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Review Report

The relationship between personality characteristics and coping with perceived stress in pregnant women referred to health centers in Mashhad

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INTRODUCTION:
One of the most critical periods of women's life is pregnancy, which tends to induce large changes, including the physiological and psychological changes. These changes cause disorders such as stress in the mother and require the use of coping strategies. Personality factors affect the choice of appropriate coping strategies.This study aimed to determine the relationship between personality characteristics and level of perceived stress and coping strategy with in mother during all three trimester of pregnancy.
Methods: This correlation studywas conducted on 500 pregnant women referred to 20 health centers in Mashhad with helping multi-stage sampling in 2014.The data collection tools included: Demographic, obstetrics & gynecology Questionnaire, Hardiness Questionnaire (Survey questionnaire personal view Kobasa), Optimistic Questionnaire (Life orientation test- Revised), Revised Prenatal Coping Inventory and Perceived stress scale.Data were analyzed by statistical software SPSS version 16 using multiple regression Test andSpearman.
Findings: Results showedthat there is a significant positive linear relationship between psychological hardiness, optimism and spiritual and preparation- planning coping strategies ($p < 0.0001$) however it was correlatedsignificantly negatively with avoidance strategy ($p < 0.0001$). More hardy and optimistic pregnant women received less stress ($p<0.0001$). Conclusion: Personality characteristicsare associated with coping strategies and stress levels in pregnant women.

Keywords: Pregnancy, Stress, Coping Strategies with Stress during Pregnancy, Coping Strategies with stress, Psychological Hardiness, Optimism

INTRODUCTION:

One of the most important fields of research in the sciences is considered stress in this century (1, 2). In general stress can be defined as any process and events that make organism's response heavily needed to cope with certain stressors (3, 4).Pregnancy is one of the most critical periods of woman's life, which tends to induce large changes and lack of emotional stability (3). Despite the joy of becoming a mother, it is the most stressful period of their lives (5). Unwanted pregnancy causes mothers more mental health problems and stress (6). The results of Schetter study (2012) in California showed that 78 percent of pregnant women exposed to low -moderate levels of stress, and 6 percent were exposed to high levels(7).

Changes in the body, personal identity, and interpersonal relationships are the sources of stress in pregnancy (8).Hormonal, physical and psychological changes cause stress during pregnancy. Other factors such as age at pregnancy, poor maternal education, planned pregnancies, low socioeconomic status, sexual exploitation, lack of social support, depression and a history of pregnancy complications, lack of

preparation for pregnancy and childbirth are exaggerated by stress and mother's mental problems (9). Stress during pregnancy has been manifested in the form of discomfort and irritation often associated with stimulantof autonomic nervous system (5, 7). Pregnant women who are optimistic are able to accept changes during pregnancy better and consequently have better mental health in their pregnancy (10).

Maternal stress during pregnancy effects negatively fetal weight loss, abortion (9, 11, 12), premature birth (13, 14), immunosuppression (12), an increase of malformation of the fetus and infant Mortality. Also during childhood they experience sleep disorders, delays in walking and speaking, learning and memory impairment, movement disorders, increased emotional reactions, mood decline and emotional / behavioral problems (15-17). Maternal stress also effects mothers negatively .Some could be listed as follows: postpartum depression and mood disorders (13, 18), hypertension (19), infection of the episiotomy (9), increased need for analgesia during labor, increased risk of unplanned cesarean delivery (20). Coping with stress in pregnancy is very important due to the impacts on the mental health of mothers and infants. In fact predictors of maternal were coping with infant-mother interactions and effects on infant development and quality of maternal anxiety (21).

Among the researchers in the field of stress and coping strategies, Lazarus and Folkman (1984) stated that emotional responses and behavioral to coping stress are related to the cognitive approach to study stress in pregnancy .i.e. How women assess stress. Traditionally, coping theories are divided in one of two ways, problem-focused coping, which aim to remove or reduce the cause of the problem, or emotion-focused coping, which aim to reduce discomfort associated with stressor and more desirable when the stressor is uncontrollable. In another classification, Roth and Cohen (1986) referred to efforts between direct and indirect methods of coping aimed to dealing with or avoiding stressful situations (22) .Strategies for coping with stress of pregnancy were as follows:

Planning-preparation coping strategies: e.g. women who are seeking information and knowledge about pregnancy and birth.

Spiritual-positive coping: like women who choose to pray and go to religious places in order to coping stress and a healthy pregnancy period.

Avoidance: such as women find ignoring the physical changes during pregnancy impossible and try hiding their feelings about pregnancy (20, 22).

Huizink et al. (2002) showed that the use of appropriate coping strategies will reduce complaints during pregnancy such as nausea and vomiting, pain, change in appetite, loss of concentration and emotional disorders. Adversely, the use of improper methods of coping leads to postpartum depression and more complaints during this period (24).

Yali study (1999) showed that most women choose using prayer and positive appraisal to cope with stress caused by pregnancy changes (25).

Anja et al (2002) demonstrated that coping procedures directly related to mother's stress level (26).It is clear that stress is an inseparable part of human life, so it seems necessary that all people are getting familiar with coping strategies. It’s important to identify stressors in order to coping with. The most important variables that influence the method of coping are the severity and type of stressful event, characteristics, personality, age and past experience of individuals(1,27).Assessing and therefore coping with stress are influenced by personality characteristics, which two individuals react in a totally different mannerfacing the same stressor event (1).

The most important personality factors which leads to an appropriate selection of coping strategies is psychological hardiness.Hardiness gives the chances to people in order to deal with stress and helps them to choose a correct problem solving strategy(28).Kobasa, Maddi and Zola (1983), define hardiness combination of beliefs about self and the world. The results indicate a

positive relationship between hardiness and physical and psychological health (29).

Allerd and Smith (1989) reported that hardy persons, in comparison with those with low hardiness, endorsed lower arousal under conditions of high life stress (30).

Hardiness is such a moderator of the relationship between stress and mental and physical diseases,which gives people an optimistic vision to stressors. This feature can be useful in coping with stressfullife events (31). Optimism and hardiness, which are health-promoting factors, play an important role in coping strategies with negative life events (32).The common feature between optimism and hardiness is the beliefs that one has about changes and events in daily lives .Optimistic and hardy people take changes as an opportunity for growth (33).Scheier, Carver and Bridges (1994) define optimism and pessimism as expected positive and negative outcomes. Also believe that people evaluated stressful situations with a positive view by being optimistic (34).Lobel et al. (2000) reported that optimistic women experience less stress during pregnancy (35). Jada et al. (2000) showed that the most of the stress coping strategies which used by pregnant women is spiritual- positive which the lowest type is avoidance coping strategy (20). Increasing the knowledge and awareness of women on stress coping strategies in pregnancy, dramatically, improves mental health and health-related behaviors during pregnancy (36). People used a variety of coping strategies in addition to they regularly evaluate whether their efforts were successful or not in coping with stressors (20, 37). The results of Jada et al (2008) suggested that pregnant women use specific strategies to cope with stress which varies during pregnancy(20).Lobel et al. Study (2002) suggested that positive emotions such as optimism in women with high risk pregnancy can be useful in coping with stressful events (35). So, in this study we attempted to review the personality traits of hardiness and optimism with the mother's level of perceived stress and coping strategy.

METHODS:

This research is a descriptive - correlational study. The study population consisted of all pregnant women referred to prenatal care in health centers in Mashhad University of Medical Sciences in 2015. 500 pregnant women were selected by convenience sampling (167 women in the first trimester of pregnancy, 166 pregnant women in the second trimester and 167 pregnant women in the third trimester of pregnancy). Multi-stage stratified clustering sampling method was used. A complete list of health research centers from five health regions of Mashhad (numbers one, two, three, five and Samen) was prepared.

Then samples were selected based on the sampling size from each health centers which selected randomly (the sampling volume, according to the Centers for coverage).

If they wish to participate in the study, they are asked to fulfill the Questionnaire with the help of researcher after fulfilling Written Informed Consent.

Based on preliminary study, sample size was calculated 500 with confidence level 95% (05/0 = α) and power of 80% (2/0 = β). Excluding criteria were: Drug addiction, History of medical illness and high risk pregnancies, Background on a psychiatrist or psychologist, Drug use ,Hospitalizations due to mental illness in recent years, Severe stress during the past six months such as divorce or the death of someone close. The data collection tools included: Demographic, obstetrics & gynecology Questionnaire, Hardiness Questionnaire (Survey questionnaire personal view Kobasa), Optimistic Questionnaire (Life orientation test- Revised), Revised Prenatal Coping Inventory and Perceived stress scale.

Content validity were used to determine the validity of Demographic, Obstetrics & Gynecology Questionnaire.

Survey questionnaire personal view Kobasa includes 50 sentences, which is a 4 point Likert option. "is not true" awarded zero score and "is quite true " awarded 3 score. High hardiness range is (126-150 score), relatively high hardiness (76-

125), relatively low hardiness (26-75) and low hardiness is (0-25). The validity and reliability of the questionnaire was done in Iran firstly by Ghorbani using content validity in 1994. Other internal studies have also been supported the reliability of the questionnaire (38).Caska and Moritakacalculatedfactor reliability coefficients for total score hardiness0.75 (39).In this study the validity of the questionnaire was approved by ten members of the Faculty of Nursing and Midwifery, Mashhad University of Medical Sciences. Also Cronbach's alpha reliability was determined 0.92,0.85,0.82 and 0.81 for hardiness, commitment, control and challenge,relatively.

Optimistic Questionnaire (Life orientation test-Revised) has ten questions, on a 5 -Likert scale from strongly agree to strongly disagree .Four questions are misleading and do not belong to score. Three questions were scored directly and three werereverse.Scores range is between 0-24. The validity of this test was done byScheier and Carver in 1985, which was 0.74. Additionally, there is a high correlation with several related tests such as self-esteem, hopelessness and neuroticism. The test was translated into Persian by Khodabakhshi in 2004.Its reliability and validity has been reported 0.74 and 0.72, respectively (40). In this study, also the validity of the questionnaire was approved by ten members of the Faculty of Nursing and Midwifery, Mashhad University of Medical Sciences. Reliability was assessed by 0.84 by using Cronbach.

Revised Prenatal Coping Inventory Questionnaire includes 32 questions. It consists of 15 phrases about Planning-Preparation Coping, 11 about coping by avoidance and 6 about positive-spiritual coping, scoring 5 - Likert scale ,which zero means “never” and four means “most cases” . Hamilton& Jada (2008) approved the validity. Hamilton (2008) has been reported alpha Cronbach's in the beginning, middle and end of pregnancy for Planning-Preparation subscale 0.82, 0.85, 0.86 for the avoidance subscale 0.78 , 0.79, 0.8 and for the positive spiritual coping subscale 0.73, 0.78, 0.77 (20). Dennis et al. (2012) also used this questionnaire as a valid questionnaire in their study in France (41).The questionnaire was translated into Persian and then fourlanguage specialist did the necessary reforms in order to approve the validity. The validity also confirmed by ten members of the Faculty of Nursing and Midwifery, Mashhad University of Medical Sciences and the Faculty of Educational Sciences, Ferdowsi University of Mashhad.Reliability was measured in First, second and third trimester for Planning-Preparation subscale 0.93, 0.91, and 0.94 for the avoidance subscale 0.85, 0.88, 0.90 and for the positive spiritual coping subscale 0.89, 0.81, 0.90, respectively.

Perceived stress scale questionnaire of Kohen et al. has 14 questions, scoring 5 -Likert scale , which zero means “never “and four means “most cases” . The lowest score is zero and the maximum is 56. Higher scores are indicating higher perceived stress. In this study the validity of the questionnaire was approved by ten members of the Faculty of Nursing and Midwifery, Mashhad University of Medical Sciences. Darban et al. (2011) also calculated the internal consistency reliability of the questionnaire which was 0.81by the Cronbach's alpha (42).The reliability was 0.89 in this study.

Data were analyzed by statistical software SPSS version 16. The normality of quantitative variables was assessed by Kolmogorov-Smirnov and Shapiro–Wilk Tests. The relationship between the two variables is assessed with Spearman for unmoral variables and Pearson for normal ones. To control the confounding variables multiple regression Test was used. In all tests, the significance level was considered less than 0.05.

RESULTS AND FINDINGS:

The mean age of the women participating in the study was 26.9±5.3 years. In terms of education level of mothers, 11.4% (57 person)had primary education , 0.29% (145) educated only 5 classes , 36.2% (181 people) had diploma and 23.4% (n = 117) had academic education.76% (380) of mothers were housewives and others were

employed.Income of the most of the samples 75.8% (379) were in the range of daily living. The average score of planned -preparation strategy was 34.9 ± 12.3 with the range of 6-55, avoidance strategy 14.3 ± 9.5 with the range of 0-40 positive spiritual strategy was 17.3 ± 7.5 ranged 2-24. The mean and standard deviationof pregnant women hardiness was reported 92.4 ± 23.2 ranged 31.0-133.0 .The median of course reported 93.5. 23% of women were relatively low hardy, 70.8% were highhardy and 2.6% were absolutely hardy.

Based on the results of the Spearman Correlation Test, there is a significant positive linear relationship between psychological hardiness and Planning-Preparation coping strategy (r=0.70p<0.0001).Additionally there is the same relationship between psychological hardiness and positive spiritual coping strategy(r=0.76 p< ‘ 0.0001).On the other hand, there is a significant negative linear relationship between psychological hardiness and coping by avoidance (r=- 0.81 p< ‘ 0.0001) (Table 1).

Kruskal–Wallis one-way analysis of variance	psychological hardiness				
	absolutely high	relatively high	relatively low		
chi-square: 177/5 df = 2 p = 0/001	50/6 ± 3/3	37/6 ± 9/4	22/0± 11/4	Planning-preparation coping	coping with perceived stress
chi-square: 205/5 df = 2 p = 0/001	4/7 ± 3/2	11/3 ±6/6	25/9 ±8/1	Avoidance coping	
chi-square: 198/3 df = 2 p = 0/001	23/9 ± 7/5	18/7± 3/7	11/1 ± 5/1	Spiritual-positive coping	

Table 1 - The mean scores of coping strategies in pregnancy in women who has relatively low, relatively high and absolutely high hardiness.

The mean and standard deviation of optimism pregnant women was 15.6 ± 4.00 ranging from 0.6 to 0.23. The median was reported 0.16.

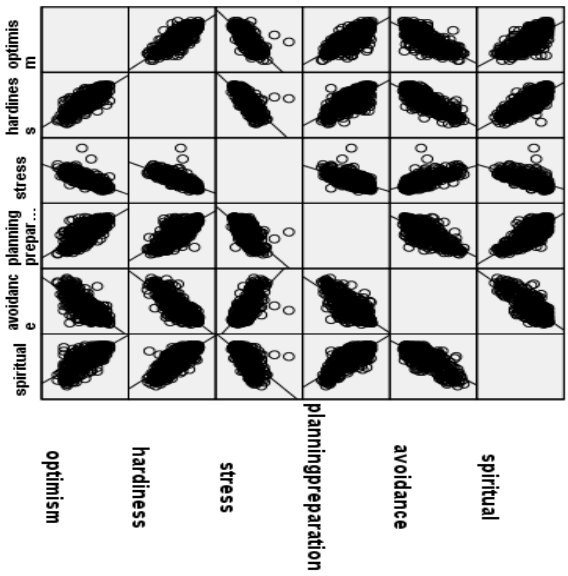
The results of Spearman Correlation Coefficient showed that there is a significant linear relation between optimism and planned- preparation strategies and also between optimism and positive -spiritual strategies in pregnancy (r=0.74, p <0.0001), (r=0.73, p <0.0001), respectively. However, this relation was reported negative linear when the avoidance coping strategies were used (r =-0.76, p < 0.0001). The results of the same Test were relieved that the relation between perceived stress and planned- preparation coping strategies and also positive -spiritual strategies was significantly negative linear, (r=-0.69, p <0.0001),(r=-0.68, p <0.0001).On the other hand, it was reported that there was a significant positive relation between perceived stress and avoidance coping strategies(r=0.75, p <0.0001).MatrixScatterplot also has been plotted (plot 1).

The correlation between optimism, psychological hardiness, strategies for coping with stress in pregnancy (preparation - planning, avoidance and positive - spiritual) and perceived stress was calculated. Based on the Test there was a significant correlation between all variables (p <0.0001). Correlations between these variables are presented in Table 2.

Table 2- the relationship between optimism, psychological hardiness, coping strategies with stress in pregnancy (preparation - planning, avoidance and positive - spiritual) and perceived stress in pregnant women referred to health centers in Mashhad.

	optimism	**psychological hardiness**	**Planning-preparation coping**	**Avoidance coping**	**Spiritual-positivecoping**	**perceived stress**

optimism	-					
psychological hardiness	r=0/818** p=0/000	-				
Planning-preparation coping	r=0/736** p=0/000	r=0/700** p=0/000	-			
Avoidance coping	r= -0/760** p=0/000	r= -0/810** p=0/000	r=-0/688** p=0/000	-		
Spiritual-positivecoping	r=0/732** p=0/000	r=0/763** p=0/000	r=0/752** p=0/000	r= 0/735** p=0/000	-	
perceived stress	r=-0/801** p=0/000	r=-0/812** p=0/000	r=-0/687** p=0/000	r= 0/753** p=0/000	r= -0/677** p=0/000	-



Plot 1- correlation between coping strategies (preparation - planning, avoidance and positive - spiritual) and optimism and hardiness among pregnant women referred to health centers in Mashhad

DISCUSSION:

The results of this research revealed that there is a positive linear relationship between hardiness and optimism with active coping strategies such as positive - spiritual and planned - preparation.which explains that more optimistic and hardy women are likely to use more positive - spiritual and planned – preparation coping strategies. The results of this study are consistent with Kobasa.

Kobasa (1979) expressed that hardy people when faced with a stressor try to make a realistic assessment and understand the factors of stressors. Based on this recognition and selection of the appropriate coping strategy, they effort to eliminate or inhibit their stressful factors.On the other hand, non-hardiness in the face of stress situations inhibit, eliminate or reduce the unpleasant emotions and instead of trying to eliminate or inhibit the stressors, they get away from or deny it(28, 43).Well as the results, Soderstrom (2000) also found thathardinessassociated positively with active strategies and negatively with perceived stress and avoidance strategies (27).Results of the Delahaijstudy indicated that emotion –focused strategies were less popular than problem – focused strategies between hardy people (44). This is also consistent with the results of present study.

In the present study there is an inverse linear relationship between hardiness and optimism with

avoidant coping strategies. This means that by increasing the hardiness and optimism scores between mothers,using the avoidance strategies is reduced. Jada et al. (2008) reported that there is a significant positive linear relation between pregnant optimism women with planned – preparation strategy (p = 0.05) and positive – spiritual strategy (p = 0.001), which was on the other hand negatively associated with avoidance strategy (p = 0.001) (20) .The results are consistent with the results of present study.

Subramanian results showed that thosepeople, who scored high on Hardiness and Optimism scales use activecoping strategies such as problem focused or problem-oriented, re-evaluation, planning, positive interpretation of events and ... (p <0.01).However people, who scored very low in hardiness and optimism scale are using in distant, avoidant and emotionally focusedcoping strategies such as self- blame, ruminating, and …(p <0.01)(32).Iwanaga et al. (2002) reported that optimists are more likely to adopt active coping strategies and suffer of less mental stress levels than pessimists.Under a controllable situation, active coping strategies are statistically associated with stress levels in optimists. While pessimists showed more stress under an uncontrollable situation.Optimists are more likely to use problem-focused coping strategies than pessimists (45).These finding agree with the present study.

Lobel et al. (2002) in a study which is done in New York titled “Beneficial associations between optimistic disposition and emotional distress in high-risk pregnancy” showed that optimism in pregnancy and was not associated with stress adaptation strategy planned preparation and prayer (35). That differs from the results of this study .The reason might be explainable because of the study population. Lobel was examined high- risk pregnant women, which that stresses in pregnancy is far more than a normal pregnancy.

Yali&Lobel reported that stress coping strategies are most often emotional-focused one such as positive spiritual and avoidance (46).Mothers who eat and sleep more than they need, speak with others in frustration (22), Try to hide their feelings about pregnancy (23) are those who are likely to engage avoidance coping strategy, which is a useless strategy for coping with stress during pregnancy (47).Under this strategy, individuals are trying to weaken their reactions or responses not trying to resolve the resources of the stressors(1,48).

Bahadoriet al. (1390) demonstrated that there is a significantpositive relationship between psychological hardiness and avoidance coping style (r=0.042, P<0.01) (49). By increasing of the scores of the student’s psychological hardiness, choosing avoiding coping strategy was increased. This differs from the results of the present study.It might be vary because of different study population, which were students by Bahadori. However, when students live in an unpredictable community, may learn the avoidance and emotion-focused coping styles (49).

The results indicated that hardy and optimistic people are engaged to use positive – spiritual to deal with stress in pregnancy more often and consequently suffer less stress in pregnancy.

Park et al (1990) worked on the relationship between religious beliefs with depression, anxiety, self-confidence in students, the results of this study showed that high levels of internal religiouswere related to lower levels of depression, anxiety and more confidence after negative life events (50).Kimet al. (2000) showed religiosity and spirituality arerelated with lower blood pressure, improvement in public health, increasing longevity, enhancing coping skills and reduced stress (51).YasamiNejad et al. showed a positive significant relationship between intrinsic religious orientation and psychological hardiness (31).Keramati et al. (2012) in a study titled”optimism and psychological hardiness in student”reported that hardiness and optimism are significantly positively correlated with spiritual intelligence (33).Jafari et al. (2012) reported that there is a statistically relationship between spirituall well-being and hardiness so as

demonstrated by the present study(52).women may choose to pray go to religious places in order to cope with stress during pregnancy and healthybaby (20, 22) evidences point to a positive evaluation of the strategy and spiritual health has been associated with better psychological adjustment during pregnancy (22).Spirituality as a structure has an important impact on psychological adjustment. Religious beliefs play a major role in mental health and adjustment (31).

The results of the present study showed that optimists have reported less perceived stress levels in pregnancy.The results of Lobel et al. (2000) showed that pregnant women are not likely to be optimistic. In addition, optimism had a significant negative correlation with perceived stress in pregnant women (53).As a result of Jada et al. (2008) high anxiety in pregnancy is associated with avoidance coping strategy.However women who experience lower anxiety use planned preparation coping strategy (20). Avoidant coping styles have been associated with lower general psychological well-being, increased distress, higher depressed mood, more anxiety, and higher perceived stress, which approved by the results of the current study (22).Coping methods have been associated directly with perceived stress. In fact, plays the role of a mediator between stress and discomfort. The emotion-focused coping strategies and techniques in early pregnancy reduce the level of stress and anxiety. While problem-focused coping strategies in late pregnancy were used to reduce the mother's stress level (26).

In the present study there is a significant direct relationship between psychological hardiness and optimism in pregnant women.Psychological hardiness makes a person more resources to respond to the stressors. Additionally, strengthen an optimistic view on the events of life.

So psychological hardiness has a greater impact on adjustment through less sympathetic arousal, strengthening the immune system, increasing immunoglobulin, a sense of continuity, access to more resources to respond to stressors, growing more optimistic view, reducing the threat assessment, assessment of threat reduction, asking others for help (54). Keramati et al. (2012) reported that that hardiness and optimism are correlated significantly positively to spiritual intelligence (33).Hardiness is a dimension of control.In fact, control means No Disability .Each tries to change or reduce stressors.Kobasa noted that hardy people are optimistic and optimism is positively correlated with perceived control (55). Control as stress resistance is widely responsible for providing and developing responses and reactions to stress which even can be relied upon in the most dangerous situations (56).

In fact, Mothers ability to select appropriate coping strategies is reducing the potentially harmful effects of stress on the mothers and babies. For example, those who use active coping in pregnancy less likely to develop complications during pregnancy, while the use of avoidant coping strategy in pregnancy is associated with health risk behaviors such as smoking and so on (57).

Researches admitted that using avoidance coping strategies have been associated with lower general psychological well-being, increased distress, higher depressed mood, more anxiety and complications during pregnancy and after delivery (22).Noticing these complications, coping with stress plays an important role, because the mental health of both mother and infant is critical.Coping with stress during pregnancy is a predictor of the quality of interaction between mother and infant, infant development and also outcomes of maternal anxiety (21).So it seems reasonable to increase hardiness and optimism during pregnancy.Pregnant women should try to deal effectively with stress during this period.Additionally, midwife should be informed to give information and help mothers about stress management and coping skills during pregnancyBecauseCoping with stress in pregnancy is very important due to the impacts on the mental health of mothers and infants.

Limitation:

Limitations of the study were individual differences and psychological which effects the answering to the questionnaire, which was completely out of control.

CONCLUSION:

There is a positive relationship between psychological hardiness,optimismand positive spiritual coping strategies and also Preparation-Planning coping strategies however avoidance coping strategies correlated negatively to psychological hardiness and optimism.

Application of results:

The results of the research ask health planners and managers to have more training classes for midwives and pregnant women about pregnancy and coping strategies.To manage the stress in pregnant women considering the character and train them courses in the field of hardiness and optimism.

Conflict of interest: No conflict of interest has been expressed

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