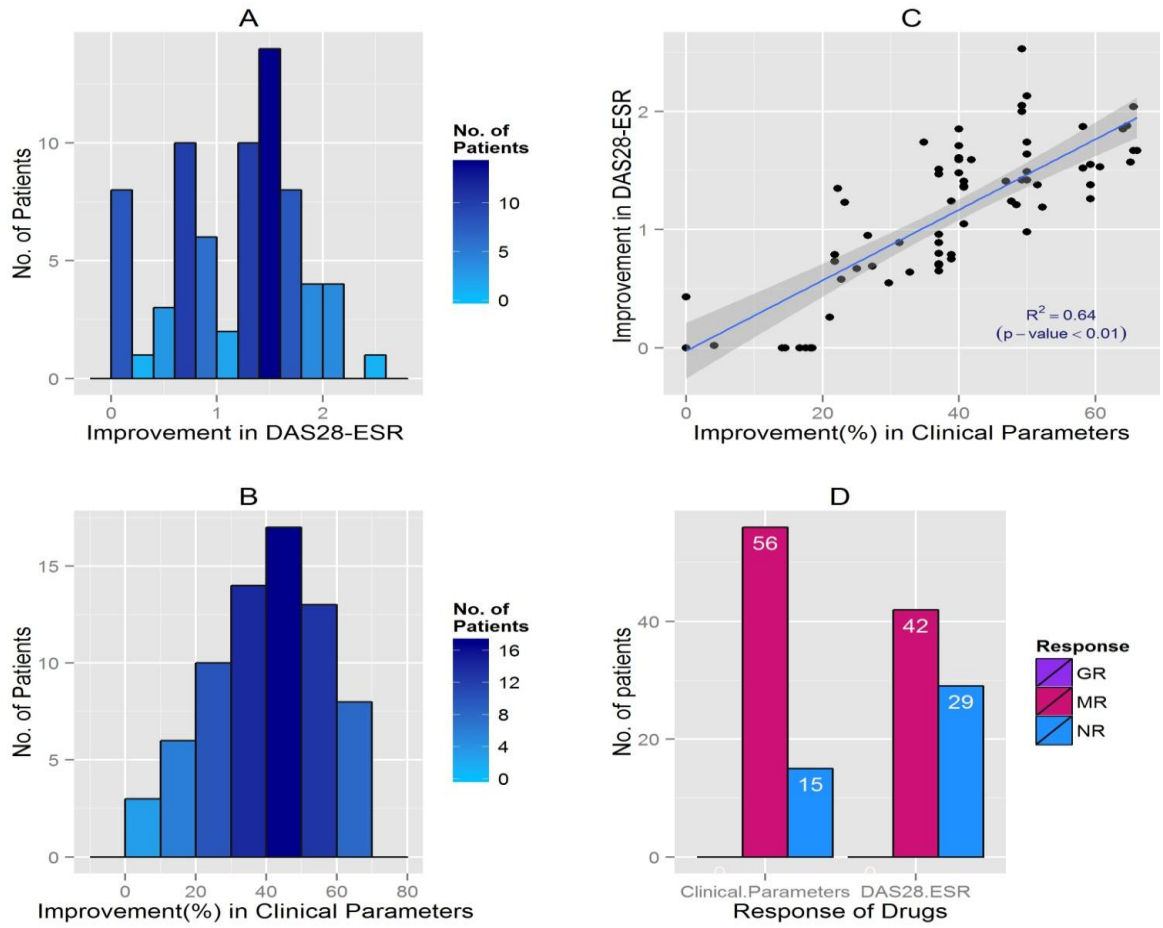

Figure 1: *Distribution, correlation and response of the drugs of improvement in DAS28-ESR and Clinical Parameters. (A) Distribution of improvement in DAS28-ESR (B) Distribution of improvement in Clinical Parameters (C) correlation between of improvement in DAS28-ESR and Clinical Parameters (D) Response of drugs based on improvement in DAS28-ESR and Clinical Parameters*

In the dietary habit of patients, maximum numbers of 65 patients were non-vegetarian, out of which 37 patients got moderate response, 28 patients got no response as per DAS28-ESR. Beside of that, 51 patients got moderate response, 14 patients got no response as per clinical parameters. The distribution between dietary habit and drugs response were identical in two different methodologies as response based on DAS28-ESR and clinical parameters (p-value=0.71). The Family history of the disease and drugs response were identical in two different methodologies as response based on DAS28-ESR and clinical parameters (p-value=0.72) (Table 1).

According to RA-Factor wise distribution, maximum numbers of 55 patients were '-ve' factor, out of which 32 patients got moderate response, 23 patients got no response as per DAS28-ESR. 43 patients got moderate response, 12 patients got no response as per clinical parameters. The RA-Factor and drugs response were identical in two different methodologies as response based on DAS28-ESR and clinical parameters (p-value=0.99) (Table 1).

In the CRP distribution, maximum numbers of 58 patients were '-ve' factor, out of which 32 patients have moderate response, 26 patients have no response as per DAS28-ESR and moderate 46 patients, no response 12 patients as per clinical parameters. The CRP and drugs response were

identical in two different methodologies as response based on DAS28-ESR and clinical parameters (p-value=0.26) (Table 1).

3.2. Comparison between Response based on DAS28-ESR and Clinical Parameters

The patients were classified as good, moderate, and no response according to their improvement in DAS28-ESR and clinical parameters after completed the study. The result found a good agreement between the response indices based on DAS28-ESR and clinical parameters by Cohen's Kappa (κ) coefficient of 0.43 (95% CI: 0.21 to 0.66), p-value<0.001. The correlation between the two DAS28-ESR and clinical parameters is shown in Table 2. However, 40 (56.33%) of the 71 patients who have 'moderate' response according to their improvement in DAS28-ESR and also in clinical parameters. 16 (22.54%) showed 'no' response of improvement in DAS28-ESR at all.

3.3. Relationship between Improvement in DAS28-ESR and Clinical Parameters

The maximum number of patients were found in between 0.6 to 2.2 of improvement in DAS28-ESR (Figure 1-A) and the maximum number of patients were present in between 20 to 70 percent of improvement in clinical parameters (Figure 1-B). Simple linear regression analysis showed a significant correlation between the differences of improvement in Clinical Parameters and DAS28-ESR values, which could be fitted to the equation: improvement in DAS28-ESR= -0.11 + 0.031 x improvement in Clinical Parameters, R^2= 0.64, p-value<0.001 (Figure 1-C). Out of 71 patients, 42 patients were moderate, 29 patients were no response of drugs based on improvement in DAS28-ESR and 56 patients were moderate, 15 patients were no response of drugs based on improvement (%) in Clinical Parameters (Figure 1-D).

4. Conclusion

This study concluded that Comparison between the improvements in Disease Activity Score 28 (DAS28) using erythrocyte sedimentation rate (DAS28-ESR) and Clinical Parameters in cases of Waja-al-Mafasil (Rheumatoid Arthritis) are same as per among of the demographical characteristics, RA-Factor and CRP. So, it's say that the result has no any difference either use the clinical parameters or DAS28-ESR. The demographic data (age, sex, mizaj, chronicity, occupation, dietary habits and family history) have also same result except the nature of work. The Improvement is also there and almost being same either using the DAS28-ESR or using the clinical parameters.

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Case Report

Case Reports of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy from AYUSH Wellness Clinic

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Abstract AYUSH Wellness Clinic (AWC) has been established with the collaboration of Rashtrapati Bhavan and Ministry of AYUSH, Government of India with the objective to deliver quality health services by all the five streams (Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy) and more than that integrated approach to those diseases which are challenging for the medical world, under one roof. AYUSH is distinctively suitable to bring cost effective and affordable healthcare systems to the general public. At, AWC Physicians are treating even those diseases where sometimes surgical intervention needed but keeping the fact that without compromising the health of the patients and basic fundamentals of the AYUSH like chronic diseases of Musculoskeletal, dermatological, cerebro-vascular and Gynecology system effectively. In Present Case reports all the five streams of AYUSH showing the glimpse of treatment of Musculoskeletal system (PIVD, OA & RA), dermatology (Athlete's Foot), cerebro-vascular (post stroke), Gynecology (Hirsutism and Acne caused by PCOD and Ovarian Cyst).
Keywords *AYUSH wellness clinic; AYUSH; Case reports; Rashtrapati Bhavan*

Introduction

As long as man exists, diseases occurred along with-it role of medicine also come in to the play. In the changing pattern of life style of human being there is also changing pattern of disease occurrence. In present scenario diseases which are not common in ancient times having larger impact on health in the present time. Due to this emergence prevalence of diseases increases in society and patients are seeking to the other side of medicine which is commonly known as complementary and alternative medicine (CAM). AYUSH is an acronym of medical systems that are being practiced in India such as Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy since ages. In India, Government of India separately formed the Ministry of AYUSH for the development AYUSH medicine into a main stream and its benefits to the stakeholders. Rashtrapati

Bhavan in collaboration with Ministry of AYUSH established the first AYUSH Wellness Clinic of India in the President's Estate where all the five streams of AYUSH (Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy) working under one roof.

Science always depends on evidence. For further development of AYUSH as well as the validation of old literature it is the necessity to work on evidence-based medicine. Present case reports from all the five streams of AYUSH are based on evidences and scientificity as far as possible with the assessment tools, investigation reports and photographs wherever applicable. These case reports are a little effort to show a causal relation of efficacy of AYUSH treatments.

1. Individualized Homoeopathic Treatment of Athlete's Foot: A Case Report[a]

Fungal infections of the skin and nails form the most numerous and widespread group of all mycoses (Havlickova et al., 2008). Tinea is common worldwide infection, it is estimated that more than 8 million office visits to primary care physicians are made annually for Tinea-related symptoms (Fausi et al., 2008). The three genera of dermatophytes are Trichophyton, Microsporum, Epidermophytes and among them *Trichophyton rubrum* is considered to be the most common dermatophyte in India (Kansara et al., 2016). Most of the major studies in India show that Tinea Corporis and Cruris are the most common Tinea infections (Panda and Verma, 2017). Tinea pedis is comparatively rare in India (Singh and Srivastava, 1994).

Homoeopathy claims a salutary treatment for the different variety of Tinea infections. In Homoeopathic literature, under the heading Ringworm several medicines suggested like Sepia, Tellurium, Lycopodium, Graphites, Kali Carbonicum, Bacillinum, Sulphur, Natrum Muriaticum etc. according to site, appearance, character and symptoms of lesions (Boericke, 2002).

Case

1.1. Complaints and Duration

A 48-year-old male labour by profession with the complaints of itchy, erythematous and white macerated skin in interdigital space of 4th and 5th finger of left foot since 2 years. He had applied several local ointments with transient relief.

Previous History: There is no history of previous illness.

Family History: Father suffered from DM and died 2 years back, mother suffering from Hypertension. No same kind of skin lesions mentioned in family history.

History of Medication: Only uses of local treatments for skin lesions.

Personal History: Addicted to tobacco chewing and Bidi smoker.

Physical generals: Appetite good and can tolerate hunger, Thirsty; 2-3 litres in a day, Tongue white coated posterior side, aggravation from rich food causes throat complaint with expectoration of thick white mucus. Sweaty foot, Affected with both extreme of temperature. Bowel and urine movements are regular.

[a]Dr. Ashish Kumar Dixit, Homoeopathic Consultant

Mental generals: Patient is of mild disposition, anxious about health and leaning towards sexual subjects though deficient in sexual acts. Anxious dreams

Provisional Diagnosis: Tinea Pedis

Treatment Prescribed: Considering totality of the patient the case repertorised and finally consulted with Materia Medica books, Kali Muriaticum 200/1 dose empty stomach early in the morning with Placebo 30/4 pills of 40 no. size three times in a day has been prescribed for 7 days.

Assessment Tool: For evaluation of Tinea Pedis Athlete's foot severity score (AFSS) has been used (Cohen et al., 2002).

Follow up and outcome: Follow ups done on every week using comparison of AFSS from base line and photographs taken on every visit.

Table 1: *Details of follow up visits with intervention following AFSS*

Treatment period	Athlete's foot severity score (AFSS)	Intervention
11/02/16 (Baseline)	05	Kali Muriaticum 200/1 dose, Placebo Three times/day
15/03/16	05	Kali Muriaticum 200/1 dose, Placebo Three times/day
03/04/16	04	Kali Muriaticum 200/1 dose, Placebo Three times/day
09/05/16	03	Placebo Three times/day
16/06/16	None (00)	---

Photo - 1 on 11/02/2016

Photo - 2 on 03/04/2016

Photo - 3 on 09/05/2016

Photo - 4 on 16/06/2016

1.2. Discussion

Tinea Pedis also known as Athlete's foot though not common as compare to other Tinea (Cruris and corporis) is not much troublesome except of cosmetic value. Present case has been suffered from this disease since long time and tried various local treatments. Though repertorisation not suggested Kali Muriaticum (Calcarea carb. and Carbo veg were top repertorial result) for the case but consulting Materia Medica books and taking consideration of affinity to left side affection with characteristics of white phlegmatic expectoration, aggravation from rich food medicine this medicine has been selected leaving the top two medicines (Bogen, 2002). During the whole course of 4 months three doses of Kali Muriaticum 200 was prescribed on 11/02/16, 15/03/16 and 03/04/16 according to aphorism § 238 of 5th edition of Organon of Medicine and after that no medicine prescribed except Placebo which is continuously given three times in a day during the whole course (Hahnemann, 2002). On every visit gradual improvement followed (Table 1: AFSS-05 at baseline (Moderate severe) and on last visit AFSS-00). Photographs also had been taken for better comparison as shown in Photograph - 1, 2, 3 & 4.

1.3. Conclusion

This case highlights the usefulness of homoeopathy for treating Tinea Pedis infection effectively without any local use of ointment. However, the results from this single case report are by no means conclusive regarding the long-term clinical effectiveness of homeopathy for Tinea pedis. Well-designed studies are required for establishing effectiveness and efficacy of homoeopathy in treating the condition.

2. Case Study on Acne and Hirsutism Associated with Polycystic Ovarian Syndrome with Unani Management[b]

Lifestyle diseases are defined as diseases linked with the way people live their life and industrialization has given rise to various lifestyle disorders one of them is PCOS. Polycystic Ovarian Disease (PCOD) also known as Polycystic Ovary syndrome (PCOS), prevalence ranging from 2.2% to 26% world-wide and in Indian adolescents it is 9.13% mostly seen in adult women with age ranged from 18 to 45 years (Nidhi et al., 2011). Acne is a chronic inflammatory disease of pilosebaceous units and Hirsutism is presence of excessive terminal hair on androgen dependent areas of female's

body and is a common manifestation of hyperandrogenemia. PCOS is the most common disease which causes hyperandrogenemia in females. The polycystic ovary syndrome (PCOS) has the highest prevalence in acne. The PCOS is a heterogeneous condition, European Society for Human Reproduction and Embryology and the American Society for Reproductive Medicine (ESHRE/ASRM) has revised the criteria for diagnosis of PCOD to include two from three of the following criteria: oligo- and/or anovulation, hyperandrogenism (Acne, hirsutism, alopecia, acanthosis nigran) and polycystic ovaries (Begum et al., 2012). Muhammad Ibn Zakariya Razi a Unani Physician recorded amalgamation of signs associated with menstrual irregularities (oligomenorrhoea, amenorrhea and menorrhagia) including hirsutism, obesity, acne, hoarseness of voice and infertility, which are indicative of polycystic ovarian disease and hyperandrogenism (Razi, 2001).

When amenorrhea persisted for a long duration it causes alterations in internal environment of women's body and status of balance is disturbed, leading to formation of some unnecessary material which is being excreted through skin pores in the form of *busoore labnia* (acne) and also contribute in the growth of thick hair over the body (Firdose, 2016). In Unani system of medicine Principle of treatment (*Usoole ilaaj*) is by *Idrare haiz, tadeel e mizaj*, weight reduction and use of specific drugs (Khan, 2011). This case shows the successful management of Acne and Hirsutism of PCOS with Unani Medicine.

Case

In August 2017, a 23-year-old girl presented for acne, hirsutism and amenorrhea. The patient was the second child in the family. Her parents were of normal weight, and they both had hypertension and impaired glucose tolerance. Her mother had gestational diabetes mellitus during her pregnancies. One male sibling was healthy and of normal weight. The patient started out brake of acne since 1 year and excess hair growth over face chin and over body. Over the year, her weight gradually increased with marked increase in waist to hip ratio. Her height remained consistent Menarche occurred at the age of 13, her past menstrual cycle was regular comes in every 28 days and she bleeds for 5 days. Later on, she developed irregularity in menstrual cycle and soon thereafter she developed secondary amenorrhea.

2.1. Assessment

The patient was obese; her height was 160 cm weight 79 kg (body mass index (BMI) 31.6 kg/m^2 waist circumference 100 cm, and blood pressure 120/80. Her pubertal stage was Tanner B4 P5 (Tanner). Excess Hair growth of the patient is accessed on Modified Ferriman-Gallwey scale, scoring was done at baseline and every month during treatment and 1 month after treatment was over (Aswini and Jayapalan, 2017). Acne was accessed on Acne Global Severity Scale (Sultana, 2017) at baseline and every month during treatment and 1 month after treatment was over. Patient pre-treatment and post treatment photography was done. Patient temperament (*Mizaj*) was assessed at baseline and after treatment. Patient's *mizaj* was *balghami* at baseline.

2.2. Intervention

Patient was advised to take *Habbe Mudir* 2 tablets twice a day for 5 days patient got her periods on 2nd after taking medicine. After periods are over Patient was advised to take *Majoon Dabidulward* 5gms twice a day along with patient was advised to reduced weight for that *Arqe Zeera 40ml along with Safoof Muhazzil 3 gms twice a day* is advised. Patient was advised to take *Darchini (Cinnamon* powder) 3gms twice a day for 3 months (Anjun and Mubeen, 2013).

[b]Dr. Lubna Fatima, Unani Consultant

2.3. Results

There was marked reduction in acne and terminal hairs after 3 months of treatment with *Unani* Medicine. Acne global severity score was 31 at baseline after 1 month of treatment it was 25 after 2nd month and 3rd month of treatment it was 20 and 18 respectively and at follow-up (after 1 month) post treatment it was 11. Modified Ferriman Gallwey score was 17 at baseline after 1 month it was 17 after 2nd month it was 15 and after 3rd month it was 13 and at follow up visit it was 10. Remarkable change in acne and hirsutism before treatment and after treatment is seen in Figure 1 and 2 respectively.

Table 2: *Details of follow-up visits considering Acne Global Severity Score and Modified Ferriman Gallwey Score*

S. No.	Treatment Period	Acne Global Severity Score (For Acne)	Modified Ferriman Gallwey Score (For Hirsutism)
1	At Baseline	31	17
2	After 1st month	25	17
3	After 2nd month	20	15
4	After 3rd month	18	13
5	1st Follow-up	11	10

Figure 1: (Pre treatment) on August/17

Figure 2: (Post treatment) on December/17

2.4. Discussion

PCOD concept in Unani is mainly based on dominance of *khilte balgham (Phlegm). Sue mizaj Barid* (abnormal cold temperament) of liver may leads to abnormal formation of *Phlegm* which give rise to oligo-menorrhea, amenorrhea and obesity (Jurjini, 2010). Principle of treatment (Usoole-ilaj) is done by idrare haiz with the use of mudire haiz drugs (Emmenogogue drugs) *Tadeel mizaj* with use of *munzij wa mushil balgham* drugs Weight reduction and Specific drugs. In this case we have used compound drug *Habbe Mudir* for *idrare haiz* and for correction of liver temperament *Majoon Dabidulward,* and for Weight reduction *Arq zeera* and *safoof Muhazzil and specific drug Darchini* (Cinnamon powder) was used. Further Randomised control trial should be done to validate the effect of Unani medicine in PCOS.

3. Ayurvedic Management of Janu Sandhigata Vata (Osteoarthritis Knee): A Case Report[c]

A male patient aged 48 years (OPD no. 11012; Central Registration no. 82467) visited Ayurveda OPD of AYUSH Wellness Clinic, President's Estate, New Delhi with the following presenting complaints (since 02 months):

- Pain (*Shoola*) knee joints associated with difficulty in walking, climbing stairs, flexion and extension movements (*Akunchan-prasaran pravrittischavedana*) and standing after sitting for long duration
- Swelling (*Shotha* - *Vatapurnadrutisparsh*) over both knee joints
- Restricted movements of knee joints and

Patient was suffering from the some of the aforesaid symptoms viz. Mild Pain knee joints and discomfort in standing after prolonged sitting since 01 years but the complaints aggravated in last 02 months for which he had to take NSAIDs (approx. twice in 3 - 4 days) for pain. On examination, both the knee joints were warm to touch. Further examination of knee joints revealed swelling (Rt.>Lt.), crepitus was audible on movements in both joints (Rt.> Lt.), restricted movements and tenderness more in Right knee.

Table 3: *Personal history*

B.P.-130/80mm Hg	**Weight** - 82 kg	**Bowel** - Constipated	**Icterus/Pallor/Cyanosis** - Absent
Pulse - 72/min	**Height** - 165 cm	**Appetite** - Normal	**Addiction** - Nil
Temp. - Afebrile	**BMI** - 30.14 kg/m^2	**Micturition** - Normal	**No H/o** - DM/HTN/BA/TB

After thorough examination of the patient and in consideration of the lakshanas (signs and symptoms) found, the patient was diagnosed as a case of *Janu Sandhigata Vata* (w.s.r. Osteoarthritis knee) and accordingly the following treatment was planned based on Ayurvedic principles.

Table 4: *Treatment given (14 Days)*

	1st Week	2nd Week
Medicine/Therapy	**Dose & Duration**	**Dose & Duration**
Rasnaerandadi Kashaya	15 ml Twice Daily x 07 days	As before x 07 days
Yograja guggulu	2 Tab. Twice Daily with Lukewarm water x 07days	As before x 07 days
Kolakulathadi lepa churna mixed with Vinegar	Local application of warm paste in knee joint. Twice daily for 15 – 20 minutes and wiped off with towel soaked in lukewarm water x 03 days	–
Panchatikta guggulu ghritam	1 Tsf twice with luke warm water x 07days	As before x 07 days
Ashwagandha churna	-	1 Tsf twice with milk
Mahanarayan taila	10 ml Local application once daily (for Upshaya-Anupshaya i.e. to see if pain increases (Sama-avastha) or not (Nirama - avavstha) after oil application) x 02 days	–
Janu Vasti (with Mahanarayan Taila)	After swelling is reduced and application of Mahanarayana Tail does not aggravate the pain. In this case swelling subsided in 3 days	Continued for at least 14 days

All the medicines were IMPCL manufactured and were given to patients from the pharmacy of Clinic.

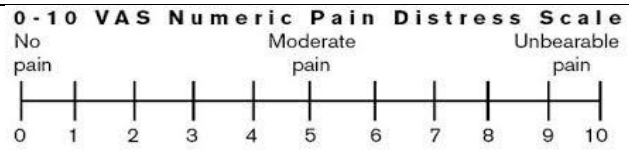
[c]Dr. Arun Kumar Bhadula, Dr. Ambika Dhiman, Ayurvedic Consultant

Patient was advised and instructed to avoid taking sour items (vinegar, Curd), Cold or refrigerated food/drinks, spicy (Chilies, pickles) and Oily stuff. Further, he was advised to avoid direct exposure to cold breeze and to drink luke warm water only.

Following parameters [for Pain (at rest), Swelling, and Pain (on movements)] were adopted for the assessment of efficacy of the treatment (Nayana, 2016):

Table 5: *Assessment parameters*

Pain		Swelling	
No pain	**0**	No Swelling	**0**
Mild pain bearable in nature	**1**	Mild (< 10% circumference of affected joint)	**1**
Moderate pain, but no difficulty in walking	**2**	Moderate (>10% circumference of affected joint)	**2**
Moderate pain with slight difficulty in walking	**3**	Severe (>20% circumference of affected joint)	**3**
Severe difficulty in walking, disturbs sleep, had to take analgesics	**4**		

Severity of Pain on movements		Visual Analogue Scale (Pain)
No Pain	**0**	
Pain without wincing of face	**1**	
Pain with wincing of face	**2**	
Restriction of flexion of joint	**3**	

3.1. Observation and Result

After 04 days of treatment, patient reported to have slight relief in pain. Swelling was also reduced. Patient got considerable relief in next 10 days after the administration of Janu vasti. He was able to walk for longer distances without pain and didn't take any other medicines for pain during the treatment. Patient is still coming for follow up weekly. At present, he got relieved symptomatically and is very satisfied with the treatment.

Table 6: *Assessment chart of various Parameters (of Knee joints)*

S. No.		BT (Baseline)		AT (07 days)		AT (14 days)		Follow up	
		Rt.	Lt.	Rt.	Lt.	Rt.	Lt.	Rt.	Lt.
1.	**Pain**	4	2	3	1	2	1	1	0
2.	**Swelling**	2	1	1	0	0	0	0	0
3.	**Pain on movement**	3	2	3	2	1	1	1	1
4.	**VAS (Pain)**	8	7	5	5	3	3	1	1

BT – Before Treatment; AT – After Treatment

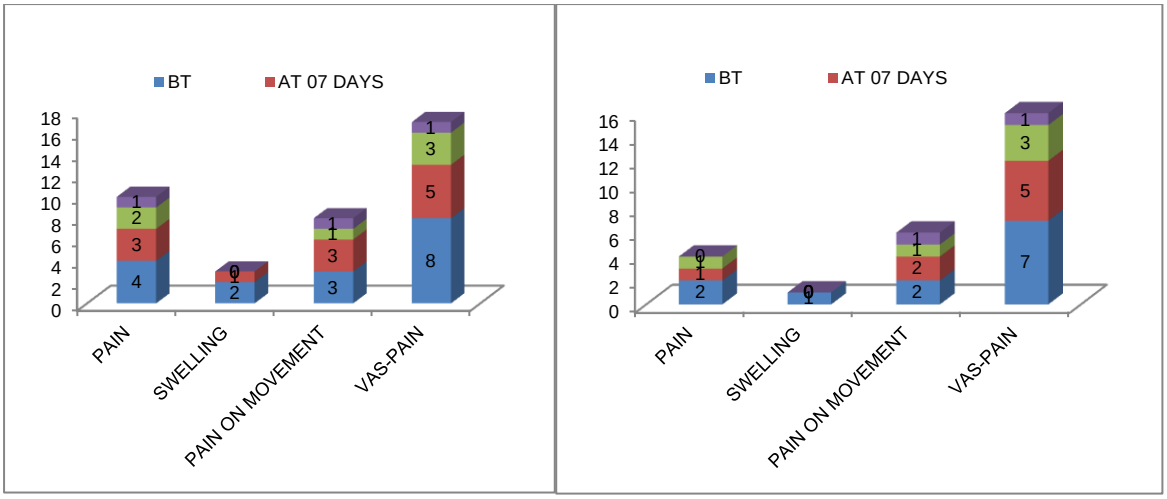


Figure 4: *Assessment of right and left knee joint*

3.2. Discussion

Sandhigatavata is one of the *Vata-Nanatmaja vikara* described in almost all Ayurvedic classics which is characterized by its cardinal features comprising of *Shoola* (joint pain), *Shotha* (swelling), Bag filled with water (*Vatapurna dritusparsha, Prasaarana-aakunchanayo pravruttischa vedana* (painful joint movement) (Shastri and Upadhaya, 2007). Osteoarthritis (OA) of modern medical science is considered to be its close equivalent (Sharma, 2013). Osteoarthritis is the 2nd most common rheumatologic problem with a prevalence of 22% to 39% in India. OA is more common in women than men. Nearly, 45% of women over the age of 65 years have symptoms while 70% of those over 65 years show radiological evidence of OA (Osteoarthritis). Out of various types of Osteoarthritis, OA knee being the most common form is also major cause of disability leading to poor quality of life (Sprangers, 2000).

Internal and external administration of Snehana (Oleation), swedana (sudation), Mridu virechana (purgation), upanaha (poultice) and lepa (topical application) are general line of treatment for *Sandhigata vata*. All the above medicines are being used for Vata disorders since time immemorial.

Further studies have revealed that, extract of the root powder of Ashwagandha (*Withania somnifera)* has been found to have chondro-protective effect on the damaged human osteoarthritic cartilage matrix in 50% of the patients and hence prevent further degeneration of bones and is also found to be beneficial in Osteoarthritis (Sumantran, 2007; Bhatt, 2007). *Panchtikta guggulu Ghrita, Mahanarayana Taila* and *Janu vasti* are mentioned for the management of *Sandhigata vata* in Ayurvedic texts and have also been proved efficacious in several studies (Kumar, 2017).

3.3. Conclusion

The present case report showed that Ayurvedic treatment provided highly significant relief in *Sandhigatavata* of the knee joint and external oleation therapies (like Januvasti in this case) are also equally important along with internal medication for better response. As *Sandhigatavata* is a degenerative in nature, therefore, repetitive use of rasayana (to combat degeneration) and oleation therapies is needed. Since, Ayurvedic treatment is safe and effective; therefore, it can be used time after time for the management of *Sandhigatavata*.

4. Treatment of Ovarian Cyst through Siddha Medicine - A Case Report[d]

Ovarian cyst is an emerging problem in present era (Asymptomatic Ovarian and Other Adnexal Cysts Imaged at US, 2010). Ovarian cyst, Uterine fibroids, Irregular menses are commonly seen in new era. Ovarian cysts are prevalent in 2% to 5% of Pre-pubertal girls, and 5% of ovarian cysts in young girls are found to be autonomous ovarian cysts (Miller et al., 1993; De Sousa and Andler, 20098; Lee, 2003). Gynecological malignant conditions account for approximately 3% of all types of cancer in children (Singhal, 2008). Siddha System of medicine is an ancient indigenous traditional Indian system of Medicine. In Siddha System of medicine ovarian cyst is referred as Sinaippaineerkatt (Venugopal, 1971). The treatment of ovarian cyst in Modern Science frequently requires surgical interventions. Siddha System of medicine has a wide range of medications for gynecological disorders. This case report details successful treatment of ovarian cyst through Siddha medicines.

Case Report

4.1. Complaints and duration

A 23-year-old married female came to AYUSH Wellness Clinic; Siddha Wing with the complaints of abdominal pain in the right lower quadrant since 5 months, Irregular periods, decreased interval of menstruation, weight gain since 8 months, on enquiry pain has no relation with intercourse.

Previous History: There is no history of previous illness.

Family History: There is no family history of female reproductive diseases.

Personal History: Vegetarian, habits of eating junk foods more, No history of Smoking, Alcoholism, Tobacco chewing.

Menstrual History: LMP – 18/02/2017, Cycle Length and frequency - 5/15, Using 5 pads/day, absence of post coital bleeding.

Obstetric history: $G_0P_1L_1A_0$

Pelvic Ultrasonography was done before and after the treatment

USG (Pelvis) before treatment dated on 02/03/2017

Uterus is normal in size and echotexture. Bilateral ovaries are bulky. Endometrial thickness is 6.7mm Right ovary – Cyst of 48.2 × 37.5 mm is seen, left ovary - Multiple small follicles seen.

Treatment Summary

Bedhi Therapy: **Agasthiyar Kuzhambu – 130mg** O.D at early morning with ginger decoction one time.

Internal Medicines

Rasagandhi Mezhugu Cap – 1 b.d, after food.
Madhulai Manapaagu syrup – 5ml b.d, after food.
Kumari Legiyam – 5gm bd after food.

[d]Dr. L. Janani, Siddha Consultant

The above medicines have been continued by the patient for 40 days.

Progress of Treatment

First day – Bedhi Therapy
Second day – Oil Bath
Third day onwards – Internal Medicines
After 15 days of Treatment – abdominal pain has been reduced significantly.
After 40 days of Treatment – Menstrual cycle came on regular interval.
USG (Pelvis) after treatment dated on 04/05/2017

The Uterus is anteverted, normal in size and measures 7×5×4 cm. Endometrial thickness – 4mm There is no uterine or adnexal mass. The right ovary is larger in the left and shows prominent follicles. No cyst is seen in either of the ovaries in this study. No free fluid is seen.

4.2. Conclusion

From this case report it is clear that Siddha medicines play a vital role for treating ovarian cyst, by which a patient can be saved from surgical intervention.

5. Post Stroke Rehabilitation through Unani Treatment[e]

Stroke is a disease that affects the arteries leading to and within the brain. According to American Stroke Association it is the number fifth cause of death and a leading cause of disability in the United States. In India also, it is the leading cause of death and disability. In India estimated adjusted prevalence rate of stroke range, 84-262/100,000 in rural and 334-424/100,000 in urban areas. The incidence rate is 119-145/100,000 based on the recent population-based studies (Pandian, 2013). Risk Factor includes older age, High blood pressure and diabetes mellitus, cigarette smoking, prior cardiovascular disease (Wolf, 1991). Stroke is a disease of the brain, but it can affect the entire body. Stroke results in paralysis to one side of the body, called hemiplegia and related disability that is not as incapacitating as paralysis is one-sided weakness or hemiparesis. Stroke induced paralysis or weakness may affect only the face, an arm, or a leg or one entire side of the body and face. Quality of life of patients with cerebral stroke causes a significant deterioration of patient's functioning. The assessment of the Quality of Life could be the evaluator of squeals of stroke as an indicator of the effectiveness of the post–stroke rehabilitation (Opara and Jaracz, 2016).

In Unani system of medicine, cupping therapy is used with positive outcomes for patients who have suffered a stroke. Cupping therapy stimulates the organs directly under the site being cupped. It serves to regulate the function of organs by assisting in the elimination of waste products. In the incidence of post stroke disability, the elimination of excess and toxins is removed by way of bringing these toxins up to the surface of the skin. These toxins are then eliminated naturally through the skin surface or via small, superficial incisions made with a surgical blade or lancet device.

Case

A 66-year-old man attended Unani OPD of AYUSH Wellness Clinic with one-sided weakness (hemiparesis) on his left side, uncomfortable numbness, Pain often described as a mixture of sensations, including heat and cold, burning, tingling, numbness, sharp stabbing and underlying aching pain following a stroke. He was also having history of hypertension >15 years, diabetes with very poorly controlled blood sugar, alcoholic and tobacco chewing. This patient came for treatment

[e]Dr. Izharul Hasan, Unani Consultant

about 5 months after the stroke. At that time, he was also receiving anti-diabetic and antihypertensive treatment.

5.1. Intervention

This patient received about 5 cupping sessions (Wet cupping, Gliding cupping) as part of his rehabilitation program. Patient Quality of Life is assessed on Quality of Life scale (SF-12) (SF-12 Health Survey). SF-12 Questioner was assessed at baseline and after therapy sessions. He was about 70% improved overall after 5 cupping sessions of cupping therapy. He regained sensation and movement in the left affected arm, wrist, and leg. Cupping therapy helped clear up his weakness and helped stabilize his blood sugar.

5.2. Discussion

However, Cupping is not used as an isolated therapy in the treatment of post stroke disability. It is advisable holistic approach on all facets of lifestyle including diet, exercise and emotional health should be adopted. Following rehabilitation stroke, patient was advised of lifestyle changes that can help to prevent a further vascular event. These include smoking cessation, weight reduction, reducing dietary salt intake, taking regular exercise and avoiding excess alcohol. He was also considered for drug therapy, such as antiplatelets, statin and antihypertensives, to prevent further vascular events.

6. Treatment of PIVD through Naturopathy and Yoga[f]

An intervertebral disc is the cartilage structure present between the vertebral bodies which provides a cushion to the spinal column and works as the shock absorbers. A spinal disc herniation or prolapse is commonly referred to as a slipped disc, this can happen due to many factors like accidents, compressive injuries, lifestyle and work pattern of a person (Harrison's Manual of Medicine, 2016). In the present cases of intervertebral disc prolapse have been treated with Naturopathy Therapies like Potli, Massage and Yoga Therapy Asana and Pranayama.

6.1. Case Study-1

A 31-year-old male working in security services came to our AYUSH Wellness Clinic Yoga and Naturopathy OPD with the symptoms of Severe low-back pain radiating to B/L lower limbs with inability to do the usual daily activities and disturbed sleep since 3 years. No history of HTN, DM, Asthma, allergies etc.

Medical history: was diagnosed on MRI (20.1.17) as Sacralisation of L5 vertebra with Spina Bifida L5 &S1 vertebra. Disc degenerative disease with Posterocentral disc protrusion at L4-L5 level without any nerve root compression or secondary canal stenosis.

Assessment of PIVD was done by Examinations and MRI to confirm, VISUAL PAIN ANALOG SCALE (VAS) on first visit and patient follow up was done weekly, for the consecutive four weeks.

6.2. Case Study-2

A 29 years old male working in security services came to our AYUSH Wellness Clinic Yoga and Naturopathy OPD with the symptoms of severe low-back pain radiating to left leg associated with disturbed sleep and inability to do the usual daily activities since 4 yrs. No history of HTN, DM, Asthma, allergies etc.

[f]Dr. Divya Saraswat & Dr. Kanak Soni, Y&N Consultants

Medical history: was diagnosed on MRI (2.3.17) as Sacralisation of L4, L5 vertebra & Disc degenerative disease with Posterocentral disc protrusion at L4-L5 level without any nerve root compression or secondary canal stenosis.

Assessment of PIVD was done by examinations and MRI to confirm, Visual Pain Analog Scale (VAS) on first visit and patient follow up was done weekly, for the consecutive four weeks.

Table 7: *Treatment protocol*

S. No.	Treatments given	Frequency	Duration (Time)
1.	Pain oil mustard Potli to Low-back	Daily	10 mins
2.	Partial massage to sides of back & legs	Daily	15-25 mins
3.	Yoga Therapy	Daily	30 mins

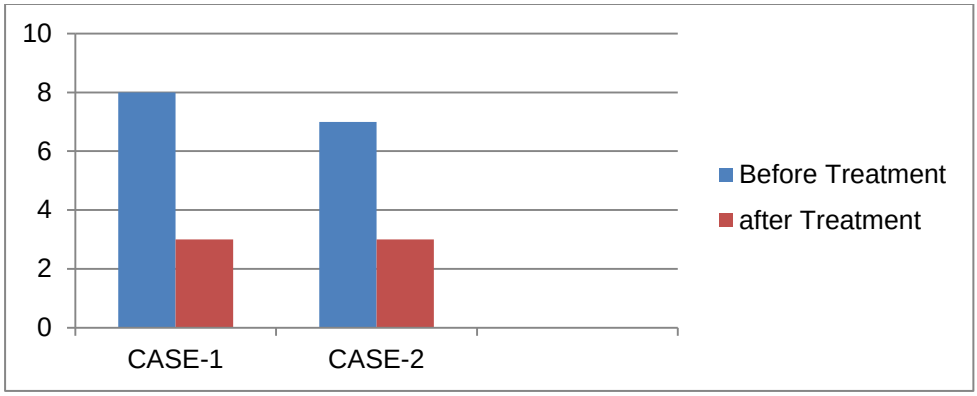


Figure 5: *Visual Analogue Scale representation in graph pre- and post*

Yoga Therapy Prescribed

Aim: to relieve back pain, increase muscle flexibility and strength. A combination of asana, pranayama and relaxation protocol was practiced by the patient. The protocol as follows: Tadasana, katichakrasana, Uttanpadasana, Pawanmuktasana, Shalabhasana, Bhujangasana, Shavasana, Nadishodhana pranayama, Yoga nidra (Saraswati Shivananda, 2013).

Yoga Nidra: Psychic sleep, it induces deep relaxation of body, mind and emotions (Saraswati Shivananda, 2013).

6.3. Discussion

In the present cases, male patients with PIVD treated through naturopathy and yoga therapies and in both cases significant improvement have been observed. There is marked reduction in pain, in case 1 visual analogue scale score pre and post treatment is found to be from 8 to 3 and in case 2 its from 7 to 3, both cases have shown marked reduction in pain due to which their day to day activities have improved remarkably. Sleep pattern has improved. The results prove the effectiveness of Yoga and Naturopathy remedies like Massage therapy, Potli, Yoga asana and pranayama for treating PIVD.

7. Treatment of Rheumatoid Arthritis through Homoeopathy[g]

Rheumatoid arthritis (RA) is an autoimmune disease destructive joint disease that affects the articular cartilages leading swelling and pain in and around joints and limited movement at the affected joint. If inflammation goes unchecked, it can damage cartilage, the elastic tissue that covers the ends of bones in a joint, as well as the bones themselves. Thus, in advanced cases, there is loss of cartilage, and the joint space between bones reduces and joints can become loose and unstable. Joint deformity also can occur making the patient disabled and dependent. The diagnosis of RA is made by the clinical signs and symptoms along with positive serological test (Shah, 2003; Rheumatoid Arthritis).

Case

A 51-year-old female patient presented with pains in bilateral wrist joints, and small joints of hands with swelling and stiffness since last 1 year with occasional pain in bilateral knee joints, right more than left. Her joint pains were aggravated by motion; better by rest and lying on painful side or pressure. The patient complained of general weakness, irritability, wants to be left alone. She was under antihypertensive treatment since last 4 years. She also gave history of chronic constipation with no inclination for stools for a day or two; hard stools, feels bowel evacuation is incomplete. There was family history of Hypertension and type II Diabetes in both her parents.

7.1. Treatment

Based on symptom presentation, the patient was referred for serological tests including Rheumatoid factor (Quantitative) and CRP (Quantitative) to confirm clinical diagnosis of Rheumatoid arthritis. Her test reports were positive for rheumatoid arthritis. Based on symptom totality of the patient, the case was individualized and repertorized. Bryonia 200 was prescribed to the patient five pills early morning empty stomach once a week followed by Rubrum met 30, five pills thrice a day for a week.

7.2. Follow-up and Result

As the patient reported symptomatic improvement, the same treatment protocol was followed up to 8 months with marked relief in all complaints. The patient is now being followed up with Rubrum met 30, five pills thrice a day since last 2 months with continued improvement. The serological tests were done before starting treatment and repeated 8 months after treatment; Rheumatoid factor (Quantitative) came to be within normal biological reference interval; CRP (Quantitative) was significantly reduced. The patient assessment before and 8 months after treatment is described in Table below:

Table 8: *Assessment before and 8 months after treatment*

Assessment criteria	Before treatment	8 Months After treatment
Pain (VAS scale)	9	3
Tenderness	Pain on light touch	Mild discomfort
Swelling	Obvious swelling at IPJ & MCPJ	No swelling
Rheumatoid factor (Quant.)	100 IU/ML	10 IU/ML
CRP (Quant.)	27.50 mg/L	12.41 mg/L

[g]Dr. Tushita Thakur, Homoeopathic Consultant

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Conflict of Interest

The authors declare no conflict of interest.

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Research Article

A Comparative Study on Effect of Suryanamaskara and Krida Yoga in Adolescent Children with Respect to Coping Skills on Educational Anxiety and Stress

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Abstract Previous studies have separately reported the effects of physical exercise and yoga in children, showing physical, cognitive and emotional benefits. The present randomized controlled trial assessed the effects of Suryanamaskara intervention to Krida Yoga intervention on Educational Anxiety and stress, in school children. 74 school children between age group 14 to 15 years were randomized as Suryanamaskara intervention and Krida Yoga groups {n=37 each}. Both groups were blind assessed as per the convenient sampling. After allocation, using: (i) the Galvanic skin stress resistance test and (ii) Educational Anxiety inventory recordings were made. The Suryanamaskara group practiced yoga (Loosening techniques, Suryanamaskar and guided relaxation), 45 minutes each day, 2 days a week for 8 weeks. During this time the Krida yoga group had Kirda yoga games from Dattaram Pol and guided relaxation in place. Both groups were assessed at the end of16 weeks. Data were analyzed with paired t-test using SPSS. All the changes reported below are based on after-before comparisons, within each group. Both groups showed significant relief in the Educational anxiety inventory with improved results in bringing down the anxiety level (p=0.000). Both groups showed a significant change in their stress level during GSSR test, the (p <0.000), while the Suryanamaskar group showed higher interference scores (p=0.000) than the Krida Yoga group (p=.000). Total in general there was an improved reduction of stress and academic anxiety in both the yoga groups (t > 1.96). Suryanamaskar and Krida Yoga had significant improvement with Suryanamaskara group showing better significance compared to Krida yoga group and are useful additions in combinations to the school routine.
Keywords *Adolescents; Krida Yoga; Suryanamaskara*

1. Introduction

Adolescence is defined as the phase of human life, when a child is changing from his infancy to adulthood. WHO groups the age from 10 to 19 yrs. Further to state this is the crucial period when a child undergoes a tremendous biological change from the infancy to early teenage. In today's scenario factors like early onset puberty, socio-economic cultures, urbanization, global

communication, changing sexual attitudes and behaviors play a major role in modulating the development of the child (WHO - Adolescent development).

Academic Stress In today's highly competitive world, students face various academic problems including exam stress, disinterest in attending classes and inability to understand the subject. Examination stress is the feeling of anxiety or apprehension over one's performance in the exams. It can lead to students being unable to perform to the best of their abilities in exams (http://www.iitr.ac.in). Academic anxiety is the major source of stress among adolescents and it may lead to low self-esteem. Many psychological problems such as depression and suicide occur as a result of low self-esteem (Nikitha et al., 2014). Further the society offer plenty of distractions and unwelcome attractions (Hagen and Nayar, 2014). Due to numerous factors and pressures of the 21st century adolescent children are having difficulty in coping with the responsibilities, problems in calm and thoughtful manner of reacting. Research shows an increased crime rate and suicidal tendencies among the teenage group worldwide and drastic increase in India (NDTV India - Associated Press, 2012).

Research has highlighted that tailor-made therapy techniques which would include behavioral therapy, educating children and training them in social behavior would foster better adaptive skills to the situation (Blake and Hamrin, 2007). Yoga based intervention shows benefits in managing negative emotions which in turn helps improving greater kinesthetic awareness and improved self-image (Conboy et al., 2013). Surya Namaskar quiets the brain and aides enhanced focus. Today, youngsters confront a ferocious rivalry and ought to embrace Surya Namaskar in their day by day plan as it helps continuance control and decreases the sentiment tension and anxiety, particularly amid exams. General routine of Surya Namaskar gives quality and imperativeness to the body (Shimpi et al., 2014). Yoga is a process of all round personality development physical, mental, emotional and spiritual. Games play an important part in this process. Krida will turn into yoga if we keep constant awareness while playing which in turn will bring love, harmony, peace and bliss. The only apparatus used in Krida yoga is mind-body (Pol, 1996). This suggests that yoga-based health promotion programs are well received by children and can favorably change the lifestyle related diseases and also improve their Academic performance.

Research Hypothesis

Suryanamaskara practice and Krida Yoga Practice has equal benefits in helping Adolescent children to cope with the Stress and Academic Anxiety.

2. Materials and Methods

Subjects

Students of 9th grade, 14-15yrs of age in an urban schooling in Bangalore. Randomized sampling

Inclusion Criteria

- Age: Mid Adolescents 14 -15yrs age group
- Sex: Male and Female.
- Students who are pursuing 9th grade in an urban schooling in Bangalore.

Exclusion Criteria

- Students who are not willing to participate in the study.
- Those who are on psychiatric medicines and physically disabled.

Design of the Study: 2 Groups Pre-post Design

Adolescent children were divided into 2 groups of 37 numbers in each group. One group was Suryanamaskara Intervention module-I and other group Krida Yoga intervention module-II for a period of 8 weeks 2 days per week.

Ethical Consideration

- Informed consent of the respondents obtained before administering the questionnaire.
- The participants in the study were explained in detail about the nature of the study and the voluntary nature of participation.
- Confidentiality was assured as part of the research process.

Assessment Tools

- The instruments used in this study: Educational Anxiety Inventory by Dr. Vishal Sood, Dr. (Mrs.) Arti Anand.
- Galvonic Stress Response - The Neulog galvanic skin response logger sensor NUL-217, was used to measure the responses.

Methods of Intervention

Suryanamaskara Group practiced 10 mns of loosening exercises to loosen the joints and remove lethargy and to bring awareness to the various parts of the body, followed by 24 rounds of Suryanamaskara. Ending by guided relaxation for 8mns. Suryanamaskara is found to be higher on the R-dispositions of physical relaxation, mental quietening, at ease/peace, rested and refreshed, strength and awareness and joy and lower on sleepiness, and stress dispositions-somatic stress, worry, and negative emotion (Godse, Godse, Shejwal, 2015).

Krida yoga group practiced 5mns of loosening practices followed by 26mns of Krida yoga from Dattaram Pol Krida Yoga practices ending the sessions with a guided relaxation for 8mns. Krida yoga games not only reveal one's character, they form it. Krida yoga gives a chance to free the pent-up emotions and thus releases a lot of stress and also help us understand our excitements and culture our emotions. They create a field of energy, breaking the barriers of Tamas, converting Rajas energy to Satvic (Pol, 1996).

Statistical Techniques

Mean, Standard deviation, Paired t-test.

3. Results

Data was analyzed using IBM Statistical SPSS 20 Package. The data were assessed for normal distribution using the Shapirowilk test.

In Table 1, there was a significant difference in the Galvanic Stress Response scores for Post-SN (M=22534.32, SD=6635.39) and Pre-SN (M=27855.74, SD=6635.39), with 95% confidence interval of difference; t (36) = 5.456 (t>1.96), p=0.000 which shows a very high significance.

Table 1: *Galvonic Stress Response – Test (SN - Suryanamaskar Group)*

Group SN	Mean	N	Std.	Std. Error	95% Confidence Interval of the Difference		t	df	p-value
					Upper	Lower			
Pre	27855.74	37	6635.39	1090.85	3343.35	7299.48	5.456	36	0.000***
Post	22534.32	37	4955.29	814.64					

p<0.05 not significant; p<0.005*Significant; p<0.001**Very Significant; p<0.000***Highly significant.

Table 2: *Galvonic Stress Response – Test (KY – Krida Yoga Group)*

Group KY	Mean	N	Std.	Std. Error	95% Confidence Interval of the Difference		t	df	p-value
					Upper	Lower			
Pre	29927.65	37	6521.51	1072.13	1143.38	7231.20	8.352	36	0.000***
Post	20377.55	37	6958.59	1143.98					

In Table 2, there was a significant difference in the Galvanic Stress Response scores for Post-KY (M=20377.55, SD=6958.59) and Pre-KY (M=29927.65, SD=6521.51), with 95% confidence interval of difference; t (36) = 8.352 (t>1.96), p=0.000 which shows equally a very high significance.

Table 3: *Educational Anxiety Inventory (SN - Suryanamaskar Group)*

Group SN	Mean	N	Std.	Std. Error	95% Confidence Interval of the Difference		t	df	p-value
					Upper	Lower			
Pre	118.35	37	23.43	3.853	13.296	27.677	5.778	36	0.000***
Post	97.86	37	21.82	3.587					

There was a significant difference in the Educational Anxiety Inventory scores for Post-SN (M=97.86, SD=21.82) and Pre-SN (M=118.35, SD=23.43), with 95% confidence interval of difference; t (36) = 5.778 (t>1.96), p=0.000 which shows a very high significance in bringing down the academic anxiety level.

Table 4: *Educational Anxiety Inventory (KY – Krida Yoga Group)*

Group SN	Mean	N	Std.	Std. Error	95% Confidence Interval of the Difference		t	df	p-value
					Upper	Lower			
Pre	119.49	37	23.91	3.93	8.903	21.367	4.926	36	0.000***
Post	104.35	37	24.00	3.94					

There was a significant difference in the Educational Anxiety Inventory scores for Post-KY (M=104.35, SD=24.00) and Pre-KY (M=119.49, SD=23.91), with 95% confidence interval of difference; t (36) = 4.926 (t>1.96), p=0.000 which shows equally a very high significance.

It can be inferred from the test results that there was statistically a very significant difference between the baseline and the post data in terms of reducing the educational anxiety and stress level in both the groups with p-value=0.000 and t>1.96.

4. Discussion

The findings in this study reveal that the practice of yoga has brought about improvement in managing and reducing stress and anxiety among other things. In the present study it evident that in both form of yoga Suryanamaskara and Krida Yoga most students enjoyed the classes and felt benefits. Most students wanted to continue yoga and would continue if it were offered in school. Positive reports include a greater kinaesthetic awareness, which some students associated with a greater respect for the body and improved self-image. Among students reporting psychological benefits, many cited stress reduction; many used yoga to manage negative emotions; and some propagated more optimism. Most thought yoga could reduce interest in the use of drugs and alcohol and increase social cohesion with family and peers. We found that a yoga program is feasible in this sample of 9^{th} graders, especially after benefits are perceived. We also found evidence that yoga may lead to emergent positive benefits in health behaviours not directly prescribed by the program. These results suggest that school-based yoga programs may be appropriate for promoting healthy behaviours at a societal level by focusing on the prevention of negative patterns during the adolescent transition.

As mentioned earlier, research on the effects of yoga on children and young people's mental health and well-being is at an early stage. When introducing yoga to children, we think it is important to keep in mind what Shakta Khalsa - a pioneer in teaching yoga to children suggests: children's yoga is not a simplified version of yoga for adults, it is unique practice. Khalsa also emphasizes that it is important to meet children where they are, and that they experience yoga as fun. The basic motivation of teachers should be that yoga strengthen children's self-esteem and focus through their consciousness of themselves from within (Hagen and Nayer, 2014). Also, earlier investigative studies have shown that the yoga program helped students (a) feel calm and focused, (b) gave them strategies to control their behaviour in stressful situations, and (c) supported a positive self-esteem (Case-Smith et al., 2010).

5. Conclusion

Adolescents are an important asset of a country because they will become tomorrow's young men and women and will provide the human potential required for the country's development. From the findings it may be concluded that, there was a significant difference in bringing down the stress level and educational anxiety in adolescent students after the yoga intervention. Also, the result of the study provides a direction to schools to reduce the stress, and educational anxiety using different strategies. Thus, it is the responsibility of family and school to provide stress free and congenial environment to adolescents for their academic growth and well-being.

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Research Article

Effect of *Dalk Layyain Kaseer* (Soft Massage) with *Roghan Sosan* (Medicated Oil) in Slowing the Progress of *Waja-ul-Zahar* (Low Back Pain)

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Abstract Waja-ul-Zahar (low back pain) involves many aspects of a person's life namely somatic psychological and social. It is one of the main reason for which individuals seek medical care. Its increasing prevalence is placing a huge burden on families, society health care providers and ultimately on Nations health. The main aim of the study was to assess the effect of Dalk layyain Kaseer with Roghan Sosan in low back pain. The present study was an interventional observational study with sample size 60 and was of 7 weeks duration. *Dalk layyain Kaseer* with *Roghan Sosan* was done on lower back for 15-20 minutes on alternate day in first week and twice a week, thereafter for another 2 weeks. Improvement in subjective and objective parameters were assessed on every week, at the end of the treatment and fortnightly for 1 month in follow up period. In this study three parameters were taken into account; LBP as a main complaint, tenderness and difficulty in walking as secondary. Pain was assessed by VAS grading from 0-10, tenderness and difficulty in walking were graded arbitrarily from 0-3 according to severity. Statistical analysis was done by using repeated measures analysis of variance (ANOVA). There was a highly significant improvement in both subjective and objective parameters ($p<0.001$).This study reveals that the test procedure with therapeutic oil has good response in reducing low back pain. No adverse effects were observed during and after trial. Thus, it can be concluded that *Dalk layyain Kaseer* with *Roghan Sosan* may be an effective regimen in the management of *Waja-ul-Zahar.*
Keywords *Dalk; Low back pain; Massage; Roghan Sosan; Unani medicine; Waja-ul-Zahar*

1. Introduction

Waja (pain) is a sudden perception of any contrary agent, which is one of the unnatural states of living body (Ibn and Abu, 2013).Pain is biopsychosial experience, which is associated with wide spread impairment in multiple domains of functioning ranging from disruption in basic activities of daily living to disruption in psychosocial function and work reduction activities. Pain is the dominant symptom of rheumatic diseases. It is not only the main cause of suffering; but also, the main key to diagnose. Pain is however an exclusively subjective manifestation but can be appreciated in all its dimensions by the person experiencing it and is not easily verified and quantified (Da Silva and Woolf, 2010; Warrell, 2010).Low back pain (LBP) is the most common musculoskeletal symptom and

poses a major socio-economic burden. An estimated 80% of the population will experience back pain during their lifetime; 90% of these patients will have resolution of their symptoms within 4 weeks (Adebajo, 2010). Low back pain is seen most frequently in patients between the ages of 20 and 40, but it is more severe when it occurs in older patients. The sex distribution is equal. Approximately 2 to 8% of patients with low back pain develop chronic disabling pain. Risk factors include heavy lifting, twisting movements, and bodily vibrations (e.g., motor vehicle crashes), obesity, and poor conditioning. Low back pain may emanate from spinal structures, including the nerve roots, facet joints, discs, vertebral bodies, and adjacent ligaments and soft tissues (Kendall, 1993).

Waja-ul-Zahar (low back pain) involves many aspects of a person's life namely somatic psychological and social. It is one of the main reason for which individuals seek medical care. Its increasing prevalence is placing a huge burden on families, society health care providers and ultimately on nations health. As an ailment, it is second only to the common cold with 70-80% of the population experiencing low back pain at some point of time. Low back pain is the most common pain syndrome in industrial countries with the highest prevalence in persons aged 45 to 65 years. The commonest age groups affected are adults and elderlies with the incidence more among females. According to Unani concept any factors either external or internal which is imparting sue mizaj barid to the lumbosacral region is the main reason of the low back pain. By affecting person's life both at home and at work place, now it becomes a public health issue because it produces significant disability by restricting the movements. To combat the low back pain, we are following many principles of treatment like physiotherapy, exercise regimen, costly analgesics, corsets etc., but all are unsatisfactory. So, it is the need of time to look forward for better, safe and low-cost alternative management. Unani system of medicine possesses possible better, safe, and low-cost treatment for Waja-ul-Zahar. Almost all ancient Unani physicians have advocated massage in slowing the progress and relieving pain in *Waja-ul-Zahar*. Particularly, with (*Har Mizaji*) hot temperamental medicinal oils – like Roghan *Sosan* (Arshid Iqbal, Mudasir Khazir and Humyra Tabassum, 2014). Because of all the above factors the classical popular regimen of Unani System of medicine i.e. Dalak with therapeutic oil (Roughan Sosan) is tested in present study for its efficacy in halting the progress and relieving the lower back pain.

2. Materials and Methods

The present study was a before and after without control study, conducted on 60 patients of LBP selected from Z.V.M Unani Medical college and hospital, Pune, after obtaining ethical clearance from Institutional ethics committee and also approved by MUHS, Nashik over a period January 2015 to June 2015. Patients were selected on the basis of clinical diagnosis. A total of 60 patients of either sex, above the 20 years and below 50 years of age, giving the history of low back pain were selected from OPD/IPD and evaluated for the consideration as a research subjects. Every subject was completely informed of the experimental procedures and had signed an informed consent statement before joining in the trial (Arshid Iqbal, Mudasir Khazir and Humyra Tabassum, 2014). Certain investigations were carried out with an aim to exclude the patients with pathological conditions mentioned under exclusion criteria like: Patients with diabetes, gout and RA, Patients having malignancy, local wounds or severe skin infection, traumatic (fracture or severe dislocation at lumbar region) patients or patients with severe systemic illness. Massage sittings were kept on alternate days in first week and twice a week in rest of the 6 weeks. Massage was done on lower back for 15- 20 minutes on alternate day in first week and twice a week there after for another 6 weeks, performed with the fingers and palms of both hands. Approximately 20 ml of oil was used in every sitting. Patients were made to lie in prone position on the massage table, with the area to be massaged was exposed properly. The treatment period was scheduled as 7 weeks (4 sittings). The assessment of efficacy of treatment in relieving low back pain, relief in tenderness and difficulty in walking were

carried out on basis of a reliable and valid scale i.e. VAS, and arbitrary scale for tenderness and difficulty in walking (both graded from 0-3) respectively. The assessment of parameters was done before starting the treatment and on 15th, 30th, 45th day. Once the patients eased of the pain totally; they were asked for follow up fortnightly for 1 month. Same pain assessment technique i.e. VAS was used to assess the pain. Statistical analysis was restricted to those patients who completed the full duration of protocol of the study. Repeated measures analysis of variance (ANOVA) was used to analyze the efficacy of the procedure. The confidence level was set to be at $p<0.05$ for significant results of treatment (Arshid Iqbal, Mudasir Khazir and Humyra Tabassum, 2014).

3. Results and Discussion

Among the 60 subjects studied, males outnumbered the females (78.%). There mean age was 34.7 (SD±8.9). Majority of them were found in the age group of 30-39 years (41.7%). Majority of patients (51.3%) belongs to such occupation in which lower back is under continuous strain. e.g., driver, mechanic, carpenter, field worker etc. The Mean ± SD score of pain, tenderness and difficulty in walking before starting the treatment, at 15th, 30th day and at the end of treatment are summarized in Table2. When the mean ± SD scores of Low-back pain, Tenderness and Difficulty in Walking were compared from baseline statistically using repeated measures analysis of variance (ANOVA) for within group pair wise comparisons (Arshid Iqbal, Mudasir Khazir and Humyra Tabassum, 2014). It was found that the average VA Score is significantly higher at visit 1 (day) compared to visit 2 (day 15) visit 3 (day 30) and visit 4 (day 45) VA scores (p value <0.001 for all).

The average improvement in VA score at visit 2 (day 15) visit 3 (day 30) visit 4 (day 45) was 20.8%, 45.0% and 70.9 % respectively (p value < 0.001 for all) Significantly higher proportion of cases had mild or moderate tenderness at visit 2 (day 15), visit 3(day 30) and visit 4 (day 45) Post-op follow-ups compared to the tenderness at visit 1 (day 0) (p-value<0.001 for all). Significantly higher proportion of cases had mild or moderate difficulties at visit 2 (day 15), visit 3 (day 30), and visit 4 (day 45) post-op follow-ups compared to the difficulties at visit 1 (day 0) (p-value<0.001 for all).

Table 1: *Base line demographic profile of subjects*

Age in years	**Number of patients**	%
<30.0	18	30.0
30.0 – 39.0	25	41.7
40.0 – 49.0	17	28.3
Total	60	100.0
Mean ± SD: 34.7±8.9		
Gender	**Number of patients**	%
Male	47	78.3
Female	13	21.7
Total	60	100.0
Occupation	**Number of patients**	%
Skilled	14	23.3
Unskilled	14	23.3
Business	11	18.3
House wife	11	18.3
Student	10	16.8
Total	60	100.0

It is evident from the above results that *dalk layyain* with *roghan sosan* have a good efficacy in relieving the pain, tenderness and difficulty in walking in *Waja- ul- zahar*. Almost all ancient Unani

physicians have advocated massage in slowing the progress and relieving pain in *Waja- ul- zahar*. Particularly, with (*Har Mizaji*) hot temperamental medicinal oils. The pain and tenderness arises from internal and external muscles, ligaments surrounding the lumbar and lumbosacral region due to *sue mizaj barid* (cold ill temperament) and accumulation of raw *phlegm* (*kham balgham*). Difficulty in movement (walking) may be directly related to pain and stiffness in the lower back. Stiffness may be due to spasm in the joint structures like tendons, capsules etc. due to *baroodat* (excessive cold). *Dalk* has a unique property to expel highly viscid and sticky matter (*ghaleez aur lasdar madah*), remove excessive cold (*buroodat munjamidah*). *Roghan sosan* possess *Musakkin Alam* (analgesic) and *Mohallil Auram* (ant inflammatory) properties. Also, *Advia musakhinah* (temperamentally hot drugs), counter the cold directly (Arshid Iqbal, Mudasir Khazir and Humyra Tabassum, 2014).

Table 2: *The comparison of improvement in objective parameter studied (n=60)*

Parameter	Visit 1 (Day 0)	Visit 2 (Day 15)	Visit 3 (Day 30)	Visit 4 (Day 45)	P-values [Intra-Group comparisons]		
					Visit 1 v Visit 2	Visit 1 v Visit 3	Visit 1 v Visit 4
VA Score	6.05 ± 1.1	4.77 ± 1.0	3.32 ± 1.0	1.75 ± 0.7	0.001***	0.001***	0.001***
% Change	0%	20.8%	45.0%	70.9%			

Values are Mean ± Standard deviation (SD). P-values by Repeated measures analysis of variance (ANOVA). P-value less than 0.05 is considered to be statistically significant. ***P-value<0.001 (Highly Significant).

Table 3: *The comparison of improvement subjective parameters studied (n=60)*

Parameter	Grade	Visit 1 (Day 0)	Visit 2 (Day 15)	Visit 3 (Day 30)	Visit 4 (Day 45)	P-values [Intra-Group comparisons]		
						Visit 1 v Visit 2	Visit 1 v Visit 3	Visit 1 v Visit 4
Tenderness	Severe	60 (100.0)	0	0	0	0.001***	0.001***	0.001***
	Moderate	0	60 (100.0)	0	0			
	Mild	0	0	60 (100.0)	60 (100.0)			
Difficulty in walking	Severe	60 (100.0)	0	0	0	0.001***	0.001***	0.001***
	Moderate	0	60 (100.0)	0	0			
	Mild	0	0	60 (100.0)	60 (100.0)			
Pain	Severe	60 (100.0)	0	0	0	0.001***	0.001***	0.001***
	Moderate	0	60 (100.0)	0	0			
	Mild	0	0	60 (100.0)	60 (100.0)			

Values are n (%). P-values by Chi-square test (Within Group pair-wise comparisons of qualitative parameters). P-value less than 0.05 is considered to be statistically significant. ***P-value<0.001 (Highly Significant).

4. Conclusion

The effect of Dalak layyein Kaseer with roghan sosan was found highly significant both statistically and clinically in relieving low back pain and associated symptoms. It seems reasonable that this regimen has clear cut edge over other regimens and would save the patients of Low back pain from

adverse effects of analgesics and NSAIDS, no clinically significant side effects were observed and overall compliance to the treatment procedure was excellent.

On the basis of the results it can be provisionally concluded that Dalak Layyain Kaseer with Roghan Sosan is safe and effective in the management of low back pain. However large and controlled studies are required to reach a final conclusion.

Acknowledgement

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Research Article

To Study the Integrated Yoga Therapy (IAYT) Effect on Quality of Life and Positive and Negative Emotions in Tribal Adolescent Girls – A Single Group and Pre-Post Design

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Abstract The tribal community faces problems by way of Poverty, Malnutrition, Low literacy, Lack of Sanitation and Quality drinking water, Lack of basic health services, Social – Traditional belief and customs etc., an overall environment will be resulted in to poor quality of life; leads to poor mental health. This research study has planned to know the effect of short term integrated yoga module for to know the effect of Quality of Life and Positive Negative Emotions of the Tribal Adolescent School Girls; living in Chhatralaya. Tribal adolescent girls; aged 10 to 19, total 46 nos. of adolescent girls were participated and attended yoga classes taught by trained yoga therapist for 15 days. The module included loosening, Suryanamaskara, asanas, breathing exercises, Krida yoga, and meditation and relaxation techniques. The assessment was carried out one prior intervention as wells as on 15th day. All the participants were asked practice regularly. The Quality of Life was measured by using Youth Quality of Life (YQOL-SF). This contains 15 perpetual items measuring the domain of sense of self, social relationship, environment and general quality of life. The Positive Negative Emotions were measured by using Positive Negative Affects Schedule (PANAS-SF). The PANAS is a 20 items self-report measure of positive and negative effects. This contains two 10 items mood scale and was developed to provide brief measure of positive and negative effects. For the results, normality test was carried out for consideration of parametric / non-parametric test. The data was found that it was normally distributed; Shapiro Wilk test; paired 't' test at 95% confidence interval level was carried out for hypothesis testing to measure the effects after 15 days IAYT. Quality of Life Results: The results showed significant improvement: t (34) = -2.202, P = 0.035. PANAS Results: PANASSF Score: For Positive Affects Mean Scores = 33.3 (S.D. ± 7.2). The results showed that there was no significant improvement (p = 0.187). The Mean Score and Standard Deviation before and after IAYT: Before: M = 39.97 (S.D. ± 5.71), After: M = 41.285 (S.D. ± 6.355). For Negative Affects: The Mean Scores according to PANAS-SF for NA is: M = 17.4 (S.D. ± 6.2). The results showed that there was no significant improvement (p = 0.068). The Mean Score and Standard Deviation before and after IAYT: Before: M=29.37 (S.D. ± 4.81), After: M = 26.91 (S.D. ± 6.96). For Positive Affect (PA): Parameters Showed significant improvement: t (9) = -2.709, P = 0.024. For Negative Affect (NA) Parameters Showed no significant improvement: t (9) = -2.022, P = 0.074. Combine Effect of Quality of Life and Positive Negative Emotions: Increased effect on Positive Affects

leads to improvement in Quality of Life and decrease the Negative Affects. Improvement in Quality of Life leads to increase in Positive Affects and decrease in Negative Affects. Thus, change in Quality of Life impacts over Emotions and Change in Emotions impacts over Quality of Life. Conclusion: Study shows the general dominants problems in tribal adolescent girls is due to their lower Quality of Life and Emotional imbalances. These can be improved with the application of regular practice of IAYT and for that awareness of about Yoga is essential for them. Finding shows that 15 days short duration Yoga intervention has significant effect on Quality of Life and Positive Affect parameters; reduction in Negative Affect found faster than Positive Affect. It is to be concluded that for overall improvement in Quality of Life and Positive and Negative Emotions, long term IAYT would be required for better to best.

Keywords *Integrated Approach of Yoga Therapy; Quality of Life; Positive – Negative Emotions; Tribal Adolescent Girls*

1. Introduction

Yoga; a way of life, practical science of human nature that enables us to realize our real selves. It deals with philosophy, psychology and practicality of conscious evolution, enables us to search the depths of the being theoretically, but first of all, experientially (Havanans, 2011).

The term ‘tribe’ is derived from the Latin word ‘tribus’. Tribal people in India are called Ā*divāsi*.

About 30% of India’s population belongs to the adolescent age group. Nearly 50% of adolescent girls aged between 15-19 years are underweight in India (UNICEF, 2012). From the demographic data (2011 Census) in Gujarat about 15% population can be considered for tribal population and the Tribal adolescent girls population can be considered around 2-3% (Demographic Status of Scheduled Tribe Population of India, Census, 2011; Sanjay, 2014).

Adolescence (10-19 years) is a period of transition between childhood and adulthood. It is an important physiological phase of life characterized by an exceptionally rapid rate of growth and development both physical and psychological (Kumar et al., 2014). Nutritional needs are required for efficient growth and development, the nutritional status of adolescent girls, the future mothers, contributes significantly to the nutritional status of the community.

The position of tribal girls is dependent, facing number of problems related to social structure – descent, succession and inheritance, economy problems & livelihood, motivation for education, food habits, decreased physical activities etc. They are becoming susceptible to various metabolic risk factors; related to their dietary profile and physical activity, Major physical and mental problems due to lifestyle are Anemia, Malnutritional disorders, Lower BMI, Menstrual & pregnancy related problems, Anxiety, Depression, Stress etc. and it is worth investigating the prevalence of life style disorders. Thus, studies related to their mental – physical disorders among tribal girls needs immediate attention (Kshatriya, 2014).

Quality of life is a uniquely personal perception, denote the way that individual feel about their aspects of lives (Quality of Life measurement, Gill & Feinstein, JAMA Aug. 24/31, 1994, Vol 272 No.8).

Emotions can be defined as mental state of wellbeing consists of different feelings, thoughts, bodily changes, expressive behaviors’, and inclinations to act. The precise combination of these elements varies from emotion to emotion and may or may not be attended by overt behaviors’ [Emotions (Social Psychology)].

Positive Affects (PA) Frederickson (2009) identified ten most common positive emotions as, Gratitude, Happiness, Interest, Calmness, Confidence, Pride, Enjoyment, Inspiration, Awe and Love. High Positive Emotions is a state of high energy, full concentration, and pleasurable engagement. Low Positive Emotions is characterized by sadness and lethargy (Watson and Clark, 1988; Watson, D. and Tellegen, A. 1988).

Negative Affect (NA) is a general dimension of subjective distress and unpleasurable engagement that subsumes a variety of aversive mood states, including anger, contempt, disgust, guilt, fear, and tension, with low Negative Emotions being a state of calmness and serenity.

The aim and objectives of the study is to measure the effect of Integrated Approach of Yoga Therapy on Quality of Life and Positive and Negative Emotions in Tribal adolescent girls by creating awareness about yoga and find out combine effect of QOL and PANAS. For above, following hypothesis were tested:

IAYT will be effective on:

(1) Quality of Life
(2) Positive emotions
(3) Negative emotions
(4) Positive emotions parameters individually
(5) Negative emotions parameters individually and the Null hypothesis were in terms of “IAYT will be not effective” for above 5 hypotheses.

2. Material and Methods

The Institutional Ethical Committee Approval (LAKULISH YOGA UNIVERSITY, AHMEDABAD) was obtained before the starting of the study. The IAYT was done at Shree Santram Kanya Chhatralaya, 18, Shantikunj Society, VKV Nadiad, Gujarat. The heads of the charitable trust were explained the details of the study and their written consent was taken. Each participant who participated in IAYT was also explained in detail about the study.

Sample Size: 46 nos.

Inclusion Criteria

Those who were adolescents’ girls from tribal area and willing to participate in a 15 days IAYT programme were selected.

Exclusion Criteria

Those who were Non-adolescent girls, non-tribal, suffering from any chronic conditions or disabilities, not attended 15 days IAYT and not considered for Normality test during statistical analysis were excluded.

Design

In this study, single group pre-post design was chosen as the researcher attempts to test the effectiveness of the yoga.

Methods

From the available 49 girls, the girls are selected as per selection criteria and accordingly 46 subjects attended the 15 days yoga intervention programme given by yoga therapist. The intervention included jogging, loosening, breathing exercises, dynamic Suryanamaskara, asana, pranayama, relaxation techniques. Krida yoga on the first day, 8th day and 15th day. The assessment was done 1st day prior to intervention and on 15th day after completion of IAYT class. Questionnaires of Quality of Life and PANAS were translated in local language for participants.

Both, Youth Quality of Life Instrument – Short Form (YQOL-SF) Version 2.0 and Positive and Negative Affect Schedule (PANAS – SF) were assessed before and after intervention. Vital parameters included IN GENERAL how you feel about your life on 0-10 scale with Not

At all to Very Much and then transformed to 0-100 scale with a higher score representing a higher quality of life. Mean is calculated. The PANAS consists two 10 items mood scales and was developed to provide PA and NA. the Positive emotions such as, Interest, Excitement, Strong, Enthusiastic, Proud, Alertness, inspired etc. and the Negative Emotions such as, Distressed, Upset, Guilty, Scared etc. As per PANAS scale structure item nos.1, 3, 5, 9, 10, 12, 16, 17 and 19 shows positive emotions and remaining item no. shows Negative Emotions.

Intervention

Table 1 shows the IAYT module, developed by a researcher Yoga therapist in consultation with Guide and approved by research guide. The intervention was given every day, one hour in the evening time.

Table 1: *Intervention protocol*

No.	Types of Yoga Exercises	Round	Time (minutes)
>>	Krida Yoga		
1	Prayer		5
2	Loosening Exercise		5
	#Slow jogging	3/5	
	#Neck movement # Wrist movement	3/5	
	#Shoulder movement # Waste rotation	3/5	
	#Bending:		
	> Forward, Backward, Side	3/5	
	# Knee rotation # Ankle rotation	3/5	
3	Relaxation: IRT		1
4	Breathing Practice		5
	#Hand stretch #Ankle Stretch #Tiger #Straight Leg Rise		
5	Relaxation: Savassana - Deep Breathing		1
6	Surya Namaskar (Dynamic)	10	10
7	Relaxation: Savassana - QRT		3
8	Standing Assanas		2
	#Tadasan # Vrukshana #Ardhchakrasana	1	
	#Pad hastasana #Trikonasana	1	
9	Sitting Assanas		3
	#Ushtrasanas #Gurulonashan	2	
	#Butterfly & Bhadrasan	2	
	#Vajrasana #Shashankasana	2	
10	Prone Asanas		3
	#Bhujangasana #Salabhasana	2	

11	Supine Assana		3
	#Sarvangasna #Halasana	2	
12	Relaxation: Savassana - DRT		7
13	Pranayama	5	10
	#Kapalbhati #Nadishudhi #Sectional breathing #Bhramri		
14	Aumkar Chanting	5	2
	Total Time (minutes)		60

3. Results

Results for Quality of Life and Positive and Negative Emotions are summarize in Table 2.

Data was found normally distributed, Shapiro Wilk test was considered, 't' test was carried out for hypothesis testing at 95% interval level. For Quality of Life p = 0.035, which shows significant improvement.

For Positive Affect, according to PANAS-SF scoring: Positive Affect Score: Mean Score = 33.3 (S.D.±7.2). For Negative Affect Sore: Mean Score = 17.4 (S.D. ± 6.2). Achieved result is: For Pre-Positive: Mean Score = 39.9714 (S.D. ± 5.7111), for Post Positive: Mean Score = 41.2857 (S.D. ± 6.35504). The results show improvement is achieved. In respect of hypothesis testing, achieved p value is 0.187, hence no significant improvement of Positive Affect.

For Pre-Negative: Mean Score = 29.3714 (S.D. ± 4.80861). For Pre-Negative: Mean Score = 26.9143 (S.D.± 6.9552) The results show improvement is achieved. In respect of hypothesis testing, achieved p value is 0.068, hence no significant improvement of Negative Affect.

Positive Parameters and Negative Parameters were separately assessed for effect of IAYT on Positive and Negative emotions. For Positive Parameters: Pre-Mean Value :141.9 (S.D. ± 9.445) and Post Mean Value 151.4 (S.D. ± 8.383) which shows improvement. Hypothesis is tested and achieved p value is 0.024, which shows significant improvement. For Negative Parameters: Pre-Mean Value: 100.1 (S.D. ± 14.03527) and Post Mean Value 90.8 (S.D. ± 11.00303) which shows improvement. Hypothesis is tested and achieved p value is 0.074, which shows no significant improvement.

Table 2: *Summary of results for quality of life and positive & negative emotions*

Variables		Mean	Standard deviation	df	P-value
Quality of life	Pre	131.6571	10.12551		
	Post	135.5143	6.76223		
	Paired 't' test	3.85714	10.36153	34	0.035*
Positive effects	Pre	39.9714	5.71111		
	Post	41.2857	6.35504		
	Paired 't' test	1.31429	5.76894	34	0.187
Negative effects	Pre	29.3714	4.80861		
	Post	26.9143	6.9552		
	Paired 't' test	1.31429	5.76894	34	0.068
Positive parameters	Pre	141.9	9.445		
	Post	151.4	8.383		
	Paired 't' test	9.5	11.088	9	0.024*
Negative parameters	Pre	100.1	14.03527		
	Post	90.8	11.00303		
	Paired 't' test	9.3	14.54533	9	0.074

4. Discussion

The study is assessed by reviewed the ancient literature and scientific literature. The ancient literature review is based on various classical texts such as, Patanjali Yoga Sutra, Bhagvad Gita, Upanishad, Hathyoga Texts, Ayurveda texts etc. Review providing knowledge about relationship between yoga and mental health and good quality of life.

Earlier studies in scientific literature review shows that most of tribal girls are belong to low socio-economic status, various physical and psychological problems were found to be significantly higher (Swarnalata et al., 2016).

The yoga showed significant reduction in negative attitude and increase in positive attitude (Ashwini HR et. al, 2015). Yoga plays protective or preventive role in maintaining mental health (Khalsa et al., 2011) and also provides the lifelong behavioral skill, enhance self-efficacy and self-confidence. (Büssing et al., 2012).

Yoga help children and young people with stress and thus contribute positively to balance in life, well-being and mental health (Hagen et al., 2014). Majority of tribal adolescent were found to have poor level of emotional intelligence (Nandwana and Joshi, 2010).

The Yoga practices are adopted to balance and harmonize the disturbances at each of the 5 koshas and tackle the complex psychosomatic ailments. The IAYT module is based on classical Hathyoga texts.

Effect of IAYT on Panch Kośa Level

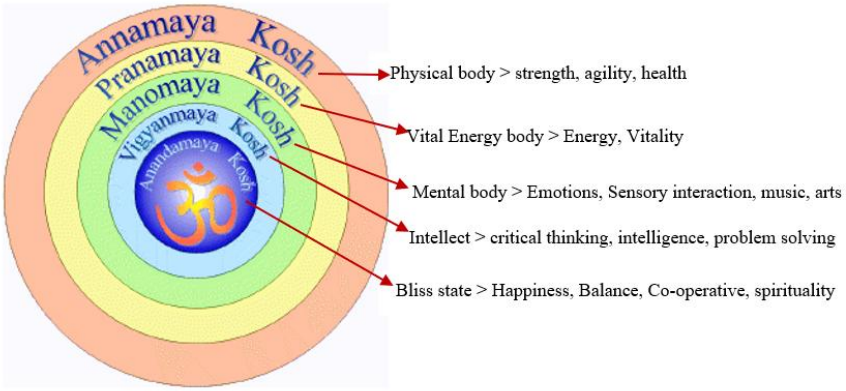

Figure 1: *PANCH KOŚA*

The Figure 1 shows the Panch Kośa model. The disturbances in the Manomaya Kośa percolates into the physical layer (Annamaya Kośa) through the Pranamaya Kośa. Hence in the treatment of the psychosomatic ailments, it becomes mandatory to work at all these levels of our existence to bring about the quickest results. The Integrated Approach thus consists in not only dealing with physical sheath, relief of which could at best be temporary as is happening with the drugs used in the modern medicine to treat diseases of the psychosomatic illnesses. It also includes using techniques to operate on different sheath of our existence. The Figure 2 shows the pathophysiology of disease manifestation stages according to modern science.

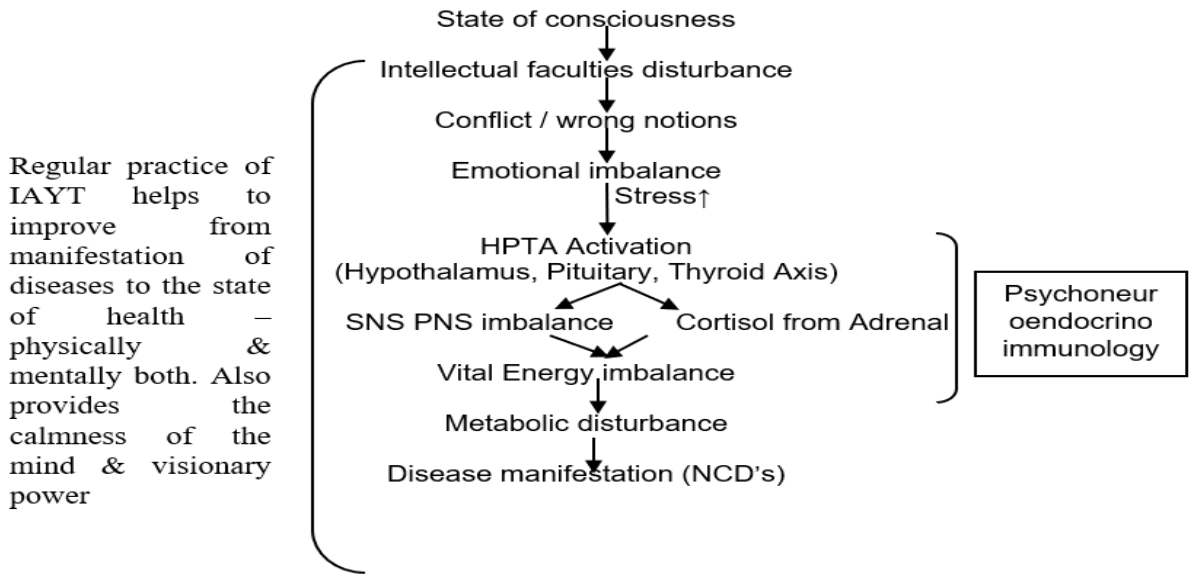

Figure 2: *Pathophysiology of manifestation of psychosomatic diseases (NCD) (Bhavanani, A.B.)*

Effect of IAYT

Quality of Life includes social parameters and directly affect the life style of tribal adolescent girls. poor life style, poor education, lack of healthy social interaction, etc. give rise to unhealthy environment – poor life quality, ultimately effects the Samskara and these leads to Aadija – Vyadhi at PANCH KOŚA level (Nagendra and Nagarathna, 2015: Integrated approach of yoga therapy for positive health. Swami Vivekanand Yoga Prakashan, Bangalore).

According to Patanjali: In our original state we are totally stress free, we are blissful. The state devoid of any tension and pressure. Thinking or feeling is the sense of all bliss, knowledge, creativity and freedom, Patanjali call it 'Self' (PYS II / 20) (Nagendra and Nagarathna, 2015: New perspective in stress management. Swami Vivekanand Yoga Prakashan, Bangalore).

द्रष्टा दृशिमात्रः शुद्धोऽपि प्रत्ययानुपश्यः॥२०॥

Emotional imbalances associated with mental and physical disturbances like feelings, thoughts, behaviors etc. in the form of strong likes and dislikes bring about imbalances in prana (vital energy) in the Pranamaya Kośa, which percolates to the Annamaya Kośa i.e. physical sheath (Nagendra and Nagarathna, 2016: Yoga practice for anxiety, depression. Swami Vivekanand Yoga Prakashan, Bangalore).

In PANAS emotions are grouped as Positive Affect and Negative Affect of different intensities. The Negative Affect (NA) leads towards anxiety, depression and other psychosomatic illness, whereas Positive Affect (PA) leads towards higher state of bliss, which brings lower down NA.

Table 3: *Changes in positive parameters for effectiveness*

% Changes in PA weightage (increased)			% Changes in PA weightage (decreased)		
	Before	After		Before	After
Interested	9.09	10.77	Enthusiastic	10.29	10.24
Excited	9.87	10.24	Proud	11.06	10.96
Strong	9.94	10.04	Alert	9.73	9.71
Active	9.23	9.45	Inspired	11.06	9.71
Total	38.13	40.49	Determined	10.08	9.58
			Attentive	9.65	9.31
			Total	61.87	59.51

Table 4: *Changes in negative parameters for effectiveness*

% Changes in NA weightage (increased)			% Changes in NA weightage (decreased)		
	Before	After		Before	After
Guilty	9.69	8.15	Distressed	11.69	11.78
Scared	12.19	10.02	Upset	9.29	11.45
Jittery	11.59	9.47	Hostile	8.39	9.80
Afraid	9.59	9.47	Irritable	9.29	9.69
Total	43.06	37.11	Ashamed	8.09	8.70
			Nervous	10.19	11.45
			Total	56.94	62.89

Based on Table 3 and 4, it is observed that 4 numbers of Positive Parameters are increased and parallel 4 numbers of Negative Parameters are decreased. Thus, it can be said that increase – decrease in Positive and Negative parameters are equally proportionate to each other.

Combine Effect of QOL AND PANAS

Based on the above discussion of results, it can be concluded that Quality of Life and Positive – Negative Emotions are related with each other. The combine effect of Quality of Life and PANAS can be summarized as under (Figure 3):

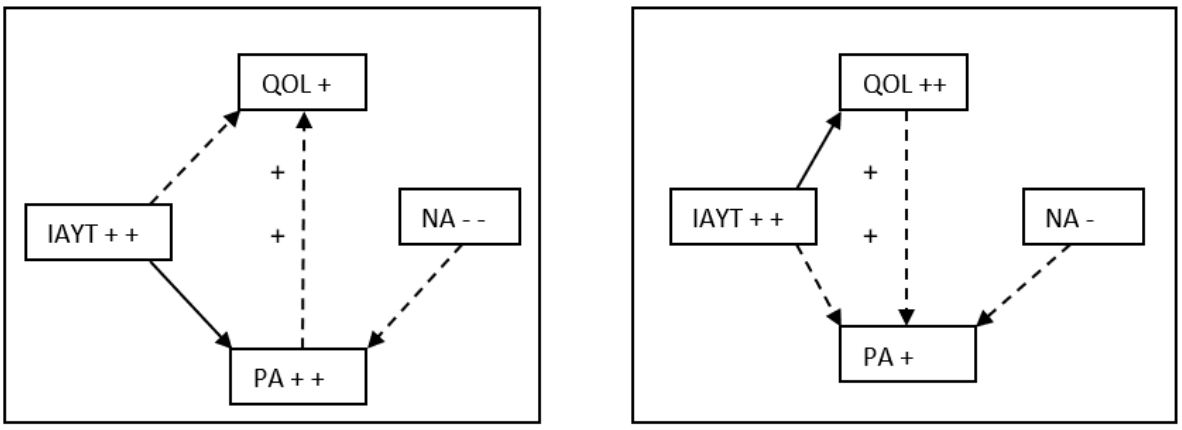

Figure 3: *Model of combine effect of QOL + PANAS*

From the above; combined effect of Quality of Life and PANAS, it can be concluded that the IAYT is effective on QOL and PANAS. Increased effect on Positive Affects through IAYT leads to improvement in quality of Life and decrease the Negative Affects. Likewise, Improvement in Quality of Life leads to increase the Positive Affects and thereby decrease in Negative Affect.

It can be concluded that any two factors i.e. Quality of Life + Increase in Positive Emotions will lead to control another remaining factor.

5. Conclusion

Study shows the general dominants problems in tribal adolescent girls is due to their lower Quality of Life and Emotional imbalances. These can be improved with the application of regular practice of IAYT and for that awareness of about Yoga is essential for them. Finding shows that 15 days short duration Yoga intervention has significant effect on Quality of Life and Positive Affect parameters; reduction in Negative Affect found faster than Positive Affect. It is to be concluded that for overall improvement in Quality of Life and Positive and Negative Emotions, long term IAYT would be required for better to best.

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Research Article

A Reconnoiter on the Incidence and Alliance of T2DM and Substandard Lifestyle Habits among Employees of Aligarh Muslim University Aligarh: An Observational Study

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Abstract WHO has defined diabetes mellitus (DM) as a heterogeneous metabolic disorder characterized by common features of chronic hyperglycemia with disturbance of carbohydrate, fat, and protein metabolism in addition; the prevalence of diabetes among all age groups worldwide which was estimated to be 2.8% by the year 2000 has been projected to rise 4.4% by 2030. Type 2 diabetes mellitus is closely related to lifestyle factors including diet, physical activities, alcohol, smoking, tobacco chewing, calorie intake as well as obesity and positive family history. Among these possible risk factors, personal habits are considered to be an important one in the causation of T2DM. It was aimed to assess personal habit as a risk factor among AMU employees. The aim and objective of the study was to identify the personal habits as risk factors for T2DM among the employees of AMU Aligarh and to find out the association of established risk factors of personal habits with incidence of T2DM. The present study was an observational cross- sectional study; conducted to find out the risk factors of T2 DM among employees of Aligarh Muslim University, Aligarh, UP, India. The duration of study was of 15 months. The sample Size was Calculated 614 (rounding off 650) using formula n = 4pq/L2. The ethical clearance was obtained from the IEC (Institutional Ethical Committee). Diagnosed cases of T2DM of both sexes were included in the study. A Pre-typed semi-structured proforma consist of several questions was prepared for collection of data from the subjects. Each subject was inquired about the current and previous status of personal habits. The findings of the study suggested that currently 29.1% were smokers while 18.3% were tobacco chewers and 3% were alcohol consumers. The history showed that previously there were 48.7% smokers while 36.1% were tobacco chewers and 4.6% were alcohol consumers. The difference itself suggests of gradual enhancement of awareness among employees regarding the bad personal habits and their impact on health. Most of the subjects were having good personal habits as 51.3% subjects were non-smokers while 63.9% were non-tobacco chewers and 95.4 were non-alcohol consumers.

Further there is a clear evidence of decreasing the number of smokers, tobacco chewers and alcohol consumers after the diagnosis of T2DM. With the available data it can be concluded that personal habits are a possible Risk factor in the development of Diabetes Mellitus Type 2.
Keywords *Alcoholism; Smoking; Tobacco chewing; T2DM*

1. Introduction

Diabetes mellitus is an important public health problem worldwide (Ramchandran et al., 2012; Ramchandran et al., 2010; Anthony et al., 2008). The prevalence of diabetes among all age groups worldwide which was estimated to be 2.8% by the year 2000 has been projected to rise 4.4% by 2030. Type 2 diabetes mellitus is the more common type and accounts for 80-90% of all forms of diabetes mellitus, and many of the affected patients are relatively asymptomatic initially. During last few decades' diabetes has broken all the restriction of age, socioeconomic status, life style etc. WHO recently declared the India as the capital of diabetes. 80 million diabetics is the projected number up to 2030 for India (Anthony et al., 2008; Vijaykumar et al., 2009; Fazil et al., 2013). Approximately, 40 million cases of the diabetes residing in India.

The relation between alcohol intake and risk of T2DM has been examined in relatively few prospective studies (Stampfer et al., 1988; Feskens and Kromhout, 1989; Holbrook et al., 1990; Balkau et al., 1991; Hodge et al., 1993; Rimm et al., 1995; Perry et al., 1995; Tsumara et al., 1999; Wei et al., 2000; Ajani et al., 2000). Some studies reported no association, while others have suggested that heavy drinking is a risk factor for diabetes (Feskens and Kromhout, 1989; Holbrook et al., 1990; Balkau et al., 1991; Hodge et al., 1993; Wei et al., 2000). On the other hand, recent prospective studies suggest that light to moderate drinking may protect against the development of diabetes (Rimm et al., 1995; Perry et al., 1995; Tsumara et al., 1999; Ajani et al., 2000). This is consistent with observations that low to moderate amounts of alcohol intake increase insulin sensitivity and it is established that insulin resistance and hyperinsulinemia play an important part in the etiology of T2DM (Mayer et al., 1990; Facchini et al., 1994; Kiechl et al., 1996; Lazarus et al., 1997; Haffner et al., 1990; Saad et al., 1991). Thus, the apparent protective effects of light to moderate drinking may be partially mediated by serum insulin concentrations.

There is a growing body of evidence to show that smoking is a risk factor for Type 2 Diabetes (Hsin-Chieh et al., 2010; Ko and Cockram, 2005; Rimm et al., 1995; Radzeviciene et al., 2009; InterAct Consortium et al., 2014). Several hypotheses have been proposed to explain this link. Smoking has been identified as a possible risk factor for insulin resistance (see below), a precursor for diabetes. Smoking has also been shown to deteriorate glucose metabolism which may lead to the onset of Type 2 diabetes (Fagard and Nilsson, 2009).

There is also some evidence which suggests that smoking increases diabetes risk through a body mass index independent mechanism (Cullen et al., 2009; Nagaya et al., 2008). Smoking has further been associated with a risk of chronic pancreatitis and pancreatic cancer, suggesting that tobacco smoke may be toxic to the pancreas (Johns Hopkins Medicine website; Lynch et al., 2009; Ye et al., 2015). A systematic review of 25 studies found that all but one revealed an association between active smoking and an increased risk of diabetes (Willi, 2007). On the basis of this review, it is estimated that 12% of all Type 2 diabetes in the United States may be attributable to smoking (Ding et al., 2007).

Smoking is associated with multiple complications of diabetes; the risk of complications associated with tobacco use and diabetes in combination has been stated to be approximately 14 times higher than the risk of either smoking or diabetes alone (Haire-Joshu et al., 2005). Increased risks of kidney disease (nephropathy) have been shown in Type 1 diabetes patients who smoke (Mulhauser et al., 1996). There is also evidence that both active and passive smoking increases the risks of chronic

Kidney disease in Type 2 diabetes patients (Jiang et al., 2014). Smoking has been found to increase the risk of albuminuria (the presence of protein in the urine, which indicate signs of kidney disease) in both Type 1 and Type 2 diabetes (Ritz et al., 2014; Chase et al., 1991).

A small study of 33 people with Type 2 diabetes with kidney disease found that smokers' kidney function declined more rapidly than that of non-smokers, despite drug treatment, suggesting that smoking cessation could slow the progression of kidney disease in people with diabetes who use ACE inhibitors (Chuahirun and Wesson, 2002).

2. Methodology

Study Design: The present study was an observational cross-sectional study conducted to find out the risk factors of T2 DM among employees of Aligarh Muslim University, Aligarh, UP, India from February 2016 – May 2017 (15 months).

Sample Size: The sample size was Calculated 614 (rounding off 650) using formula

$$n = 4pq/L^2$$

Ethical clearance: The ethical clearance was obtained from the IEC (Institutional Ethical Committee).

Inclusion criteria

- Diagnosed cases of T2DM.
- Patients of either sex.
- Persons having sound mental status

Exclusion Criteria

- Patients of Type 1 Diabetes.
- Patients with any physical or mental problem.

Collection and Analysis of Data

Data was collected by the survey of each faculty of the institution. Survey data was processed and analyzed by using software "R".

3. Results

Table 1: *Distribution of the population according to the personal habit*

	Cigarette smoking		Tobacco chewing		Alcohol consumers	
	No. of individuals	Percentage	No. of Individuals	Percentage	No. of individuals	Percentage
Current users	189	29.1	20	3.0	119	18.3
Ex-users	127	19.6	11	1.6	116	17.8
Non-users	334	51.3	619	95.4	415	63.9
Total	**650**	**100.0**	**650**	**100.0**	**650**	**100.0**

4. Discussion

The present study delineated that 48.7% (316) were smokers (cigarette & bidi) among studied population, while 51.3% (334) were non-smokers. Present history of these patient showed that currently there were 29.1% (189) cigarette smokers as 19.6% (127) of population had quitted smoking after diagnosis of T2DM. Fagard RH et al. identified smoking as a possible risk factor for insulin resistance, a precursor for diabetes. Smoking has also been shown to deteriorate glucose metabolism which may lead to the onset of Type 2 diabetes (Fagard and Nilsson, 2009).

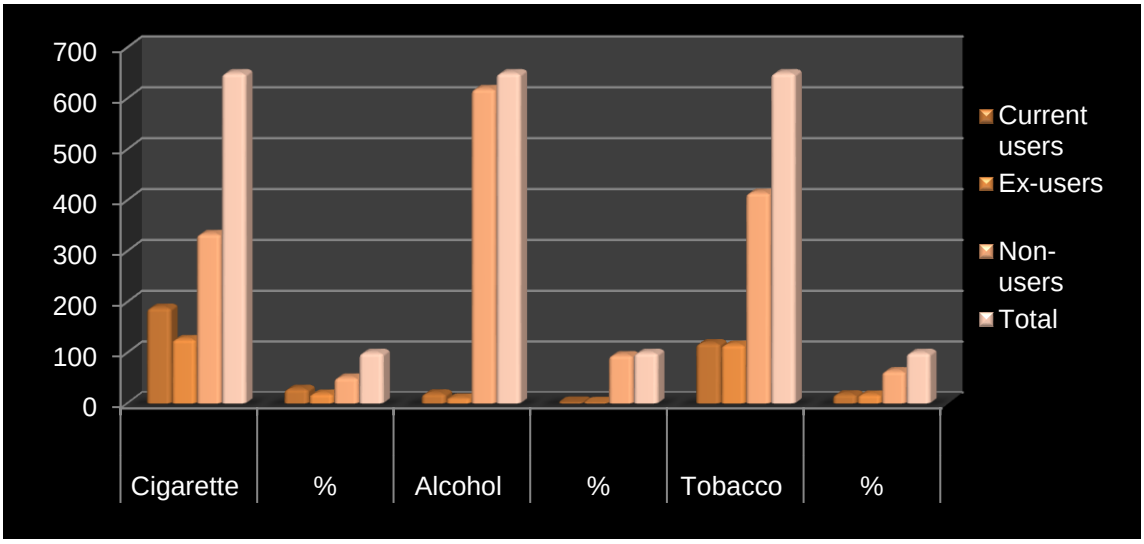

Figure 1: *Distribution of the population according to the personal habit*

Currently 18.3% (119) were tobacco chewers while 17.8% (116) had quitted this habit and 63.9% (415) were the non-tobacco chewers. Many studies had proven its link in the development of T2DM (Fagard and Nilsson, 2009; Willi, 2007). A systematic review of 25 studies found association between active smoking and an increased risk of diabetes (Fagard and Nilsson, 2009; Willi, 2007).

In Present study 4.6% (31) subjects were found to be alcoholic while 95.4% (619) were non-alcoholic. Our study revealed that 1.6% (11) people had quitted alcohol consumption after diagnosis of T2DM. Current data indicates that majority of the population were non-alcoholic but this data is not sufficient to draw conclusion for other population group because this study group consist of a population which have 90.4 (587) subjects from Muslims community where alcohol is prohibited due to religious belief. Therefore, the present result is not sufficiently suggestive for establishing a relationship of alcohol intake in the development of T2DM.

Nicholas et al. concluded in their study that occasional episodes of alcohol consumption generally do not worsen blood sugar control in people with diabetes and may even have beneficial effects. Regular consumption of even moderate amounts of alcohol (i.e., two to four drinks per day), however, clearly interferes with blood sugar control and increases the risk of impotence; peripheral neuropathy; and, possibly retinopathy (Emanuele et al., 1998). It was found in this study that 48.7 % were smokers (Cigarette & Bidi), 35.6% were found as tobacco chewers, 4.6% were those who were alcoholics.

5. Conclusion

Present study concluded that bad personal habits and bad lifestyle have massively worse impact on life. Personal habits like smoking, tobacco chewing, and alcoholism undoubtedly act as a precursor

for the development of T2DM. It is recommended to avoid these things to live healthy and enjoy diabetic free as well as disease free life.

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Research Article

Scope of Repertory to the More Characteristic Symptoms of the Materia Medica by Constantine Lippe in the Cases of Photodermatitis - A Randomized Single Blind Control Trial

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Abstract Photo dermatitis is abnormal skin reaction to sunlight and is common now a days esp. in tropical countries like India. This study embraces use of homoeopathic remedies in such cases using Lippe's Repertory which is a type of general repertory. This is a Randomised Control Study which was done taking 50 cases each in interventional and control arms. Response to the treatment was assessed using scales like DLQI, Patient GAI and Physician GAI. The results were quite encouraging as 66 percent cases in control arm showed improvement whereas 30 percent patients improved in control arm. Statistical parameters like DLQI scale showed significant improvement in interventional arm in comparison to the control arm. Study approves efficacy of homoeopathic remedies in cases of Photo dermatitis using a general repertory. More such studies can be conducted in future to establish better cure rates esp. by using anti-miasmatic intercurrent doses.

1. Introduction

Photodermatitis is an abnormal skin reaction to sunlight, or more specifically to ultraviolet (UVB) rays (Lehmann, P. and Schwarz, 2011). It can be acute (sudden) or chronic (on going). Photodermatitis occurs when immune system reacts to UV rays, may develop a rash, blisters, or scaly patches. Exposure levels and reactions differ for every person.

Several factors can make skin sensitive to light UV rays, including having an inherited tendency for photosensitivity, taking certain medications, or being exposed to plants including weeds and edible plants.

Homoeopathy offers a holistic approach, that is its application is based upon individual variations of the sufferers of same ailment. Thus, it not only considers the particular aspect of the disease but also considers the diseased person as an individual entity.

This was an OPD based study in which 100 patients were registered randomly in the study from which 50 patients each were taken for intervention arm and control arm. Medicines were selected

following Homoeopathic Principles considering totality of the symptoms using Lippe Repertory with proper management.

Research Question for this study was, do patients of Photodermatitis receiving Homoeopathic medicines selected with aid of Lippe Repertory have more improvement than patients receiving mere placebo?

Lippe Repertory is the first repertory based on deductive logic that is working out case from general to particular. The mind and generalities chapters are the most important chapters of the repertory. Modalities are given in detail in this repertory. According to Homoeopathic philosophy mental itch or psora is the origin of diseases – acute or chronic; thus, to alleviate the basic cause and establish cure, repertories based on deductive logic will prove to be useful.

Homoeopathy takes into account the root cause of disease i.e., an imbalance of vital force and the underlying miasmatic influence esp. in resistant cases. It restores this balance by gently stimulating the vital force by strengthening it naturally and completes the healing process with the help of indicated remedy, viz. similimum.

Assessment of clinical condition and general health of the patients was done by using DLQI, Physician Global Assessment Index and Patient Global Assessment Index.

Study was conducted at O.P.D./I.P.D. of Dr. Madan Pratap Khunteta Homoeopathic Medical College, Hospital & Research Centre, Station Road, Jaipur & O.P.D. at Homeopathy University, Saipura, Sanganer, Jaipur for one-year duration with effect from 04/07/2015 to 03/07/2016.

Aims and Objectives

Aim

To ascertain the efficacy of Homoeopathic medicines by comparing the effects of Homoeopathic medicinal intervention with placebo in the treatment of Photodermatitis.

Objectives

To study the effectiveness of Homoeopathy over Placebo arm in the cases of Photodermatitis using Lippe Repertory.

To study the extent of improvement in cases using DLQI, Patient GAI, and Physician GAI.

2. Materials and Methods

Tools

- A detailed case taking proforma was especially designed for the study.
- Patient information sheet and patient consent form.
- Repertory to the More Characteristic Symptoms of the Materia Medica by Constantine Lippe.
- Dermatological Life Quality Index (DLQI), Physician global assessment and Patient global assessment index.
- Medicines procured from Sharda Boiron Limited, Sitapura, Jaipur were dispensed from the Hospital‘s dispensary.

Detailed case taking & clinical examination was carried out to clinch the diagnosis. Effectiveness of the Homoeopathic treatment was assessed according to statistical principles on the basis of change in the score taken before and after treatment with Homoeopathic medicines as well as subjective feeling of improvement.

Inclusion criteria

- Patients of all age groups, of both sexes were included irrespective of their socioeconomic status presenting with Photodermatitis.
- Patient who gave consent to participate in the study.

Exclusion Criteria

- Patients with no clear history of Photodermatitis or having genetic or metabolic cause.
- Patients with other systemic disease or congenital abnormalities.
- Patients who refused to give their consent for the study.

Study Design

- Allocation - Patient fulfilling the eligibility criteria were enrolled and randomized systematically to receive either the homoeopathic intervention or identical placebo.
- Selection between interventional and control was done by systemized control study- alternate cases were allotted in control group.
- Type of study - Perspective, Experimental, Randomized Placebo Control
- End point classification - Efficacy study Masking - Single blind, the patient was remained blinded to the identity of the treatment group.
- Primary purpose - Treatment

3. Results

Following parameters were fixed according to the type of the response obtained after the treatment:

Cure: Greater than 90% improvement in Patient and Physician Global Assessment Index, Dermatological Life Quality Index (DLQI) for a period of 3 months along with feeling of mental and physical well-being and having no relapse of symptoms up to 6 months or more.

Improvement

- Mild: less than 30% improvement in Patient and Physician Global Assessment Index, DLQI.
- Moderate: 30 to less than 60% of improvement in Patient and Physician Global Assessment Index, DLQI.
- Marked: 60 to less than 90% of improvement in Patient and Physician Global Assessment Index, DLQI.
- Status QUO: When there was no change in Patient and Physician Global Assessment Index and DLQI.
- Worse: When there was no improvement in condition of the patient and instead his /her complaints got worse in respect to DLQI, Patient and Physician Global Assessment Index. This was assessed in view of Homoeopathic aggravation, disease & medicinal aggravation. Counseling of patient was done accordingly; if aggravation was continued for more than 30 days then it was considered as Worse.

- Dropped Out: When patient discontinued the treatment during the course of study or showed poor compliance.

Benefits of the Study

Complete disappearance of symptoms of Photodermatitis with betterment in general health. This Study provides strong evidence of efficacy of Homoeopathic intervention.
Allows standardization of study maneuver and outcome assessment.

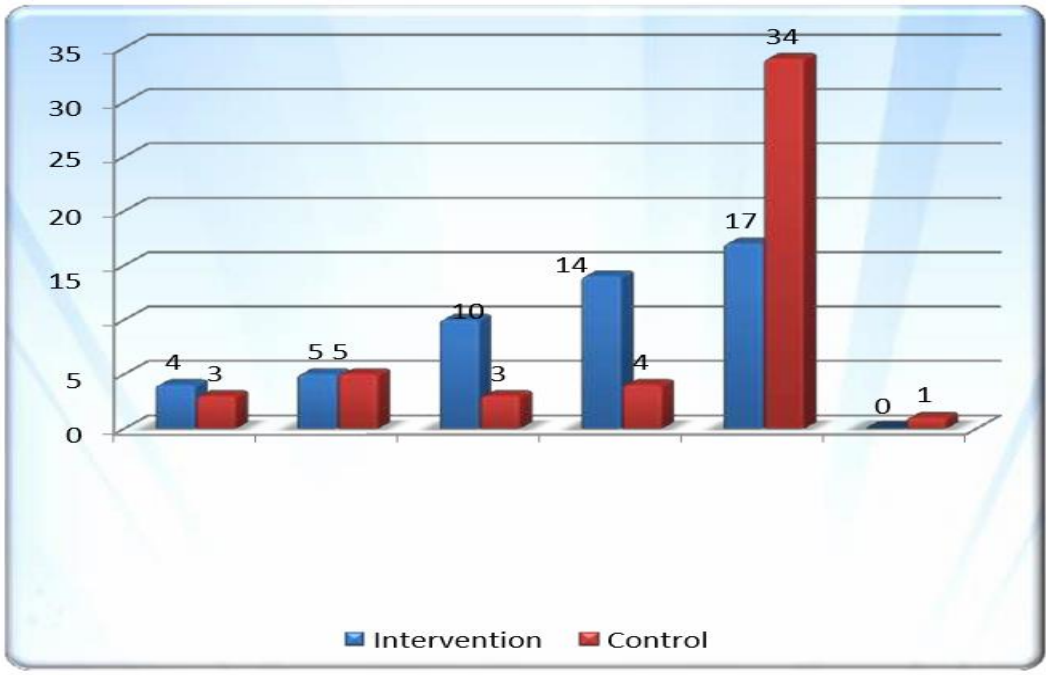

Figure 1: *Intervention & Control arms*

As shown in above figure, in intervention arm 4 (8%) cases got cured, 5 (10%) showed marked improvement, 10 (20%) showed moderate improvement, 14 (28%) got mild improvement, 17 (34%) were status quo, whereas in control arm 3 (6%) cases got cured, 5 (10%) showed marked improvement, 3 (6%) showed moderate improvement, 4 (8%) got mild improvement, 34 (68%) were status quo and 1 case (2%) got worse.

Test Statistic and Data Analysis

Paired t-test:

Paired t-test is applicable to study the intra-arm (i.e. within Intervention & Control arms) difference of the first and final scores of DLQI, Phy. GAI & Pt. GAI.

Null Hypothesis H_0: There is no significant difference in pre and post mean scores of DLQI, Phy. GAI and Pt. GAI.

Alternative Hypothesis H_1: There is a significant difference in pre and post mean scores of DLQI, Phy. GAI and Pt. GAI.

Table 1: *Paired sample t-test of Interventional Arm*

S. No.	Assessment Scales (First & Final Scores)	Mean	Standard Deviation	T (cal)	d. f.	p- value
1	DLQI	2.620	2.791	6.637	49	0.000*
2	Phy. GAI	1.780	1.788	7.041	49	0.000*

Significant at 5% level of significance

From Table 1, we can see that the p-values corresponding to the three assessment scores DLQI, Phy. GAI and Pt. GAI are very less than 0.05, indicating a significant positive difference in the first & final scores in intervention arm, which gives us the evidence to reject the null hypothesis. The Quality of Life & Global Assessment Indices from Physician and Patient were significantly improved after the medication was provided.

Table 2: *Paired sample t-test of Control Arm*

S. No.	Assessment Scales (First & Final Scores)	Mean	Standard Deviation	T (cal)	d. f.	p- value
1	DLQI	2.040	3.912	3.687	49	0.001*
2	Phy. GAI	1.160	1.811	4.529	49	0.000*
3	Pt. GAI	1.280	2.051	4.413	49	0.000*

Significant at 5% level of significance

t-test for Difference of two means for Independent Samples

This test is applicable to study the inter-arm analysis (i.e. between Interventional & Control Arms) of differences of first & final scores of DLQI, Phy. GAI and Pt. GAI. The proposed hypothesis is:

Null hypothesis H_0: There is no difference in the increment in first and final scores of DLQI, Phy. GAI and Pt. GAI for intervention and control arm.

Alternative hypothesis H_1: There is a significant difference in the increment in first and final scores of DLQI, Phy. GAI and Pt. GAI for intervention and control arms.

Table 3: *Testing of differences of increments in scores in Interventional & Control Arms*

S. No.	Assessment Scales	Group	Mean	Standard Deviation	d. f.	T	p- value
1	DLQI	Intervention	2.620	2.791	3.687	49	0.001*
		Control	2.040	3.912			
2	Phy. GAI	Intervention	1.780	1.788	4.529	49	0.000*
		Control	1.160	1.811			
3	Pt. GAI	Intervention	1.980	1.985	4.413	49	0.000*
		Control	1.280	2.051			

Significant at 5% level of significance.

Explanation on Statistical Analysis of the Study

From Table 1, we can see that the p-values corresponding to the three assessment scores DLQI, Phy. GAI and Pt. GAI are very less than 0.05, indicating a significant positive difference in the first & final scores in intervention arm, which gives us the evidence to reject the null hypothesis. The Quality

of Life & Global Assessment Indices from Physician and Patient were significantly improved after the medication was provided.

From Table 2, it can be seen that the p-value for the three assessment scores is very less than 0.05, suggesting significant difference in the first & final scores of assessment scales in control arm. The Quality of Life & Global Assessment Indices from Physician and Patient was improved in control arm.

From Table 3, it is clear that the p-value corresponding to DLQI is less than 0.05, which indicates a positive change in the quality of life of the patients of the intervention group, treated with Homoeopathic medicine, as compared to the control group.

p-value for Phy. GAI is 0.209, which is not remarkably significant, leads us to acceptance of the null hypothesis.

p-value corresponding to Pt. GAI is 0.062, which is nearly positively significant but not significant in the normally accepted statistical sense. This leads us to acceptance of the null hypothesis.

Result shows significant improvement according to DLQI scale in intervention group as compared to the control group. Although the results were not statistically significant according to Phy. GAI and Pt. GAI but there was significant improvement of the symptoms of patients in the intervention group as compared to the control group.

4. Discussion

In this study, it has been observed that maximum incidence of Photodermatitis was observed in the age group 21-30 i.e. 30 cases (30%) whereas minimum incidence was in 0-10 (2 cases), 51-60 (3 cases) & above 60 years age group (4 cases). This shows the highest prevalence was in middle age group which has highest outdoor activities. Study by *Morrison et al* also showed the same result.

It was observed that maximum no. of the cases i.e. 64 cases (64%) were observed from urban areas whereas 36 cases (36%) were from rural areas. This suggests that patients living in urban areas have higher incidence than rural areas. In urban areas, stressful and unnatural life-style and use of cosmetic products for beatification of skin and pill popping for day to day ailments is high as compared to rural areas. This makes their skin more susceptible for Photodermatitis.

As seen in the study in the past history, maximum number of cases i.e. 22(22%) had Skin diseases followed by Infectious diseases in 20 i.e. (20%) of cases whereas Respiratory & Endocrine Disorders were reported as Past illnesses in minimum no. of cases i.e. 4 (4 %), respectively. This may be due to influence of Psora which results in low resistance power and high susceptibility for Skin and Infectious diseases.

The maximum incidence of Photodermatitis was observed in Students i.e. 37 cases (37%), followed by Servicemen in 31 cases (31%), Housewives 27 cases (27%), and minimum incidence in Farmers i.e. 3 cases (3%) & Laborer's 2 cases i.e. (2%). It can be assumed that Students & Servicemen are affected more because of stress and unnatural life style.

In maximum no. of patients i.e. 52 (52%) the probable cause was prolonged exposure to sunlight. While 39 cases (39%) were pointed out by the patients due to use of certain allopathic medicines, 5 cases (5%) were due to use of cosmetic creams. In 3 cases the probable cause was due to soaps

and only 1 case reported due to use of homoeopathic medicines. This shows that in majority of patients there is no evident cause. 39 cases showed drug reaction because of lack of advice regarding the avoidance of sun light and inappropriate dosing.

In this study, Sulphur was prescribed in maximum no. of cases i.e. 19 cases (38%), Natrum carbonicum in 10 cases i.e. 20%, Lycopodium clavatum in 8 cases (16%), Antimonium crudum, Graphitis, Phosphorus in 3 cases (6%), Calcarea carbonicum and Sepia in 2 cases (4%) China officinalis, Nux vomica in minimum no. of cases i.e. 1 case each (2%). Sulphur was prescribed in maximum no. of cases and give maximum relief to the patients. It may be due to the fact that Sulphur although given on the basis of totality of symptoms is also an antipsoric remedy for hypersensitivity to the sun rays in the cases of Photodermatitis. The selection of medicines was according to individuality of the patient.

In this study, 30C potency was prescribed in maximum no. of cases i.e. 35 cases (70%), 30C-200C in 10 cases (20%), 200 C in 3 cases (6%). Minimum prescribed potency was 30C-1M and 200C-1M in 1 case (2%) each. According to the study 30C is most commonly indicated potency based on susceptibility of the patients.

In this study, in interventional group 17 cases (34%) were status quo, 14 cases (28%) had shown mild improvement, 10 cases (20%) got moderate improvement, 5 cases (10%) had shown marked improvement, 4 cases (8%) got cured, and one case was dropped out from the study. Whereas, in control arm 34 cases (68%) were status quo, 5 cases (10%) had shown marked improvement, 4 cases (8%) showed mild improvement; 3 cases (6%) got moderate improvement, 3 cases got cured (6%) and 5 cases were dropped out from the study, 1 case (2%) got worse. There is no significant difference in cure rates in interventional arm and control arm according to statistical analysis. But recurrence rates are higher in control group than intervention group as seen after completion of study period.

5. Conclusion

The inference drawn from the study is as follows:

According to the result obtained, there is no significant difference in cure rates in Intervention and Control arm. But there was marked improvement of the symptoms of patients in the Intervention group as compared to the Control group. The reason behind no significant difference in cure results may be due to limitations in objectives of study of not using various antimiasmatic interventions in all the patients as an intercurrent dose based on repertorial totality.

Lippe Repertory proved to be a useful aid in the selection of the similimum in working out the cases of Photodermatitis. This repertory is based on general to particular. Photodermatitis is an allergic disorder and in allergic disorders mental symptoms are important. This repertory is full of mental symptoms which made selection of medicines easier.

Result showed significant improvement according to DLQI scale in Intervention group as compared to the Control group but the results were not statistically significant according to Pt. GAI and Phy. GAI. This may be due to that the patients were confronted with the exciting cause i.e. sunlight on a daily basis and on the other hand Photodermatitis to certain extent be self-limiting disease, got better in few cases of control arm and due to limitation in our objectives, we could not use various antimiasmatic intermittent doses for curing cases of Photodermatitis which a chronic disease is largely.

Though the limited period and self-limited objectives of not assessing miasmatic approach proved a shortcoming but the study proved fruitful in affirming the efficacy of homoeopathic medicines in the cases of Photodermatitis and suggesting certain modalities to improve the efficacy of homoeopathic approach in future studies.

It is concluded with the hope that more extensive studies would be carried out in the near future using antimiasmatic medicines as intercurrent and preferably taking 50 - Millesimal potency as a tool to have gentle (minimum aggravation), rapid as well as permanent cure.

Limitations

The study period was short and for conforming the conclusions using centesimal scale potency, long term studies will be required. We suggest that future studies using 50 millesimal scale potencies should be conducted to prospect the effect of higher potencies on Photo dermatitis and as those medicines can be repeated in short time intervals, thus effects can be assessed in short term studies. More modern and advanced repertories like Synthesis, Complete Repertory can be assessed in this respect as well.

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Research Article

Unani Concept of Development of Aza-E-Mufridah - A Comparative Study

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Abstract The aim and objective of this article is to take the present-day person to the ancient time of Unani scholars, what they said about the embryological development of Aza-e-mufridah without modern day gadgets and laboratories and compare it with modern science. Since eternity man has always wanted to understand and probe nature from and when creation began and his purpose in this world the inquisitive man sought the help of generalizations, nature, old` manuscripts sometimes even the prophesies of saints and above all religions. In ancient time when people had no interest in inventions and discoveries except making gauntlets and swords to wage wars and few affluent families were traders in that surroundings we do not expect someone to have high tech labs and for that matter study abortion and specimens to inform mankind about the various stages of intrauterine life which modern day scientist came to know only few decades back.
Keywords *Aza-e-mufridah; Intrauterine life; Unani*

1. Introduction

The search for knowledge began since the Adam reached to this planet, no matter whether the tools & techniques were available or not. Since eternity man has always wanted to understand and probe nature from and when creation began and his purpose in this world, the inquisitive man sought the help of generalizations, nature, old` manuscripts sometimes even the prophesies of saints and above all religions. The literature of Unani medicine revealed that it was the observations of Unani scholars which made them successful physicians & philosophers. Their observation was at such an altitude which became the basis for further researches, inventions and discoveries. Even the concept of modern embryology and formation of Aza-e-mufridah also set about through them.

Likewise, a hoard of knowledge regarding embryology and formation of Aza-e-mufridah is available in Unani classical text. Unani physicians divides the Aza into two types (Uddin, 1930):

- Aza-e-mufridah (Simple members) / Aza-e-mutashabihul ajza / Aza-e-baseeta
- Aza-e-murakkaba (Compound members) / Aza-e-Aalia

Aza-e-mufirdah / Simple members are those organs whose structure is homogenous throughout, so that their names describe them in all part. For e.g. flesh, bones etc. (Ibne Sina, 2010).

However, Aza-e-murakkaba / Compound organs are those organs whose structure is not homogenous throughout, so that their names do not describe them in all part (Maseehi, 2008).

In the light of above definitions, we can say that the Aza-e-Mufridah are tissues which is homogeneous throughout; it is further differentiated into organs.

Tissue is defined as the group of cells having similar function. There are many types of tissues in the body. All the tissues are classified into four major types which are called the primary tissues. The primary tissues include:

- Muscular tissues: skeletal muscle, smooth muscle and cardiac muscle.
- Nervous tissues: neuron and supporting cell.
- Epithelial tissues: squamous, columnar, cuboidal cells and epithelial cells.
- Connective tissues: Connective tissues proper, cartilage, bone and blood.

Concept of Development of Aza-e-mufridah in Unani System of Medicine

According to Ibne Rushd, all Aza-e-mufirdah are formed of four Arkan i.e. water, air, earth and fire. These Arkan came together to form Aza-e-mufridah (simple members) through tabakh and tabakh takes place through heat, that's why all Aza-e-mufirdah have all the four qualities of Arkan-e-arba i.e. hot, cold, wet & dry. Ibne Rushd further explained two different ways of admixture of Arkan-e-arba. First, where the quantity of all Arkan are equal. Such type of admixture is known as Moatadil bil izafat ilal itraf.

Second, where the quantity of all four Arkan varies. This is the reason why one specie differs from other. For e.g. Horse and human, formed through the same Arkan but to varying degree of their admixture, forms two different species. Similarly, degree of admixture of Arkan in human body defines different temperament of different organs. These temperament for Aza-e-mufridah came into existence either through first tarkeeb or initial formation of Arkan-e-arba or through second tarkeeb of Arkan-e-arba. Ibne Rushd supports the second tarkeeb for the formation of Aza-e-mufridah. He further stated that Aza-e-mufridah possess the same properties that are formed by the admixture of arkan. On the basis of above discussion, Ibne Rushd defines nine types of temperament for Aza-e-mufirdah i.e. hot, cold, wet, dry, hot & wet, hot & dry, cold & wet, cold & dry, moatadil. However, moatadil temperament does not exist. Because it's impossible to have an equal quantity of arkan throughout in the formation of Aza-e-mufridah. He explained that for the formation of any Azu the quantity of water and earth is required more than fire and air. Earth and water from the qiwam for any azu. Therefore, any organ cannot be moatadil in its quantity. But can be considered moatadil in its quality. For e.g. Jaleenoos has described the tip of the finger of human hand to be the most moatadil in temperament. Hence, it is concluded that the temperament of Aza-e-mufidah can be among one of the nine temperament This temperament of Aza-e-mufridah is considered to be moatadil according to its action and reaction. The same temperament is considered to be moatadil according to its race (Nau) (Ahmad, 1980).

According to Rabban tabri, human survival is based on Arkan-e-arba. He derives respiratory gases from atmosphere, drinks water, eats fruits, vegetables, grains etc. that consist of earthy and fire constituents. The constituents of these Arkan after metabolism form humors inside body. For e.g. Phlegm is derived from the liquid part of the diet, blood from pneuma, bile from the part of fire and black bile from earthy constituents. Food is formed through these four arkan and all four temperament

are formed from this food. Aza-e-mufirdah are formed through these four temperaments (Hkm Syed Kamal, 2005).

According to some of the present Unani scholars, the action & reaction and combination (imtizaj) of basic component (Ajzae Aulia) of Mawaleed-e-salasa form biological biomolecules (uzvi murakkabat) and the combination of these biomolecules results in the formation of Aza-e-Daqeeqa and further combination of these Aza-e-daqeeqa results Aza-e-mufridah and then Aza-e-Murakkaba and finally the formation of Human body takes place (Majoosi, 2010). Majoosi also described formation of Aza-e-mufridah through Arkan e arba which forms the four humors and Aza-e-mufridah are formed through these humors. The Aza-e-mufridah thus, formed from these four humors represent the same temperament as the humor possess. For e.g. Bone has cold and dry temperament that represents marrah sauda. Fat which is cold and wet represents phlegm. Flesh that are hot & wet represent blood. Majoosi & Hippocrates were of the same opinion for the formation of Aza-e-mufridah through four humors (Maseehi, 2008).

Ibne Rushd was of the view that that Aza-e-mufridah are formed through blood only and blood is formed through the diet and beverages we take. He denied the formation of Aza-e- mufridah through seminal fluid nor by marrah safra, marrah sauda or phlegm, it is the only blood that forms the matter for formation of azu. Blood is considered a mixture just like sikanjbeen which is comprised of honey, water and vinegar. Aza-e- mufridah are formed in uterus where by action marrah sauda is not present. Neither do the marrah safra present in blood at the time of tauleede azu. So, Aza-e-mufridah are not formed through these three humors except blood. However, phlegm is considered to be the maddae baeeda for azu. Because the organs formed through phlegm are actually formed via blood. But marrah safra and marrah sauda are not considered maddae qareeba nor maddae baeeda for the formation of any azu as their metabolism (Istehala) towards blood is not possible. However, these two humors (Safra and Sauda) are present in blood by power (Bil quwa) and in case of any changes in the quantity or quality of blood then the metabolization of blood occurs towards these two humors that leads to diseases. He explained the confusion for maqamul haq (things which are mixed to blood) as it is not necessary that the things which are present in blood by power they are the matter for blood. Therefore, blood is considered to the matter as well as heola for the rest of the three humors (Qarshi, 2010).

During pregnancy, the solid earthy components of diet forms bone. Less thick and hard components form nerves. Soft components form flesh. However, hairs and nails are formed from those components of diet which are excreted by tabiyat. In fact, in breast milk all four arkan are present that are responsible for the growth of a child. In Buqrat's opinion, it is the dietary component after metabolism that forms different organs according to their consistency and properties. Further, he said that soft organs of the fetus are formed through soft dietary components and solid organs are formed through solid components of diet (Qarshi, 2010).

There are two concepts of the formation of Aza mufridah. One group including Abu sahl maseehi, is of the opinion that all organs are initially formed through the mani of male and female whereas their growth and development takes place through blood. The other group including Allama qarshi, is of the opinion that except Flesh (leham) and fat (shaham)/sameen, all organs are formed through mani.[9] According to them flesh is derived from viscous blood (gaadha khoon/mutayyane dam) congealed by Hararat (hotness) & Yaboosat (dryness), they achieve consistency (iniqaad/bustugi) while fat/sameen are derived from the aquosity and unctuosity of blood (khoon ki chiknai),which has congealed by baroodat (coldness) and achieve consistency (iniqaad/bustugi).That's the reason why it get melts on (hararat) heating (Mohd. Unwan, 2005-06).

Allama Qarshi cited an example of Egg of a hen to explain his view, that moderate heat coagulates the egg white which resembles to flesh, formed through blood and solidify on heating. On the basis of above two group's opinion, aza are divided into two types:

i. Aza-e-aslia
ii. Aza-e-damvia

Aza-e-aslia are those organs which are formed through semen. On the other hand, Aza-e-damvia are formed through blood like flesh and fat.

Aza-e-aslia are initially formed through semen, their growth and development take place through hot uterine blood which during normal days excreted as menstrual blood (Ahmad, 1983). This shows that blood is a mixture that consist of humors through which different organs are formed (Rabban Tabri, 2010).

Types of Aza-e-mufridah (Mohd. Unwan, 2005-06)

Ibne Sina in his book Al qanoon fittib mentioned Aza-e- mufridah as the members of the body derived primarily from the commingling of the humors, just as the humors are derived primarily from the commingling of the arkan.

Aza are divided into two groups:

I. Simple Members/Aza-e- mufridah/Aza-e-mutashabihul ajza/Aza-e- baseeta
II. Compound Members/Aza-e- murakkaba/Aza-e-aalia

Simple members (elementary tissues) literary means homogenous and indivisible.

These are:

1. The bone: This is sufficiently hard to form the foundation of the body as a whole and provide the purchase needed for its movements.
2. The cartilage: Being softer than bone this can be bent and yet it is harder than all other members. It was made for the purpose of providing a cushion between hard and the soft membranes so that the latter should not be injured when exposed to fall or compression or a blow. In case of joints, it prevents the tissue from being torn by the hard bone. It gives a purchase for a muscle to obtain extension in places where there is no bone to give attachment or support (for e.g. flesh of the eyelids) and also gives attachment to flesh without being too hard for them (e.g. epiglottis).
3. The nerves: These are the structures arising from the brain or spinal cord. They are white, soft, pliant, and difficult to tear and were created to sub serve sensation & movement of the limbs.
4. The tendons: These form the terminations of the flesh. They resemble nerves in appearance. They are attached to movable membranes and when the flesh contract and relax the parts to which the tendons are attached move to and from. They may sometimes broaden when the flesh expands and then become narrow again on their own account lengthening and shortening apart from the lengthening and shortening of the muscle. Sometimes this is through the intervention of ligaments. The upper part of the flesh is called flesh that leaves the flesh and passes to the joint bringing the two closes together is the tendon.
5. The ligaments: These structures have the appearance and feel of nerves. They are of two kinds- true& false. The latter extends to the flesh and the former does not reach as far as muscle, but simply joints the two ends of the bones of a joint firmly together. This false ligament has not the

feel of ligament and is not painful when move or rubbed. The auxiliaries of the ligaments are the structures attached to them.

6. The arteries: These structures arise from the heart. They are hollow, elongated, fibrous, and of ligamentous consistency. Their movements consist in expansion and contraction, which distinguishes them from the veins. They were created in order to enable the heart to be ventilated, fuliginous vapors to be expelled from them and the breath distributed by their means to all parts of the body.
7. The veins: These resembles arteries expect in so far as they arise from the liver and do not pulsate. Their purpose is to carry the blood away from all parts of the body.
8. The membranes: These structures are formed of extremely minute interwoven filaments which are extremely delicate. Their object is to form the external covering for the other structures and thereby preserves the form and outline of these structures and to support the members. By means of their fibers, they bind together the nerves and the ligament They holds the kidneys in position. By providing a sensitive covering they provide sensation to the members. For e.g. lungs liver, kidney, spleen they themselves are insensitive, distension due to flatus or inflammation can only be felt by the membranes over them that stretches and make us aware of the condition.
9. The flesh: Flesh includes flesh, fasciae, tendons, ligaments, connective tissues and so forth all together. Flesh is that which fills up the spaces left within the members thus, imparting firmness and solidity.

Majoosi in his book “Kamilussana” categorized simple members into seven types:

a. Cartilage & Bones
b. Ligaments & Tendons
c. Veins
d. Arteries
e. Flesh, glands & fat
f. Membranes & Skin
g. Nails & hairs (Rabban Tabri, 2010)

Rhazi does not include arteries, veins, tendons and membranes into simple members. He stated that all these members are made of nerves and ligaments, then only the definition of simple i.e. those whose structure is homogenous throughout, so that their name describes them in all parts. Burhanuddin Nafees supporting the view of Rhazi, further explained that every simple member has its particular matter and soorat-e-nauyia that compels it to form a particular nau (specie). This soorat-e-nanuyia and matter is found in every part of simple members that’s why there is no difference between the part or whole member. Soorat-e-nauyia can be defined as the one which form the structure of anything, which make it different from others (Ahmad, 1983).

Temperament of Simple Members (Ahmad, 1983)

Moatadil (Neutral) Jalenoos considered fingertip of hand to be the most moatadil (neutral) in temperament.

Cold & Dry: Hairs > Bones > Cartilage > Tendons > Ligaments > Membranes > Nerves > Vessels

Order of coldness: Hairs > Bones > Cartilage > Ligaments > Tendons > Membranes > Vessels > Nerves

Order of dryness: Pneuma > Blood > Flesh

Order of Hot & wet members: Cold & Wet > Fat and Bone marrow

Table 1: *Comparison between Modern and Unani concept of development of Aza-e-mufrida*

Similarities	
Modern concept	**Unani concept**
▪ Ovaries act as endocrine glands and secrete female sex hormones (estrogen and progesterone). Ovaries are controlled by another endocrine gland in the brain, the pituitary gland (hypophysis). In the first two weeks of a monthly cycle, pituitary gland secretes FSH. FSH triggers the ovaries to secrete estrogen and progesterone. Progesterone causes the uterine wall to grow thick. ▪ Estrogen and progesterone have a negative feedback on FSH and after a while they will suppress the secretion of FSH. In the mid-cycle (Day 14) FSH (and LH) level drops suddenly. This causes the estrogen and progesterone to drop suddenly. Suddenly progesterone withdrawal causes the shedding of uterine wall and the menstrual bleeding. Sudden drop of FSH and LH triggers ovulation too. If the woman gets pregnant around the mid-cycle, the fetus's placenta starts secreting Human Chorionic Gonadotropin (HCG). HCG causes the remnant of the ruptured follicle to start growing (and make the yellow body, corpus luteum) and start secreting progesterone. This will sustain the thickness of the uterine wall during the pregnancy and cause the periods to stop during pregnancy.	▪ During pregnancy, the blood which is otherwise discharged from the female at the time of menstruation become nutriment for the embryo and does not shed (Ibne Sina).
According to modern medical science One drop of semen in manufactured out of forty drops of blood. The two testes or seeds that are located in the scrotal bag are called secretory glands. The cells of these testes have been endowed with the peculiar property of secreting semen from the blood	Amshaz e badan: Those constituents and fluids that are extracted from organs come to blood and then get absorbed into testes through blood by the action of Quwwate jaziba. In the testes by the action of Quwwate mughairra, these components converted into semen. All organs are formed through the mani of male and female (Maseehi).
Fertilization takes place when the spermatozoon has successfully entered the ovum and the two sets of genetic material carried by the gametes fuse together, resulting in the zygote (a single diploid cell).	The process of admixture of male and female mani nowadays is known as fertilization.
Blastulation: The conceptus has reached the uterus. The blastocyst (mass of cell forms a hollow ball) attached itself to the endometrium, where it will implant.	Fetation said to behave like seeds sown in the ground (Arastu).
Formation of placenta: The placenta develops once the blastocyst is implanted, connecting the embryo to the uterine wall, allowing gas exchange and the transfer of nutrients to the embryo.	Rabban tabri, explained after fourteen days of fertilization a blood clot is formed which grows gradually and placenta is formed around that clot through which it respires and gets its nutrition.
Stage of gastrulation/Stage of differentiation: All the organs are formed through the three germ layers that are formed through a cell mass known as	According to some of present Unani scholars, the action and reaction and combination (imtizaj) of basic component (Ajzae Aulia) of Mawaleed salasa form biological

gastrula. However, the trophoblast first differentiates into an inner layer, the cytotrophoblast, and an outer layer, the syncytiotrophoblast. The cytotrophoblast contains cuboidal epithelial cells and is the source of dividing cells. The process of gastrulation reorganizes the two-layer embryo into a three-layer embryo, and also gives the embryo its specific head-to-tail, and front-to-back orientation. A primitive node (or primitive knot) forms in front of the primitive streak that induces the formation of the neural plate which serves as the basis for the nervous system. Formation of mesoderm takes place through the primitive pit. The epiblast moves into the primitive streak in an epithelial-mesenchymal transition; Epithelial cells become mesenchymal stem cells, multipotent stromal cells that can differentiate into various cell types. The hypoblast is pushed out of the way and goes on to form the amnion. The epiblast keeps moving and forms a second layer, the mesoderm. The epiblast has now differentiated into the three germ layers of the embryo, so that the bilaminar disc is now a trilaminar disc-the gastrula. The three germ layers are the ectoderm, mesoderm and endoderm, and are formed as three overlapping flat discs. It is from these three layers that all the structures and organs of the body will be derived through the processes of somitogenesis, histogenesis and organogenesis. The three germ layers are the ectoderm, mesoderm and endoderm, and are formed as three overlapping flat discs. It is from these three layers that all the structures and organs of the body will be derived through the processes of somitogenesis, histogenesis and organogenesis. The upper layer of ectoderm will give rise to the outermost layer of skin, central and peripheral nervous systems, eyes, inner ear, and many connective tissues. The middle layer of mesoderm will give rise to the heart and the beginning of the circulatory system as well as the bones, cartilage, tendons, dermis (skin),muscles and kidneys. The inner layer of endoderm will serve as the starting point for the development of the lungs, intestine, thyroid, pancreas and bladder.

biomolecules (uzvi murakkabat) and the combination of these biomolecules results in the formation of Azae Daqeeqa and further combination of these azae daqeeqa results Azae Mufridah and then Azae Murakkaba and finally the formation of Human body takes place. Aza e mufridah or the members of the body derived primarily from the commingling of the humors, just as the humors are derived primarily from the commingling of the arkan.

According to Ibne Sina, mani of male and female combined to form forth/raghwa that lasts for 6-7 days. During these days, the forming power (Quwwate musavvira) produces changes in embryo without the help of womb of the mother. After 10 days, now with the help of womb of the mother, streaks/khutoot and nodes/nuqta are formed through that forth. At fifteenth day, formation & development of blood clot takes place. In next fifteen days, this clot develops into pieces of flesh that get thickened slowly. Brain, heart and liver gradually differentiated from these pieces of flesh. The formation of embryo completed in 40 days.

Organs: In biology, an organ or viscous is a collection of tissues joined in a structural unit to serve a common function.

Tissue is defined as the group of cells having similar function. There are many types of tissues in the body All the tissues are classified into four major types which are differentiated through the three germinal layers and are called as the primary tissues. The primary tissues include.

- Muscular tissues: skeletal muscle, smooth muscle, and cardiac muscle.
- Nervous tissues: neuron and supporting cell.

Aza: These are those solid substances which are formed through initial formation (Ibtidae tarkeeb) of good humors (Akhlate mehmooda) or from Ibtidae mijaz or from ratoobate sania. Likewise, humors are those liquid substances which are formed through initial formation of Arkan. Ratoobate sania is formed through initial formation of humors and aza are formed from that ratoobate sania.

In Unani medicine aza are divided into:

- Aza e mufirdah (Simple members)
- Aza e murakkaba (Compound organs)

➢ Epithelial tissues: squamous, columnar, cuboidal cells and epithelial cells. ➢ Connective tissues: Connective tissues proper, cartilage, bone and blood.	Aza e mufirdah/ Simple members are those organs whose structure is homogenous throughout, so that their names describe them in all part. For e.g. flesh, bones etc. because the part of flesh & bones have similar functions as that of whole organ. Aza e murakkaba/Compound organs are those organs whose structure is not homogenous throughout, so that their names do not describes them in all part.

Difference

But there was another side to the picture. Aristotle made one big mistake and here I do not refer to any matter of detail, in which it would not have been humanly possible to be more than very often right, but rather to general notions.

He was incorrect in his views that the male supplies nothing tangible to the female in the process of fertilization. To say that the semen gave the "form" to the inchoate matter of the menstrual blood was equivalent to saying that the seminal fluid carried nothing in it but simply an immaterial breath along with it. Aristotle did not, of course, envisage the existence of spermatozoa. According to him, embryo is formed from the combination of menstrual blood and semen of father.

2. Discussion

The study of Aza-e-mufridah is the part of embryology, embryology is the science that deals with the formation and development of the embryo and fetus, can be traced back to the ancient Unani philosophers. This was so extraordinary phenomenon that it was almost disregarded until modern times. The embryologist of the 16th century was aware of the connection between the embryo and the maternal oviduct or uterus, a century later it was realized that this was for the nourishment of the embryo, and was in short, a true functional placenta. Yet for all that, Arastu's early discovery was over looked until 19th century. One must admit that there is something almost uncanny in the anticipation by Arastu, unequipped with tools and books, of a discovery remade a century ago by one of the leading physiologists of the nineteenth century. One could not expect Unani Scholars to discover all that; it was materially impossible them to do so; but is it not astounding that they came so close to the edge of the mystery, and- we must always insist on this - spoke of it in a sensible and quiet way.

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Research Article

Utilization Patterns of the Community in Seeking Siddha System of Medicine in Chennai Metropolitan Area

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Abstract Very little information is available on the awareness, utilization and health seeking behavior of Community about Siddha system of medicine in Chennai. The purpose of this survey is to collect information about knowledge, awareness of the Siddha system and to know the perception and satisfaction levels of Siddha medicine. This is a cross-sectional survey done among the 384 residents which covered 10 areas in five directions of Chennai. One person from each household was interviewed using a pre-tested interview schedule. Among the 384, respondents, 52% (197) described Siddha medicine as Herbal medicine. The source of knowledge about Siddha medicine is through friends and relatives (49%). 58% have taken siddha medicine for some illnesses. 73% of respondents said that they would prefer to go to Graduate Siddha medical practitioner. The reasons for discontinuation of treatment as cited by the respondents were distance of the siddha care facility (36%), treatment ineffective (25%). Siddha medicine is widely sought by the residents of Chennai metropolis. The awareness about siddha medicine is very less. This indicates that there is an unmet need for Siddha system in Tamilnadu which underlines awareness to be increased and the policy makers have to streamline the health care delivery systems.

Keywords *Awareness; Family physician; Graduate medical practitioner; Siddha medicine*

1. Introduction

Health is defined as a state of complete physical, mental and social well-being and not merely the absence of disease or deformity (WHO). In Siddha system, Health is defined as a state of balance with inputs and outputs of energy and matter in equilibrium with good prospects for continued survival.

Siddha system of medicine is a traditional Indian system of medicine, which has been followed in India, especially in South India, i.e. Tamilnadu and also in certain Tamil speaking countries like Singapore, Malaysia, and Sri Lanka, Burma etc. Certain practitioners in North India also adapted this system. Siddha system of medicine is holistic in nature and preaches the way of life. The basic concepts of Siddha system mainly depend on three body constitutions namely VATHA, PITHA, KABA and also on the Panchabootha theory i.e. five elements viz., Prithvi (earth or sand), Appu (water), Theyu (fire), Vayu (air), and Akaash (Space or ether) (Uthamaryan, 2003).

When the normal equilibrium of three humors (*vatha*, *pitha* and *kapha* is disturbed, disease is caused (Uthamaryan, 2003). The factors, which affect this equilibrium, are environment, climatic conditions, diet, physical activities, and stress. According to the Siddha medicine system diet and life style play a major role not only in health but also in curing diseases. Siddha system is being officially recognized by Central govt. and Govt. of Tamilnadu.

India has made considerable progress in health development in the recent decades, but improvement in awareness, utilization of alternative system of medicine are still lagging behind and are yet to be regularized on a large scale. Despite the far and wide impact of allopathic system in India it is important to know the health-seeking behavior of the community and awareness about Siddha system and if we know utilization of this system by community we can take measures to make this worthwhile as a preventive and regenerative medicine. This will be useful in evaluating and planning the existing health care delivery through Siddha system of medicine. e.g., targeting a particular disease(s) either by Siddha treatment alone or combined with allopathic. Increasing or regulating the Siddha dept in Govt. Hospitals.

However, a study done at Salem almost 20 years back gives some insights regarding the knowledge, attitude and practice pattern of Siddha in the community (Ramesh et al., 1989). This study examined the patterns of utilization and consumer behavioral characteristics of Siddha medicine (SM). Previous studies focused on individual illnesses like diabetes, rheumatoid arthritis etc. and showed that the preferences to Complementary and were equal (Bhalerao et al., 2013). None of the studies have looked into the health seeking behaviors for siddha treatment for common morbidities.

There is hardly any information available on the awareness and utility of Siddha medicines among the common public of Chennai. The purpose of this survey is to collect information about knowledge, awareness of the Siddha system in the community of Chennai. The survey was designed to know the perception and satisfaction levels about Siddha system as a whole among the community. This survey was also designed to understand the patterns of the community in seeking Siddha system, useful in clarifying doubts and perception, identifying methods of promoting Siddha system.

2. Materials and Methods

This is multistage cross-sectional study done among the Chennai metropolitan residents. There is hardly any study available to estimate the proportion of people in Chennai metropolitan area supposed to utilize Siddha medicines. Hence, the sample size was estimated based on the assumption that 50% of the people of Chennai metropolis are utilizing Siddha system. The assumption would yield the maximum sample size also, as there are no previous studies to have the assumption of the estimate. Based on this prevalence for 5% precision, the required sample size is 384.

Sampling Frame

The sampling frame consisted of residents of metropolitan city of Chennai. The metropolitan area was geographically divided into five divisions i.e. North Chennai, Central Chennai, West Chennai, East Chennai, and South Chennai. Two areas from each division were chosen randomly for the study. The areas and the corresponding direction are listed in Table 1.

Forty respondents from each area were interviewed except in Eastern direction, where only 32 were interviewed in each of the two areas to adjust for sample size. Participants from each area were selected from four randomly selected streets. From each street first 10 consecutive houses were selected. The Head of the family in each household was interviewed after getting an informed

consent. If he/she was not available the immediate elder person in the family was interviewed. If the respondent from a house hold refused to give an interview or if the house was locked then the available respondent in the next house was interviewed. One person from each household was interviewed using a pre-tested interview schedule

Statistical Analysis

The data collected in the questionnaire was analyzed using SPSS version 19.0. Continuous variables were presented as mean and standard deviation whereas categorical variables as proportions. Chi square test was used to find out statistically significant associations between independent and dependent categorical variables. One-way ANOVA was done to compare the mean age. $P < 0.05$ was taken as cut off for statistical significance.

3. Results

Of the 384 respondents, 272 (70.8%) are females and 112 (29.2%) are males. Their age ranges from 18 years to 90 years with the mean and SD of 48.5±14.3 years. Among the 384 respondents, 25 (6.5%) are illiterate, 240 (62.5%) were school level educated, 88 (22.9%) are graduates and 31 (8.1%) are professionally qualified. Three hundred forty-four (89.6%) are married; 14 (3.6) are unmarried and 26 (6.8%) are widowers. 59% of the respondents were in the low socioeconomic group (Table 2).

Table 1: *Areas and their directions chosen for the study*

S.no	Geographical direction	Areas chosen	No respondents
1	North Chennai	Perambur	40
2		Korattur	40
3	South Chennai	Chromepet	40
4		Madipakkam	40
5	Central Chennai	Kodambakkam	40
6		Nungambakkam	40
7	West Chennai	Anna nagar	40
8		Padi	40
9	East Chennai	Triplicane	32
10		Ice House	32
Total			384

Table 2: *Demography data*

Age(N=384)	No	Percentage
<25yrs	9	2.3%
25-35yrs	54	14.1%
35-45yrs	98	25.5%
45-55yrs	90	23.4%
>55yrs	133	34.6%
Gender(N=384)	No	Percentage
Male	112	29.2%
Female	272	70.8%
Education(N=384)	No	Percentage
Graduate	88	22.9%
illiterate	25	6.5%
Professional	31	8.1%
School	240	62.5%
Socioeconomic status(N=249)	No	Percentage
<10,000Rs	146	58.6%
10,000-20,000Rs	84	33.7%
>20,000Rs	19	7.6%
Total	249	100.0%

Table 3: *Respondents description on various aspects of Siddha medicine*

Description of siddha medicine (N=384)	N&%
Ayurvedic medicine	74(19%)
Herbal medicine	197(52%)
Country medicine	113(29%)
Source of knowledge	N&%
Advertisements	72(19%)
Friends/relatives	191(49%)
Newspaper	29(8%)
Family trend	11(3%)
Other sources	81(21%)
Respondents who have taken Siddha medicine	N&%
Yes	222(58%)
No	162(42%)
Diseases for which Siddha medicine was taken(N=222)	N&%
Joint pain(Arthritis)	101(46%)
Gastritis	36(16%)
Respiratory problems	32(14%)
Skin problems	27(12%)
Diabetes	7(3%)
Others	19(9%)

Table 4: *Frequency distribution of respondents across various strata who had taken Siddha medicine*

Variables		Taken Siddha Medicine		Total	Statistical Significance*
		No	Yes		
Sex	Female	109(40%)	163(60%)	272	0.191(ns)
	Male	53(47%)	59(53%)	112	
Age	Mean (SD)	48.7 (14.9)	48.3 (13.9)	384	0.74(ns)
Education	illiterate	14(56%)	11(44%)	25	0.46(ns)
	School	102(43.5%)	138(57.5%)	240	
	Graduate	34(39%)	54(61%)	88	
	Professional	12(39%)	19(61%)	31	
Occupation	Business	16(45.7%)	19(54.3%)	35	0.37(ns)
	House wife	88(43%)	116(57%)	204	
	Retired	24(48%)	26(52%)	50	
	Skilled	18(36%)	32(64%)	50	
	Teaching	4(21%)	15(79%)	19	
	Unskilled	12(46%)	14(54%)	26	
Total		162(42%)	222(58%)	384	

*Chi-square test, One-way ANOVA, ns - Not significant

Table 5: *Frequency distribution of reasons for seeking Siddha medicine*

Reasons	Frequency	Percent
Advertisements	16	7.2%
Cross reference	11	5.0%
Faith	55	24.8%
Friends referred	96	43.2%
Hospital is nearby	13	5.9%
Not satisfied with Allopathy	31	14.0%
Total	222	100

Table 6: *Frequency distribution of responses on effectiveness/cure rate of Siddha treatment*

Responses(N=222)	Frequency	Percentage
Effective	162	73%
Not effective	36	16.2%
No response	24	10.8%
Cured	Frequency	Percentage
Yes	159	71.6%
No	63	28.4%
Total	222	100.0
Reasons for discontinuing Siddha medicine (N=51)	Frequency	Percentage
Distance	18	36%
Ineffective	13	25%
Not suitable	13	25%
Irregular in taking medicine	7	14%

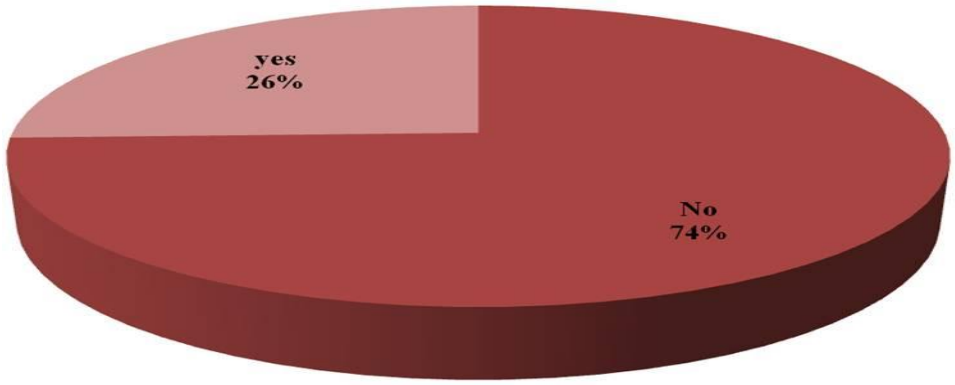

Figure 1: *Respondents interest to accept Siddha Doctor as a family physician*

Knowledge and Awareness of Siddha System of Medicine

Among the 384 respondents, more than 50% of the respondents interpreted Siddha system of medicine as Ayurvedic medicine. When the source through which they came to know about Siddha system of medicine was asked, 191 (49.7%) respondents said through their friends and relatives; 72 (18.8%) through advertisements; 29 (7.6%) through newspapers; 11 (2.9%) through family trend and 81 (21.1%) said through other sources. 58% of the respondents had taken Siddha medicines. 46% of the respondents had taken Siddha medicines for Joint pain, Gastritis (16%), Respiratory problems (14%), Skin diseases (12%) and very less proportion (3%) had taken Siddha treatment for Diabetes (Table 3).

More female respondents (73%) have taken Siddha medicine than the males (27%). Among the respondents those who have taken Siddha medicines (N=222), 211, (95%) were educated. The respondents those who have taken Siddha treatment were mostly house wives and retired persons (64%). The mean age of respondents those who have taken siddha medicines was 48.3 ± 14 years

(Table 4). There was no statistically significant association between the age gender, education, and occupation with the respondents those who have taken siddha medicine (P value-NS).

When the reasons for taking Siddha treatment was asked, 96 (43.2%) of the 222 respondents said that they sought Siddha therapy by the influence of their friends and relatives; 55 (24.8%) because of faith and 31 (13.9%) said that they were not satisfied with allopathy (Table 5). The response was negtive from 286 (74%) of the subjects when they were asked whether they would accept a Siddha Physician as a family doctor. Two hundred and eighty (73%) respondents said that they would prefer to go to a graduate Siddha physician.

Perception and Satisfaction of Siddha Treatment

One hundred and sixty-two (73%) respondents of 222 subjects who have taken Siddha medicine said that it was effective for their illnesses, 36 (16.2%) said it was ineffective and remaining (10.8%) did not want to respond. (Table 5). Of the 222 respondents who used Siddha medicine, 159 (71.6%) told that their illness (s) was cured by Siddha treatment. Among the respondents those who had taken Siddha treatment (51), 36 % answered that distance of the Siddha health care facility was the main reason for discontinuation and 25% told that the treatment was ineffective and 25% told that the medicines were not suitable and 14% said that they were irregular in taking medicine (Table 6).

4. Discussion

This cross-sectional survey was conducted to assess the knowledge, awareness about Siddha medicine, the perception and satisfaction levels and the health seeking behavior of the community in of Siddha Medicine. The respondents of this study were predominantly females (70.8%), around 48 years of age, 62.5% had education at school level, and most of them were housewives (53.1%).

More than 50% of all the respondents told Siddha medicine as herbal medicine. However, this proportion is high in professionally qualified and graduates as compared to respondents who had lesser educational qualifications and this goes down even further when illiterates were asked this question; i.e. the majority (76%) of the illiterates referred Siddha medicine as country medicine.

In this survey it was found that around 50% of all the respondents got knowledge about Siddha medicine through their friends / relatives. This response was found more in females (54.04%) than males (39.3%). This finding is in concordance with the similar study done at Salem (Ramesh et al., 1998).

In this study 58% of all the respondents said that they had taken Siddha medicine at one point in time for various ailments. This proportion is even higher in subjects with professional degree and graduates as compared to illiterates and educated up to school level. However, this finding does not agree with the study by Ramesh et al. (1989), where an inverse relation was found between education and occupation of the subjects and their utility patterns of Siddha medicine. Although both studies were done in similar settings, the plausible reason for this striking difference in this finding between the two studies is due to the fact that the other study was done almost 20 years back. This finding is slightly lesser (35%) in a study done by Bhalerao et al. (2013) The reason for this difference is that the study was done in a hospital setting and among specific disease patients. The preference to Siddha system of medicine is more in Urban settings (72%) in a study done by Singh P et al. (2004), which is slightly lesser in our study where Chennai is also an urban setting (58%). The plausible reason for this difference in this finding is the previous study (Singh P et al.) was done in a large scale in 35 districts of 19 states in India and the present survey is conducted only in Chennai metropolitan areas. This survey also found that higher the level of education more the usage of

Siddha medicine. This is similar to the study done by Singh P et al. (2004) that high school level (90%) as well as above high school level educated (60%) preferred to utilize Siddha medicine. This is against the common belief that illiterates and school educated only use more Siddha medicine and this again proves my hypothesis that nowadays educated people turn towards Indian systems of medicine as opposed to two decades ago as found by Ramesh et al. (1989).

Most persons sought Siddha treatment for chronic and episodic diseases whereas none of them found to have sought Siddha for acute and emergency conditions. Among all the conditions for which Siddha was sought, joint pain (45.5%) was the leading condition reported by the respondents. This is similar to the study done by Bhalerao et al. (2013) that 50% utilized Siddha medicine for Rheumatoid arthritis. Likewise, the commonest reason for seeking siddha treatment was found to be influence from friends / relatives; this was the common reason found by another study Ramesh et al. (1989) in a similar setting.

Of the 222 persons who took siddha treatment, the survey found that 51 (23%) persons discontinued it; the commonest reason cited was distance to travel to go a Siddha care giver. Hence, there is an unmet need for Siddha system of medicine, which underscores the need for strengthening the Siddha health care delivery system in Tamilnadu. The same finding was found in the study by Yadav et al. (2005) in West Bengal that the respondents suggested of opening new dispensaries.

When respondents were asked what type of Siddha doctor they would prefer to visit most persons (280, 73%) replied that they would go to graduate medical practitioners if necessity arises instead of going to Registered Medical practitioner and Hereditary Medical practitioner. This finding is different in the study done by Yadav et al. (2005) in West Bengal i.e. 39% sought treatment from traditional healers.

5. Conclusion

Siddha medicine is widely sought by residents of Chennai metropolis. The awareness about siddha medicine is very less. The commonest reason cited for the discontinuation of the treatment is distance of the Siddha care giver. This indicates that there is an unmet need for Siddha system in Tamilnadu which underlines awareness to be increased and the policy makers have to streamline the health care delivery systems.

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Conflict of Interest

None, Declared.

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