

## **DYSFUNCTIONAL ATTITUDE, SPIRITUALITY AND HEALTH LOCUS OF CONTROL IN WOMEN WITH INFERTILITY**

**Shruti Sharma**

### **INTRODUCTION**

Throughout the history, infertility has been a culturally sensitive issue and has traditionally been a concern of the individual rather than society at large. It is regarded throughout that, in patrilineal societies the wife often has no status until she produces a child for the husband's family line. In India, high value is placed on children as a great source of social security for old age (c.f. Shivaraya, 2011).

The World Health Organization (WHO) estimates that 60 to 80 million couples worldwide currently suffer from infertility and overall prevalence of primary infertility in India to be between 3.9 and 16.8 per cent (c.f. Adamson et al., 2011).

Infertility is a complex life crisis that may last for many years; women with fertility problems may suffer from impaired cognitive status, multiple losses, grief and role failure. It can be accompanied by huge personal, marital, social, cultural, emotional, and medical consequences. Infertility is debilitating and is ranked as one of the greatest sources of stress in a woman's life comparable to cancer its stress is ranked as second to that involving the death of a family member, or divorce by couples (c.f. Roudsari, 2007).

As it has been identified, infertility can lead to chronic stress which in turn can lead to depression and anxiety. Research indicates that anxiety disorders frequently co-occur with depressive disorders (c.f. Thompson, 2013).

Infertility is, by definition, a loss of control over one's reproductive ability. Infertile individuals are poignantly aware of their inability to control reproduction, and this perceived lack of control might increase the psychological distress of infertility. Studies have found that infertile individuals experience a loss of control. Loss of control was viewed as aversive and likely to lead to depression and other negative effects (c.f. Campbell et al., 1991).

### **INFERTILITY: AN OVERVIEW**

In India, women are symbolized as the image of procreation. Motherhood is considered a source of power for a woman, one that determines the strength of her marital bonds. Infertility is viewed

as deviance from the cultural norms rendering the woman helpless; it also provides grounds for divorce (c.f. Shivarya, 2011).

The problem of infertility has its roots in the fundamental need and desire for parenthood. Every human being has a desire to become a parent and look after the offspring. Parenthood, as a stage of life is characterized by the need to look after, to take care, to give both materially and in terms of affection. For a woman it is also an expression of creativity and has both biological and psychological roots (c.f. Shivaraya, 2011).

Parenthood is a fundamental human need and within a specified period, if the person does not become a parent, it leads to anxiety and loss of self-esteem. A number of psychological problems arise due to this lacuna as the person feels some sort of deficiency within himself. It holds true for both men and women though due to ignorance most of the time, the woman is blamed. Nevertheless, the psychological feelings of inadequacy can arise in either partner (c.f. Shivaraya, 2011).

Infertility is a life crisis with invisible losses, and its consequences are manifold. Childless women experience stigma and isolation. Infertility leads to a psychological imbalance, especially when a possible and quick solution is not found for it. The psychological reactions of the individual are in the form of despair, sadness, denial sense of guilt, depression, anxiety, disappointment and hopelessness, grief reaction, reduction of self esteem, changing in the individual's mental picture and feeling a change in the self identity comparing with healthy persons, losing life control, changing in sexual identity, marriage maladjustment sense of disqualification, life dissatisfaction, suicide, suspicion (c.f. Hassani, 2010).

### **Cultural Significance of Motherhood in India**

In Indian cultures, the role of motherhood is inscribed in the personality of a girl child from childhood itself, either by encouraging the child to play motherly roles of caring for younger siblings or by only allowing her to play with dolls around the house. The reproductive role of women is highly recognized in these settings and the onset of puberty is joyously marked, accompanied by celebrations that declare the girl's fertility and announce her capability for future motherhood (c.f. Shivarya, 2011).

A woman's status is determined by whether or not she fulfils her responsibilities towards the family and society, through her significant role of procreation. She is recognized as fully adult and complete in the true sense on attaining motherhood (c.f. Shivarya, 2011). Motherhood

confirms a woman's status as a perpetuator of the race granting her respect that is not extended to her as a wife (Vaithilingam&Murugean, 2002). Infertility is deeply feared by women, their identity, status and security are affected and they experience stigmatization, isolation and a loss of bargaining power and empowerment in the family and society. It is a major source of anxiety, leading to lowered self-esteem and a sense of powerlessness (c.f. Widge& Cleland, 2009)

### **Infertility**

The World Health Organization (WHO) defines health as “a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity.” Infertility, accordingly, is a source of diminished health and social well-being.

WHO defines infertility as failure to conceive despite two years of cohabitation and exposure to pregnancy for a period of two years. A couple may be considered infertile if, after two years of regular sexual intercourse, without contraception, the woman has not become pregnant.

Infertility is of two types: primary and secondary.

**Primary infertility:** WHO defines primary infertility as the “Inability to conceive within two years of exposure to pregnancy (*i.e.* sexually active, non-contracepting, and non-lactating) among women 15 to 49 yr. old.

**Secondary infertility:** The woman has previously conceived, but is subsequently unable to conceive despite cohabitation and exposure to pregnancy for a period of two years. If the woman has breastfed a previous infant, then exposure to pregnancy is calculated from the end of the period of lactational amenorrhoea.

### **Demographic and Clinical Picture of Infertility in India**

According to Poongothai et al. (2009) it is estimated that globally, 60-80 million couples suffer from infertility every year, of which probably 15-20 million are in India alone.

The WHO estimates the overall prevalence of primary infertility in India to be between 3.9 and 16.8 percent. Estimates of infertility vary widely among Indian states from 3.7 percent in Uttar Pradesh, Himachal Pradesh and Maharashtra, to 5 percent in Andhra Pradesh, and 15 percent in Kashmir. Moreover, the prevalence of primary infertility has also been shown to vary across tribes and castes within the same region in India (c.f. Adamson et al., 2011).

## **PSYCHOSOCIAL CORRELATES OF INFERTILITY**

Infertility is a psychologically and physically challenging stressful life event. Infertility is debilitating and is ranked as one of the greatest sources of stress in a woman's life comparable to cancer. Its stress is ranked as second to that involving the death of a family member, or divorce by couples (Domar, 2004). Infertility, according to many authors, has been viewed as a crisis (c.f. Roudsari et al., 2007).

### **Infertility and Quality of Life**

Quality of life has become a critically important concept in health care in recent years (c.f. Lengyel et al., 2003). WHO (1997) defines Quality of Life as individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, level of independence, social relationships, personal beliefs and their relationship to salient features of their environment.

Infertility affects a variety of aspects of women's and men's well-being and this is reflected in its strong relationship to global life quality. Quality of life is a construct that encompasses physical function, psychological function, somatic sensation, social interaction, occupational and financial (c.f. Fatt, 2012).

Aarts (2011) examined the relationship between emotional distress and the fertility quality of life in patients undergoing an assisted reproductive technology (ART). Significant negative correlation was found between quality of life and anxiety and depression.

According to Stewart et al. (1989) quality of life is a good indicator of functional status and well-being of a person who has undergone treatment for medical conditions (c.f. Fatt, 2012). According to Wagner et al. (2000) quality of life is becoming important in the evaluation of treatment and assessment of medical conditions (c.f. Fatt, 2012).

### **Depression, Anxiety in Relation to Infertility**

Psychological distress is largely defined as a state of emotional suffering characterized by symptoms of depression (e.g., lost interest; sadness; hopelessness) and anxiety (e.g., restlessness; feeling tense) (c.f. Saini, 2012).

The defining features of psychological distress are the exposure to a stressful event that threatens the physical or mental health, the inability to cope effectively with this stressor and the emotional turmoil that results from this ineffective coping. They argue that psychological distress vanishes when the stressor disappears or when an individual comes to cope effectively with it (c.f. Saini, 2012).

Depression can lead to feelings of fatigue, worthlessness, suicidal thoughts, agitation, weight loss or weight gain. It can be caused by grief, family and social isolation, physical, genetics, biological, psychological factors. All these contribute to the deterioration of quality of life. The person may not sleep well and/or eating well and may resort to smoking, alcohol or drugs to overcome the depression (c.f. Fatt, 2012).

### **Dysfunctional Attitude**

Dysfunctional attitudes are negatively biased assumptions and beliefs regarding oneself, the world and the future. According to diathesis stress model & Beck's cognitive theory of depression, it has been proposed that two levels of cognition that is, dysfunctional attitude and automatic thoughts contribute to the development and maintenance of depression.

Dysfunctional attitudes may reflect negative maladaptive cognitive biases in which, compared to positively valenced information, the importance of negatively valenced information is exaggerated (c.f. Kallay, 2013).

### **Health Locus of Control**

The term "Locus of control" originated from Rotter (1966). He distinguished between an external and internal locus of control. The dominant type of locus of control present in a person's life often determines his or her reactions and behaviour. The dominant type of locus of control in an individual, whether external or internal, can also be used to explain the perceptions and motivation of a person's action (c.f. Breet et al., 2010).

Researchers have found that people who are elderly and perceive their health to be largely controlled by powerful others are those who regard aspects of their quality of life as low (Brampton & Tomasevic, 2001).

## **Spirituality**

### **Definitions of spirituality**

“Spirituality is that aspect of human existence that gives it its ‘humanness’. It concerns the structures of significance that give meaning and direction to a person’s life and helps them deal with the vicissitudes of existence. As such it includes such vital dimensions as the quest for meaning, purpose, self- transcending knowledge, meaningful relationships, love and commitment.

Sandelowski& Pollock, (1986) were the first authors who referred to the spiritual dimension of infertility. In their phenomenological study entitled,“Women’s Experience of Infertility,” they indicated that infertility has temporal and spiritual dimensions. For this reason, women with fertility problems on the one hand struggle with the body and earthly issues, and on the other hand have continuing confrontation with God, faith and other sacred concerns (c.f. Roudsari, 2007).

## **METHODS**

### **Aim**

The aim was to study the relationship of dysfunctional attitude, spirituality and health locus of control with anxiety, depression and quality of life in women with infertility.

### **Hypothesis**

A null hypothesis was examined with respect to each of the variables.

### **Design**

Single-group design with a cross-sectional assessment of the study variables was employed.

### **Sample**

Non-probability convenience sampling technique was employed to recruit patients. Sample consisted of women undergoing evaluation/treatment for primary infertility.

### **Inclusion criteria**

- Married for at least 2 years and diagnosed as having primary infertility
- Age range of 20 to 40 yr.

- Currently undergoing evaluation/treatment for infertility
- Minimum 10<sup>th</sup> standard education
- Women willing to give consent to participate in the study

### **Exclusion criteria**

- Women with the history of current or past psychiatric illness
- Women with medical co-morbidities other than hypertension and diabetes
- Intellectual impairment

### **Tools**

#### **Socio-demographic Data Sheet**

Socio-demographic data sheet was used to record the relevant information of the participants. The details such as name, age, education status, religion, duration of infertility, cause of infertility and duration of marriage were recorded systematically in the data.

#### **Hospital Anxiety Depression Scale (HADS)**

Zigmond and Snaith developed this scale in 1983 to assess the presence and severity of anxiety and depression in patients in non-psychiatric hospital settings. Anxiety and depression are assessed as separate components, each with 7 items that are rated from 0 (no problem) to 3 (severe); scores are added to get the total for each component.

#### **Dysfunctional Attitude Scale - Short Form-2 (DAS)**

To assess the dysfunctional attitudes, Dysfunctional Attitude Scale Short Form developed by Beevers et al., (2009) was used. It has 9 items; it is a 4 point scale, with response categories totally agree, agree, disagree, and totally disagree which is scored from 1 to 4. Reverse scoring is applied to all the items by subtracting individual item scores from a score of 5.

#### **WHO Quality of Life Scale -BREF (WHOQOL-BREF, 1996)**

WHOQOL-BREF was developed to assess the individual's perception in context of their culture and value system, and their personal goals, standards and concerns. It is a 26 item questionnaire which is assessed on 4 domains, namely, physical, psychological health, social relationships and environment. It is a self administered questionnaire. Questions 1 & 2 indicate the overall perception of quality of life and health respectively. For each item respondent is

asked to score on 5 point Likert Scale ranging from 1 to 5. The four subscales are calculated by summing up the scores of the corresponding items in each sub scales. The overall score is summation of all sub scale scores. The higher the score obtained the higher the quality of life perceived by the respondent. (WHOQOL-BREF, 1996).

### **Multi-dimensional Health Locus of Control (MHLC)**

The Multidimensional Health Locus of Control was developed by Ken Wallston et al., (1994) at Vanderbilt University and consists of three forms (A, B & C). Form A & B are the “general” health locus of control scales that have been in use since the mid- late 1970’s (and were first described in Wallston et al., 1978, Health Education Monographs, 6,160-170). Form C is designed to be used for “condition specific” and can be used in place of Form A/B when studying people with an existing health/ medical condition. In the present study Form C was employed. It contains 18 items divided into 4 subscales: internal, chance, doctors and other people. Higher score reflects stronger endorsement of particular locus of control scale.

### **Spirituality Scale (SS)**

The Spirituality Scale was developed by Colleen Delaney in 2003. The Spirituality Scale (SS) is a holistic assessment instrument that focuses on the beliefs, intuitions, lifestyle choices, practices, and rituals that represent the human spiritual dimension. The SS is designed to assess the essence of spirituality in a format that can be used to guide spiritual interventions. It is a 23 items scale; 6-point Likert-type scale. 3 subscales: self discovery, relationships, Eco Awareness. The statements have to be encircled to the appropriate number that corresponds with the answer key. Key: Strongly Disagree: 1, Disagree: 2, Mostly disagree: 3 Mostly agree: 4, Agree: 5 Strongly Agree: 6.

### **Procedure**

Patients diagnosed with primary infertility were recruited based on the inclusion and exclusion criteria from the private outpatient clinics of infertility (Oasis centre for reproductive medicine & Narmada fertility clinic) in Secunderabad/ Hyderabad, A.P. The order of administration of the questionnaires was constant for all subjects. Each session lasted approximately 30 minutes. At the end of the data collection subjects were thanked for their cooperation. The data were coded and entered in the software based data sheet and subjected to analysis.



### Statistical Analyses

Statistical package for social sciences (SPSS) – version 16 was used to carry out the analysis. Descriptive statistics was employed to understand the demographic data. Student's t-test was used to determine the significance level between variables. Pearson's correlation method was employed to determine the association between variables.

### RESULTS

**Table 1: Characteristics of the study population (N = 63)**

<b>Variables</b>	<b>Mean (SD)</b>	<b>Percentage</b>
Age (Yr.)	31.28 (3.59)	
Duration of marriage (Yr.)	6.26 (3.53)	
<u>Education</u>		
Up to Intermediate		4.80
Above Intermediate		95.20
<u>Religion</u>		
Hindu		90.50
Muslim		6.30
Christian		3.20
<u>Occupation</u>		
Housewife		54.0
Working		46.0

In the above table, the demographic characteristics indicated mean age of the women was 31.28 years (SD = 3.59). Almost all subjects had above intermediate education (95.2%) and were Hindu (90.5%). More than half of the subjects were house wife (54.0%). Mean duration of marriage was 6.26 years (SD = 3.53) and mean duration of infertility was 4.33 years (SD = 2.54). In the sample 27% of women had polycystic ovaries, 12.7% had endometriosis as the cause of infertility and 60% of them had other conditions and unknown cause of infertility.

Correlation analysis between DAS with duration of infertility was carried out. The results showed no significant correlation between DAS and duration of infertility ( $r = -.20$ ).

**Table 2: Mean (SD) scores on HADS subscales in High (n = 30) and Low (n = 33) Spirituality groups.**

HADS	Low	High	“t” (df = 61)	p
Anxiety	8.27 (2.88)	7.96 (3.1)	.40	.69
Depression	5.72(3.4)	4.10 (2.9)	2.01	.04

As shown in the above table, a significant difference between groups on Depression subscale was observed.

**Table 3: Mean (SD) score on WHO-QOL scale in High (n = 30) and Low (n = 33) Spirituality groups**

WHO-QOL	Low	High	“t” (df = 61)	p
Quality of life	4.00 (.61)	4.16 (.53)	-.114	.25
General Health	3.57 (.79)	3.66 (.71)	-.47	.63
Physical Health	71.60 (11.84)	72.40 (9.80)	-.28	.77
Psychology	64.18 (11.32)	67.00 (10.77)	-1.00	.31
Social Relationship	75.39 (14.21)	76.30 (9.19)	-.29	.76
Environment	70.00 (13.83)	74.56 (11.29)	-1.42	.15

As shown in the above table, there was no significant difference between WHO-QOL subscales in groups of those who scored high and low on measures of Spirituality.

In the present study correlation analysis was carried out between spirituality and subscales of MHLC. There was a positive correlation between spirituality and chance (r = .32, p < 0.01) subscale of MHLC.

In the present study correlation analysis was carried out between Spirituality and subscales of WHO-QOL. There was no significant correlation between Spirituality and WHO-QOL subscales.

**Table 4: Mean (SD) score on HADS subscales with High (n = 25) and Low (n = 38) DAS groups.**

HADS	Low	High	“t” (df=61)	p
Anxiety	7.73 (3.22)	8.72 (2.60)	-1.27	.20
Depression	4.39 (3.5)	5.8 (2.6)	-1.68	.09

As shown in the above table, there was no significant difference between Anxiety and Depression subscales of HADS with high and low scores on DAS groups.

**Table 5: Mean (SD) scores on WHO-QOL scale in groups of those scored High (n = 25) or Low (n = 38) on DAS**

WHO-QOL	Low	High	“t” (df = 61)	p	As show
Quality of life	4.21 (.52)	3.88 (.60)	2.30	.02	n in
General Health	3.76 (.58)	3.40 (.91)	1.92	.06	the
Physical Health	71.55 (11.51)	72.64 (9.91)	-.38	.70	above
Psychology	65.26 (12.89)	65.92 (7.73)	-.22	.82	table
Social					there
Relationship	74.86 (13.53)	77.28 (9.25)	-.77	.44	was a
Environment	74.13 (13.82)	69.20 (10.64)	1.51	.13	signif

difference (t = 2.30; p = .02) between high and low scores on DAS with Quality of life subscale of WHO-QOL.

In the present study correlation analysis was done between dysfunctional attitude and subscales of MHLC. There was positive correlation found between Dysfunctional attitude and, chance (r = .33; p < 0.01) and other people (r = .40; p < 0.01) subscale of MHLC.

Correlation analysis was done between dysfunctional attitude and, anxiety and depression (not shown in the table). There was a positive correlation between dysfunctional attitude and anxiety (r = .25; p < 0.05). There was a positive correlation between dysfunctional attitude and depression (r = .26; p < 0.05).

**Table 6: Correlation of DAS and HADS subscales Anxiety and Depression with WHO-QOL subscales**

<b>Variables</b>	<b>Quality of life</b>	<b>General Health</b>	<b>Physical Health</b>	<b>Psychology</b>	<b>Social Relationship</b>	<b>Environment</b>
DAS	-.23	-.15	-.14	-.11	-.05	-.32**
Anxiety	-.34**	-.09	-.21	-.43**	-.45**	-.34**
Depression	-.31*	-.16	-.26*	-.48**	-.44**	-.40**

\*p < 0.05

\*\*p < 0.01

In the above table there was significant negative correlation between DAS with Environment subscale of WHO-QOL.

There was significant negative correlation between Anxiety subscale of HADS with Quality of life and Environment subscale of WHO-QOL.

There was negative correlation found between Anxiety subscale of HADS with Social Relationship and psychology subscale of WHO-QOL.

There was negative correlation between Depression subscale of HADS with Quality of life and Physical health subscale of WHO-QOL.

There was negative correlation between Depression subscale of HADS with Psychology, Social relationship and Environment subscale of WHO-QOL.

**Table 7: The correlation between MHLC subscales with WHO-QOL subscales**

<b>Variables</b>	<b>Quality of life</b>	<b>General Health</b>	<b>Physical Health</b>	<b>Psychology</b>	<b>Social Relationship</b>	<b>Environment</b>
MHLC Internal	-.08	.12	-.25*	-.06	.92	-.27*

MHLC Chance	-.00	-.32*	.21	-.05	.11	.12
MHLC Doctors	-.03	.04	-.16	.06	-.14	-.12
MHLC Other people	-.13	-.01	-.31*	-.16	-.23	-.41**

---

\*\*p < 0.01

\*p < 0.05

As shown in the above table there was significant negative correlation between internal subscale of MHLC with Environmental subscale of WHO-QOL.

There was significant negative correlation between internal subscale of MHLC with physical health subscale of WHO-QOL.

There was significant negative correlation between chance subscale of MHLC with general health subscale of WHO-QOL.

There was significant negative correlation between other people subscale of MHLC with environment subscale of WHO-QOL.

There was significant negative correlation between other people subscale of MHLC with physical health subscale of WHO-QOL.

Correlation analysis was carried out between Anxiety and Depression subscales of HADS and MHLC subscale (not shown in the table). There was no significant correlation between anxiety and depression with MHLC subscales.

### **Implications of the Study**

A major goal of the management for women with fertility problems is to facilitate a positive resolution of the crisis, regardless of whether a pregnancy is achieved or not. In the present study it was found that women who had less spirituality had higher depressive symptoms. In order to better understand the persons concerns about infertility, however it may be helpful to address spiritual beliefs. Spirituality appears to play an important role in the psychological health of infertile women. Future studies are needed to expand these findings.

Psychologist can help by discussing the problems of infertility with the patients so that they can handle the situation in a better way such as the opportunities that exist in case of treatment failure.

Other reports show that cognitive therapy throughout the process of diagnosis and treatment, particularly previous to IVF therapy and pregnancy testing, can result in higher rates of pregnancy and the use of psychological intervention can enhance the chance of pregnancy even after six months follow-up (c.f. Nik & Basavarajappa 2012). According to the present study results Psychological intervention and psychotherapy will be helpful in altering the dysfunctional beliefs and reducing symptoms of depression and anxiety; thereby improving their overall quality of life of infertile women.

## **SUMMARY AND CONCLUSION**

The present study was aimed at studying the relationship of dysfunctional attitude, spirituality and health locus of control with anxiety, depression and quality of life in women with infertility. For this purpose 63 women with primary infertility were measured on the following measures: a) WHO-QOL-BREF b) Dysfunctional Attitude scale Short Form 2 (DAS) c) Hospital Anxiety and Depression Scale (HADS) d) Spirituality Scale e) Multidimensional Health Locus of Control Scale (MHLC).

The findings are as follows:

- The analysis of the results indicated that in the present study there was no significant difference between quality of life and spirituality in women with infertility and also there was no significant correlation found between spirituality and quality of life.
- There exists significant negative correlation between anxiety and quality of life, social relationship, psychological health, subscale of WHO-QOL. It was also found that there is significant negative correlation between depression and quality of life, physical health psychological health, environment subscales of WHO-QOL. This indicates that women who have symptoms of anxiety and depression tend to have poor quality of life.
- There was a significant negative correlation found between health locus of control other people and physical health suggesting that women who have an external locus of control have poor physical health.

- There was significant negative correlation between internal health locus of control and physical health suggesting that those who have an internal locus of control have poor physical health.
- The depression and anxiety scores were positively correlated with dysfunctional attitude scales among women with infertility.
- There was a significant difference between dysfunctional attitudes in patients with high and low scores on spirituality scale.
- There was a significant difference between high and low scores on dysfunctional attitude scale with quality of life.
- Dysfunctional attitude scores were positively correlated with health locus of control by chance and other people.
- There was no significant difference between quality of life and high and low scores on spirituality scale and also there was no significant correlation found between spirituality and quality of life.
- The anxiety scores were negatively correlated with quality of life, social relationship, psychological health, subscale of WHO-QOL.
- The depression scores were negatively correlated with quality of life, physical health psychological health, environment subscales of WHO-QOL.
- The internal and other people subscale scores on MHLC were negatively correlated with physical health.

### **Limitations**

- Sample size was small
- The subjects belonged entirely to urban sector
- Maximum sample was collected from one clinic

### **Future Directions**

- Research in the future can be carried out on a larger sample.
- Rural population can also be included.
- A longitudinal study design may be more effective and meaningful in exploring relationship among the variables employed in the present study.

## REFERENCES

- Aarts, J. W., Van Empel, I. W., Boivin, J., Nelen, W. L., Kremer, J. A. & Verhaak, C. M. (2011) Relationship between quality of life and distress in infertility: a validation study of the dutchfertiql. *Journal of Human Reproduction*, 26, 1112–1118. doi:10.1093/humrep/der051
- Abbey, A., Andrews, F. & Halman, L. (1992) Infertility and subjective well being: the mediating roles of self esteem, internal control, and interpersonal conflict. *Journal of Marriage and the Family*, 54, 408-416. doi: 10.2307/353072
- Adamson, P. C., Krupp, K., Freeman, A. H., Klausner, J. D., Reingold, A. L. & Madhivanan, P. (2011) Prevalence & correlates of primary infertility among young women in Mysore, India. *Indian Journal of Medical Research*, 134, 440-446.
- Aiken, P. A. & Baucom, D. H. (1982) Locus of control and depression: that confounded relationship. *Journal of Personality Assessment*, 46, 391-395. Retrieved on May 27, 2014.  
Available from: URL:  
[http://www.tandfonline.com/doi/abs/10.1207/s15327752jpa4604\\_10?url\\_ver=Z39.882003&rfr\\_id=ori:rid:crossref.org&rfr\\_dat=cr\\_pub%3dpubmed#.U4Ym1vmSxws](http://www.tandfonline.com/doi/abs/10.1207/s15327752jpa4604_10?url_ver=Z39.882003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%3dpubmed#.U4Ym1vmSxws)
- Ali, S., Sophie, R., Imam, A. M., Khan, F. I, Ali, S. F., Shaikh, A et al., (2011) Knowledge, perceptions and myths regarding infertility among selected adult population in Pakistan: a cross-sectional study. *Biomedcentral Public Health* 11:760 doi: 10.1186/1471-2458-11-760
- Aliyeh, G. & Laya, F, (2007) Quality of life and its correlates among a group of infertile Iranian women. *International Medical Journal of Experimental and Clinical*