

## Effectiveness of self- reflexology on stress and sleeplessness among pregnant women in selected Villages, Belgaum, Karnataka

Pujashree S Tipukade<sup>1,2</sup>

<sup>1</sup> P.D. Bharatesh College of Nursing, Halaga, Belgavi, Karnataka, India

<sup>2</sup> Lecturer, Savitribai Phule College of Nursing, Kolhapur, Maharashtra, India

### Abstract

Pregnancy is the most exciting period of expectation and fulfillment in women's life. Pregnancy and childbirth is a great event in the life of every women for which she aspires and longs for with great expectation. For most women pregnancy is a time of apprehension, fear and agony. Pregnancy has major physiological and psychological changes which increase the internal and external stressors faced by pregnant women and demands a suitable antenatal preparation. Pregnancy is an emotional time for the woman especially if she is pregnant for the first time, hence effectiveness of self reflexology on stress and sleeplessness among pregnant women in selected villages, Belgaum, Karnataka was undertaken.

**Objectives:** To assess the level of stress and severity of sleeplessness among pregnant women in selected villages, to educate the pregnant women on self-reflexology techniques and its benefits for reduction of stress and sleeplessness during pregnancy, to evaluate the effectiveness of self reflexology in terms of reduction of stress and sleeplessness among pregnant women in selected villages, to co-relate the effectiveness of self reflexology on stress and sleeplessness among pregnant women in selected villages, to find out association between the selected demographic variables with stress and sleeplessness of pregnant women.

**Hypothesis:** H1: There will be significant difference between the pretest and posttest effectiveness of self-reflexology on stress and sleeplessness, H2: There will be significant association between stress and sleeplessness with selected demographic variables of pregnant women.

**Methodology:** Quasi-experimental study with time series design was adopted for the present study. 30 samples were selected by probability simple random sampling technique. Data was collected by using modified Daily Hassles Stress Scale, the stress score was classified into 3 categories: mild stress, moderate stress and severe stress, and standardized insomnia severity index, the insomnia score was classified into 4 categories: No clinical significant insomnia, Sub threshold insomnia, Clinical insomnia (moderate) and Clinical insomnia (severe).

**Result:** The findings of the study revealed that there was significant difference in the mean level of stress and severity of sleeplessness scores before and after practicing self-reflexology ( $t_{29} = 9.89, 8.11$  at  $P < 0.05$  respectively). There was no significant association between pre-test and post-test level of stress and severity of sleeplessness with the selected demographic variables.

**Conclusion:** The study depicted that self-reflexology is effective in reducing the stress level and decreasing the severity of insomnia in pregnant women.

**Keywords:** self-reflexology, stress, sleeplessness, effectiveness and pregnant women

### Introduction

The wait to bring a new life surfacing out of own body is the one that all women aspire to experience at least once in their lifetime. This period is called Pregnancy. Responsibilities and growing concern for the new life now plays a significant role as they set foot on the path that transmutes one from a woman into a mother. Among these is women's duty to the life that is yet to be and how they can give of themselves, in body and spirit, to form and nurture the new life that they seek to bring into existence<sup>[1]</sup>.

Pregnancy has major physiological and psychological changes which increase the internal and external stressors faced by pregnant women and demands a suitable antenatal preparation. Pregnancy is an emotional time for the woman especially if she is pregnant for the first time. The physiological changes, together with the hormonal changes make pregnancy a psychological event for the women<sup>[2]</sup>. The growing foetus depends entirely on its mother's healthy body for all needs. Consequently, pregnant women must take steps to remain as healthy and well nourished as they possibly can<sup>[3]</sup>.

Each trimester whether it proceeds smoothly or with associated problems can create a mental state that the mother may experience as unique. Physical stress, hormonal changes, coping with a changing body shape, and yet going about in life and performing daily living, attending to the needs of the family and children all together may affect the emotional equilibrium of the pregnant women. During pregnancy for as many as 20% of women undergoes normal mood shift and it can become a serious case of the pre-baby blues. Fortunately, there are many things women can do to boost their mood and enjoy their pregnancy<sup>[2]</sup>.

It is known that extreme stress is bad for any living creature and that it can lead to disease and health degradation in our bodies. Pregnancy in itself is a stressful time on a woman's body. The normal physical and hormonal changes can be quite daunting for a first time mom<sup>[5]</sup>.

Pregnancy is a phase in woman's life with emotional physical and physiological changes. Modern woman is exposed to outside work and has to balance between her home, work and her unborn baby. All this may result in stress for her and people around her. Too much stress when not coped with can

be detrimental to her and her baby. When this continues for a long time, it can lead to various health complications. And stress hormones are to be blamed [6].

A number of studies have suggested that very high levels of stress may increase the risk of preterm labour and low birth weight [8]. Aside from low birth weight other problems associated with stress and pregnancy, include, autism and birth defects [9].

During third trimester, effects of stress leads to: increased risk of preeclampsia, increased risk of prematurity and premature labour, miscarriage, developmental delays and metabolic diseases, which can endanger the health of pregnant women and growing foetus [11].

During pregnancy, woman might feel tired even after she had a lot of sleep. Many women find they're exhausted in the first trimester. This is body's way of telling that woman need more rest. In the second trimester, tiredness is usually replaced with a feeling of well being and energy. But in the third trimester, exhaustion often sets in again. As foetus grows, sleeping may become more difficult. The baby's movements, bathroom runs, and an increase in the body's metabolism might interrupt or disturb sleep. Leg cramping can also interfere with a good night's sleep [13].

In the last three months of pregnancy women may have difficulty sleeping. They might have problems falling asleep, getting comfortable or be troubled by unpleasant dreams and nightmares. Women who were able to sleep a lot in the early stages of pregnancy may find themselves sleeping very little during the final stage mainly because of the many physical changes taking place [14]. Insomnia during pregnancy is normal and affects approximately 78% of pregnant women [15].

Many women experience insomnia due to emotions and anxiety about labour and delivery, balancing motherhood and work, or their changing relationship with their partner. This is especially true of first time mothers. For most women, getting a full night's sleep becomes even harder once the baby is born. It is very important for pregnant women to prioritize sleep and to find effective strategies for managing their sleep problems as early as possible in their pregnancy [16].

Reflexology has been around for over 4000 years, originally practiced by the ancient Egyptians and Chinese but it was first recognized in the Western world in 1913 when Dr William Fitzgerald noticed that pressure on specific parts of the body could have an anaesthetizing effect on corresponding areas in the body. This was further developed in the 1930s by Eunice Ingham, who defined reflexology as it is practiced today. Reflexology is the technique of applying gentle pressure to the reflexes (pressure points) on the feet or hands to clear the vital energy pathways that can become blocked due to the stresses and strains of life. It is thought

that the hands and feet are like mirror images of the body, with various points representing different structures and organs.

Self-reflexology refers to alternative medicine involving the physical art of applying pressure by own to feet, hands and ears with specific thumb, finger and hand techniques without use of oil or lotion [19].

Self-reflexology is used as a way to: relax and to ease headaches, backaches fatigue and panic attacks. Reportedly, self-reflexology can also help develop personal strength, improve confidence, increase vitality, enhance sexual life, detoxify body, boost metabolism, ease menstruation pains and cure the average hangover. [20] So stress and sleeplessness during pregnancy are common but if left unseen may have adverse effects on pregnancy as well the baby in the later life.

**Problem Statement**

“Effectiveness of self reflexology on stress and sleeplessness among pregnant women in selected villages, Belgaum, Karnataka”.

**Objectives of the Study**

1. To assess the level of stress and severity of sleeplessness among pregnant women in selected villages.
2. To educate the pregnant women on self-reflexology techniques and its benefits for reduction of stress and sleeplessness during pregnancy.
3. To evaluate the effectiveness of self reflexology in terms of reduction of stress and sleeplessness among pregnant women in selected villages.
4. To co-relate the effectiveness of self reflexology on stress and sleeplessness among pregnant women in selected villages.
5. To find out association between the selected demographic variables with stress and sleeplessness of pregnant women.

**Hypothesis of the study**

- H1: There will be significant difference between the pre test and post test effectiveness of self reflexology on stress and sleeplessness.
- H2: There will be significant association between stress and sleeplessness with selected demographic variables of pregnant women.

**Material and Method**

The research approach used for this study was evaluative approach to accomplish the objectives of the study. The research design selected for this study was Quasi-experimental study with time series design.

**Table 1:** This can be represented as: (N=30)

Group	Pretest		Treatment		Posttest			
	1 <sup>st</sup> Day (Week 1)	8 <sup>th</sup> Day (Week 2)	8 <sup>th</sup> Day	9 <sup>th</sup> – 36 <sup>th</sup> Day (WK2-WK6)	15 <sup>th</sup> Day (Week 3)	22 <sup>nd</sup> Day (Week 4)	29 <sup>th</sup> Day (Week 5)	36 <sup>th</sup> Day (Week 6)
Exp. G Allotted by Randomization	O <sub>1</sub> ,O <sub>2</sub>	O <sub>3</sub> ,O <sub>4</sub>	X	X <sub>PSR</sub>	O <sub>5</sub> ,O <sub>6</sub>	O <sub>7</sub> ,O <sub>8</sub>	O <sub>9</sub> ,O <sub>10</sub>	O <sub>11</sub> ,O <sub>12</sub>

Keys: X- Self-reflexology Technique  
 X<sub>PSR</sub> – Practice of Self-reflexology Technique  
 O<sub>1</sub> O<sub>3</sub>- Pre- Stress Assessment  
 O<sub>2</sub> O<sub>4</sub>- Pre- Sleeplessness Assessment  
 O<sub>5</sub>, O<sub>7</sub>, O<sub>9</sub>, O<sub>11</sub>- Post- Stress Assessment  
 O<sub>6</sub>, O<sub>8</sub>, O<sub>10</sub>, O<sub>12</sub>- Post- Sleeplessness Assessment

The population of the present study was pregnant women belonging to Sulaga and Dhamane villages of Belgaum. The study was conducted in Sulaga and Dhamane villages of Belgaum, Karnataka. The sample for the present study consists of 30 antenatal women of gestational age between 24-32weeks residing at Sulaga and Dhamane villages of Belgaum. For the present study Non probability convenient sampling technique was used for selecting the area and Probability simple random sampling technique was found appropriate to select 30 pregnant women residing at selected villages of Belgaum.

The tools used by the researcher to collect data were modified stress scale and standardized insomnia severity index.

- **Part A:** Demographic data consists of 15 items.
- **Part B:** Modified Daily Hassles Stress Scale to assess the level of Stress among the pregnant women.

**Table 2:** Scoring Criteria

Response	Not at all part of my life	Only slightly part of my life	Distinctly part of my life	Very much part of my life
Score	1	2	3	4

**Table 3:** Score interpretation of Modified Daily Hassles Stress Scale

Score	Interpretation
30-60	Mild stress
61-90	Moderate stress
91-120	Severe stress

**Part C:** Standardized Insomnia Severity Index

**Table 3:** Scoring Criteria

Response	None	Mild	Moderate	Severe	Very severe
Score	0	1	2	3	4

**Table 4:** Score interpretation

Score	Interpretation
0-7	No clinical significant insomnia
8-14	Sub threshold insomnia
15-21	Clinical insomnia (moderate)
22-28	Clinical insomnia (severe)

**Data Collection Procedure**

Prior permission was obtained from the concerned authority. Keeping in mind, the ethical aspect of research data was collected after obtaining informed consent from the subjects. The respondents were assured the anonymity and confidentiality of the information provided by them. The researcher herself has collected data from the sample. Pre-test-1 was conducted on 08-11-2012 by interview schedule method. The duration of the session was forty five minutes. After 7 days pre-test-2 was conducted on 15-11-2012 using the same modified and standardized stress and sleeplessness tool followed by demonstration of self-reflexology. The post test 1, 2, 3 and 4 were collected on 22-11-2012, 29-11-2012, 6-12-2012 and 13-12-2012 respectively using the same tools to assess the effectiveness of self-reflexology on stress and sleeplessness among pregnant women.

**Results**

**Data analysis and interpretation**

The analysis and interpretation of data collected from 30 pregnant women residing at selected villages of Belgaum. The data has been tabulated and analyzed according to the objectives.

**Part A:** Description of Demographic characteristics pregnant women

This part deals with distribution of participants according to their demographic characteristics. Data was analyzed using descriptive statistics and are summarized in terms of percentage.

Regarding the age of pregnant women 12(40%) of samples belongs to 18-22 years, 12 (40%) belongs to 23-27years and 6(20%) were in the age group of 28-32 years.

Regarding the educational status of study samples 7(23.33%) of them were uneducated, 14(46.66%) were from primary education, 5(16.66%) were completed secondary education and 4(13.33%) were studied up to P.U.C. Majority 24(80%) of pregnant women were house wife and 6(20%) were employed. Majority 20(66.66%) of study samples were multigravida 10(33.33%) were with primigravida. Majority 17(56.66%) of the study samples were having monthly family income of Rs.5001-10000, 7 (23.33%) of the samples belongs to Rs.2000-5000 and 6(20%) was having Rs.10, 000 and above as their family monthly income. Majority, 17(56.66%) of pregnant women were married at the age group of 15-19 years and 13(43.33%) of pregnant women married at the age group of 20-24 years of age.

Regarding the age of sample’s husband 13(43.33%) belongs to 23-27 years, 10 (33.33%) belongs to 28-32years, 5(16.66%) belongs to 33years and above and 2(6.66%) were in the age group of 18-22 years. While considering the educational status of husband 16(53.33%) of them were done up to secondary education, 7(23.33%) were completed PUC, 4(13.33%) were studied up to primary education and 3(10%) were uneducated. Majority 19(63.33%) of the sample’s husband were working as a private employee, 6(20%) were government employee and 5(16.66%) were agriculturist.

**Part B: A)** Assessment of level of stress among pregnant women.

**Table 3A:** Distribution of pretest-I level of stress among pregnant women. (N=30)

Sl. No.	Category	Score	Frequency	Percentage (%)
1.	Mild	30-60	26	86.66
2.	Moderate	61-90	4	13.33
3.	Severe	91-120	0	0

Table 3 (A) describes that in pre-test-I 26(86.66%) pregnant women were having mild level of stress and 4(13.33%) of them had moderate level of stress in pregnancy. (Fig. 18)

**Table 3B:** Mean and Standard Deviation of pretest-I Level of Stress among Pregnant women. (N=30)

Statistics	Stress Score
Mean score	46.06
Standard deviation	8.90

Above table shows that pregnant women had a mean score of 46.06 with standard deviation 8.90.

**Part B** Assessment of severity of sleeplessness among pregnant women in selected villages

**Table 3C:** Distribution of pretest-I severity of sleeplessness among pregnant women. (N=30)

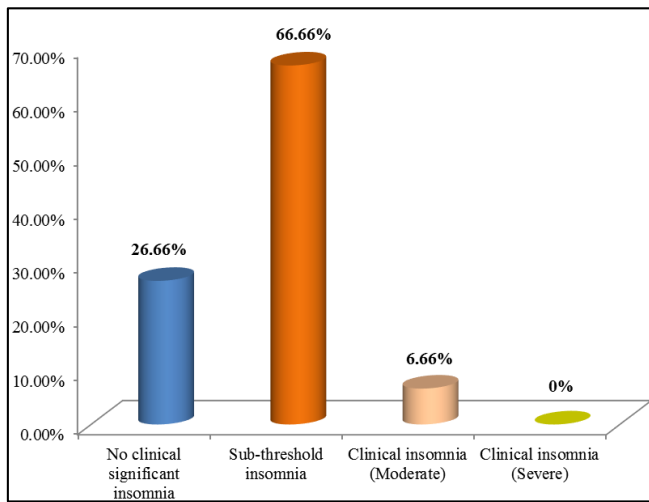
S. No.	Category	Score	Frequency	Percentage
1.	No clinical significant insomnia	0 – 7	8	26.66
2.	Sub-threshold insomnia	8 – 14	20	66.66
3.	Clinical insomnia (Moderate)	15 – 21	2	6.66
4.	Clinical insomnia (Severe)	22 – 28	0	0

Table 3 (C) describes that in pre-test-I 8(26.66%) pregnant women were having no clinical significant insomnia, 20(66.66%) were having sub-threshold insomnia and 2(6.66%) were having clinical insomnia (moderate). (Fig. 1)

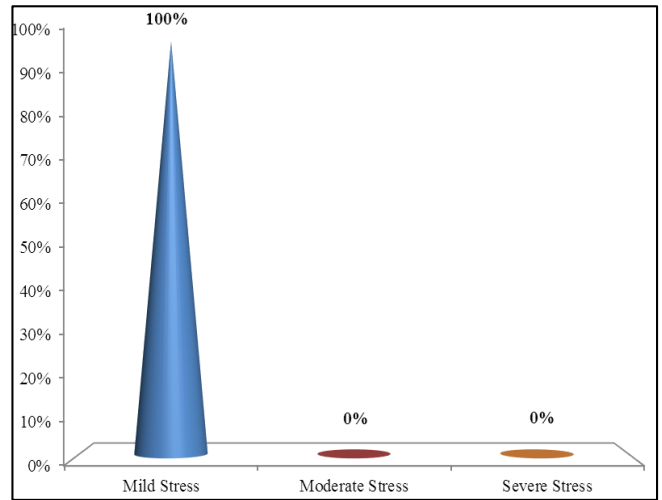
**Table 3D:** Mean and Standard Deviation of pretest-I Severity of Sleeplessness among Pregnant women. (N=30)

Statistics	Sleeplessness Score
Mean score	9.63
Standard deviation	2.99

Above table shows that pregnant women had a mean score of 9.63 with standard deviation 2.99.



**Fig 1:** Percentage Distribution of Pretest-I Severity of Sleeplessness Among Pregnant Women



**Fig 2:** Percentage Distribution of Post-test-IV Level of Stress Among Pregnant Women

**Part C: A)** Assessment of effectiveness of self reflexology in terms of reduction of stress among pregnant women.

**Table 4: A)** Distribution of post-test-IV level of stress among pregnant women. (N=30)

Sl. No.	Category	Score	Frequency	Percentage (%)
1.	Mild	30-60	30	100
2.	Moderate	61-90	0	0
3.	Severe	91-120	0	0

Table 4 (A) describes that in post-test-IV 30(100%) pregnant women were having mild level of stress. (Fig. 2)

**Table 4B:** Mean and Standard Deviation of post-test-IV Level of Stress among Pregnant women. (N=30)

Statistics	Stress Score
Mean score	36.76
Standard deviation	4.11

Above table shows that pregnant women had a mean score of 36.76 with standard deviation 4.11.

**Part C: B)** Assessment of severity of sleeplessness among pregnant women.

**Table 4C:** Distribution of post-test-IV severity of sleeplessness among pregnant women. (N=30)

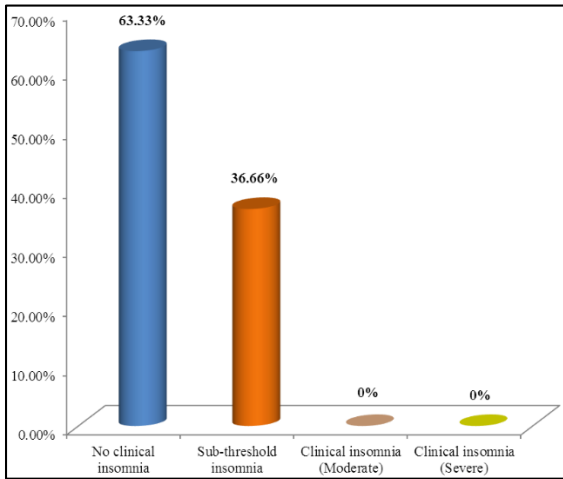
Sl. No.	Category	Score	Frequency	Percentage
1.	No clinical significant insomnia	0 – 7	19	63.33
2.	Sub-threshold insomnia	8 – 14	11	36.66
3.	Clinical insomnia (Moderate)	15 – 21	0	0
4.	Clinical insomnia (Severe)	22 – 28	0	0

Table 4 (C) describes that in post-test-IV 19(63.33%) pregnant women were having no clinical significant insomnia and 11(36.66%) were having. (Fig. 3)

**Table 4D:** Mean and Standard Deviation of post-test-IV Severity of Sleeplessness among Pregnant women. (N=30)

Statistics	Sleeplessness Score
Mean score	6.86
Standard deviation	1.53

Above table shows that pregnant women had a mean score of 6.86 with standard deviation 1.53.



**Fig 3:** Percentage Distribution of Post-test-IV severity of Sleeplessness among Pregnant women

**Table 6:** Correlation co-efficient of post-test-I, II, III and IV between level of stress and severity of sleeplessness. (N=30)

Variables	Post-test-I		Post-test-II		Post-test-III		Post-test-IV	
	Level of Stress (r)	Severity of Sleeplessness (r)	Level of Stress (r)	Severity of Sleeplessness (r)	Level of Stress (r)	Severity of Sleeplessness (r)	Level of Stress (r)	Severity of Sleeplessness (r)
Level of Stress	1	0.76	1	0.69	1	0.53	1	0.51
Severity of Sleeplessness	0.76	1	0.69	1	0.53	1	0.51	1

Table 5 denotes that there is a positive correlation of post-test-I, II, III and IV between level of stress and severity of sleeplessness i.e.,  $r=0.76, 0.69, 0.53,$  and  $0.51$  respectively.

**Part E:** Association between the Level of Stress and Severity of Sleeplessness with Selected Demographic Variables of Pregnant women.

To test the statistical significance, the following hypothesis was stated.

H2: There will be significant association between stress and sleeplessness with selected demographic variables of pregnant women.

The findings reveals that there was no significant association between level of stress with demographic variables like wife: age, education, occupation, gravidity, type of family, religion, habits, family income, years of marital life and age at marriage; and husband: age, education, occupation, habits and age at marriage.

**Association between the Severity of Sleeplessness and Selected Demographic Variables of Pregnant women.**

The findings reveals that there was no significant association between severity of sleeplessness with demographic variables like wife: age, education, occupation, gravidity, type of family, religion, habits, family income, years of marital life and age at marriage; and husband: age, education, occupation, habits and age at marriage.

**Summary**

The data gathered were summarized in the master sheet and both descriptive and inferential statistics were used for analysis. Findings revealed that the total mean stress score is decreased by 9.3 with mean  $\pm$ SD of  $8.9\pm 4.112$  and the total mean sleeplessness score is decreased by 2.764 with mean

**Part D:** Co-relation between the level of stress and severity of sleeplessness among pregnant women.

**Table 5:** Correlation co-efficient of pretest-I and pre-test-II between level of stress and severity of sleeplessness. (N=30)

Variables	Pretest-I		Pretest-II	
	Level of stress (r)	Severity of sleeplessness (r)	Level of stress (r)	Severity of sleeplessness (r)
Level of stress	1	0.80	1	0.80
Severity of sleeplessness	0.80	1	0.80	1

Table 5 denotes that there is a positive correlation of pre-test-I and pre-test-II between level of stress and severity of sleeplessness ( $r=0.80$ ).

$\pm$ SD of  $2.99\pm 1.53$  after practicing self-reflexology. Paired ‘t’ test was used to find the effectiveness of self-reflexology. The calculated ‘t’ value in stress (9.89,  $p<0.05$ ) and sleeplessness (8.11,  $p<0.05$ ) was greater than the table value. This showed that the decrease in the level of stress and severity of sleeplessness was significant after practicing self-reflexology.

**Conclusion**

The findings for level of stress revealed that majority (86.66%) of pregnant women were going through mild stress and 13.33% with moderate stress. It indicates that pregnant women will suffer from moderate stress related to pregnancy. After practicing self-reflexology again the level of stress was assessed and post-test was conducted and findings revealed that majority (100%) of pregnant women were going through mild stress. It indicates that pregnant women will have reduced level of stress after practicing self-reflexology. The findings for severity of sleeplessness revealed that majority (66.66%) of pregnant women were suffering from sub-threshold insomnia. It indicates that pregnant women will suffer from sub-threshold insomnia. After practicing self-reflexology again the severity of sleeplessness was assessed and post-test was conducted and findings revealed that majority (63.33%) of pregnant women were suffering from no clinical significant insomnia. It indicates that pregnant women will have decrease in severity of sleeplessness after practicing self-reflexology.

**References**

1. Indian Women’s Health, Women’s Health Care and Health guide. Available at: [http:// www.indianwomenshealth.com/Pregnancy-72.aspx](http://www.indianwomenshealth.com/Pregnancy-72.aspx)
2. J. Jiyareka. Role of Jacobson’s relaxation therapy in

- reducing stress of vantenatal mothers. Nightingale Nursing Times. Vol.7 No-6 (September) 2011: p 5-6.
3. Introduction to pregnancy. Available at: [http:// www. mentalhelp.net/poc/view\\_doc.php?type=doc&id=6129 &cn=282](http://www.mentalhelp.net/poc/view_doc.php?type=doc&id=6129&cn=282)
  4. Introduction to pregnancy. Available at: <http://www.netplaces.com/pregnancy/>
  5. How stress in pregnancy affects your baby. Available at: [http://www.naturalnews.com/023611\\_stress\\_pregnancy\\_asthma.html](http://www.naturalnews.com/023611_stress_pregnancy_asthma.html)
  6. Indian Women's Health, Stress in Pregnancy. Available at: <http://www.indianwomenshealth.com/Stress-In-Pregnancy-86.aspx>
  7. First Trimester Basics by Dr. Peter J. D'Adamo with Catherine Whitney. Available at: <http://pregnancy.familyeducation.com/pregnancy-day-by-day/first-trimester/36571.html>
  8. Stress hits hardest in the first trimester of pregnancy! March of Dimes Saving Babies Together- Stress & Pregnancy 2003. Available at: [http:// mothercaremassage.net/Stress%20and%20Pregnancy%201.pdf](http://mothercaremassage.net/Stress%20and%20Pregnancy%201.pdf)
  9. Stress hits hardest in the first trimester of pregnancy! Available at: <http://mothercaremassage.net/Stress%20and%20Pregnancy%201.pdf>
  10. Stress during Pregnancy Second Trimester. Available at: <http://www.pregnancy-baby-care.com/articles/443/during-pregnancy/stress-during-pregnancy-second-trimester.html#continued>
  11. Dr Philip Owen consultant obstetrician and gynecologist copyright 1998-2011 Sleep and sleep problems during pregnancy. Available from: [http://www.netdoctor.co.uk/health\\_advice/facts/pregnantsleep.htm](http://www.netdoctor.co.uk/health_advice/facts/pregnantsleep.htm)
  12. Fetus to Mom: You're Stressing Me Out! Available at: <http://www.medicinenet.com/script/main/art.asp?articlekey=51730>
  13. Empowering women to live healthier lives! Available at: <http://www.womenshealth.gov/pregnancy/you-are-pregnant/body-changes-discomforts.cfm>
  14. Insomnia during Pregnancy: snooze or loose Available at: [www.americanpregnancy.org/pregnancyhealth/insomnia.html](http://www.americanpregnancy.org/pregnancyhealth/insomnia.html)
  15. National Sleep Foundation: Pregnancy and Sleep <http://www.sleepfoundation.org/article/sleep-topics/pregnancy-and-sleep>
  16. National Sleep Foundation: Pregnancy and Sleep <http://www.sleepfoundation.org/article/sleep-topics/pregnancy-and-sleep>
  17. Indian Women's Health, Pregnancy and Sleep. Available at: [http:// www. indianwomenshealth.com/Pregnancy-and-Sleep-228.aspx](http://www.indianwomenshealth.com/Pregnancy-and-Sleep-228.aspx)
  18. Indian Women's Health, Pregnancy week 29 and 30. [http:// www. indianwomenshealth.com/Pregnancy-Week-29-and-30-297.aspx](http://www.indianwomenshealth.com/Pregnancy-Week-29-and-30-297.aspx)
  19. Kunz, Kevin; Kunz, Barbara. The Complete Guide to Foot Reflexology. Reflexology Research Project Available, 1993, at: [http:// en. wikipedia. org/ wiki/ Reflexology#cite\\_note-Kunz.26Kunz1993-0](http://en.wikipedia.org/wiki/Reflexology#cite_note-Kunz.26Kunz1993-0)
  20. Phebe Durand © 2011 Life123 Reflexology Techniques: Self Reflexology Available at: [http://www.life123.Com/health/massage-bodywork/reflexology/reflexology-techniques-self-reflexology.shtml](http://www.life123.com/health/massage-bodywork/reflexology/reflexology-techniques-self-reflexology.shtml)