Mindfulness-Based Intervention Program on Stress Reduction during Pregnancy

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Abstract Mindfulness-based Cognitive therapy, theoretical and clinical work to working with mood concerns during pregnancy. **Aim** of this study was to evaluate the effect of the Mindfulness -based intervention Program on Stress Reduction during Pregnancy. **Design:** A quasi - experimental design was utilized in this study. **Setting:** The study was conducted in the obstetric outpatient clinics in Kafr El sheikh, University Hospital. **Sample:** A purposive sample was used for 100 pregnant women, who attained the above mentioned setting. **Tools**: three tools were used for data collection, interviewing questionnaire for assessing demographic characteristics for pregnant women. 2-perceived Stress Scale, 3 Mindful Attention Awareness Scale. **Result:** there are positive effects of mindfulness intervention program on the stress levels among studied mothers and the difference between stress scale levels pre and post intervention was highly significant (p=0.000). **Conclusion** this study concluded that women who learn mindfulness during pregnancy are likely to use those skills to mange stressful aspect of pregnancy, childbirth and parenting resulting in reductions in psychological distress and improvement in psychological well-being. **Recommendation:** Continuing mindfulness program about reduced stressful aspect of pregnancy, and researches are needed to detect the other problems to early management.

Keywords: mindfulness –based intervention program, pregnant women and prenatal stress

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1. Introduction

Pregnancy, is the time during which one or more offspring develops inside a woman. A multiple pregnancy involves more than one offspring, such as with twins. Pregnancy can occur by sexual intercourse or assisted reproductive technology. Childbirth typically occurs around 40 weeks from the last menstrual period (LMP), [1].

About 213 million pregnancies occurred in 2012, of which, 190 million (89%) were in the developing world and 23 million (11%) were in the developed world. The number of pregnancies in women ages 15 to 44 is 133 per 1,000 women. About 10% to 15% of recognized pregnancies end in miscarriage. In 2016, complications of pregnancy resulted in 230,600 deaths, down from 377,000 deaths in 1990. Common causes include bleeding, infections, hypertensive diseases of pregnancy, obstructed labor, and complications associated with miscarriage, ectopic pregnancy, or elective abortion, [2].

Pregnancy and childbirth are some of the most significant, exciting and scary experiences that a woman will experience in her lifetime. The experiences and mental health of the woman during pregnancy and throughout the post-pregnancy period are of utmost importance for the well-being of both the mother and her child. Depression or anxiety in pregnancy has been associated with an increase in obstetric complications including stillbirth, low birth weight infants, postnatal specialist care for the infant and susceptibility to more adverse neurodevelopmental outcomes including behavioral, emotional and cognitive problems Anxiety and stress during pregnancy have been linked with premature delivery, low birth weight, and neonatal morbidity and mortality, [3].

Pregnancy is a key time to be caring for the mothers' mind and mental attitude, [4]. One way in which this can be supported is through mindfulness, known to promote emotional positivity and stability. Also, mindfulness as "paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally". The process of accepting things as they are and approaching situations with an open mind reduces tension and fear and increases trust. Mindfulness can offer support to a mother both during the perinatal period and beyond, [5].

Mindfulness-based intervention program is the teaching or learning of practices designed to help pregnant women increase their ability to live fully in the present moment. The ability to be present and aware is a powerful counter to the common tendencies to relive past events or to worry about potential events, [6].

Mindfulness-based interventions show promise in addressing a number of adverse outcomes, such as antenatal depression and anxiety, providing pregnant women with more empowerment and satisfaction with labour. While planning for birth can be a positive experience and has its advantages, this should be flexible because if a birth plan does not come together, it could cause distress and strain on the body, [7].

Mindfulness-based interventions allow the development of abilities that are important for pregnant women and new mothers. These interventions encourage practice of awareness and acceptance of one's thoughts, emotions and body sensations, building stress tolerance, reducing reactivity and avoidance of uncomfortable experiences. The seven-attitudinal factors covered in mindfulness-based interventions include non-judging, patience, beginner's mind, trust, non-striving, acceptance and letting go [8].

Pregnant women may require support through their pregnancies with mindfulness-based interventions having been suggested as potentially beneficial to support these women.

Nurses must know the common types of stressors that are most relevant to women during pregnancy with their socio-cultural aspects so that she consider those issues while giving care, counseling and health education. Being a nurse in an antenatal clinic or antenatal ward, it's her responsibility to overlook at pregnant women's emotional state by both subjective and objective ways, [9].

2. Aim of the Study

This study aimed to evaluate the effect of mindfulness-based intervention program on stress reduction during pregnancy through:

2.1 Assessing pregnant women's awareness regarding mindfulness –bases intervention program to reduced stress during pregnancy.

2.2 Developing and implementing mindfulness –bases intervention program according to pregnant women's needs.

2.3 Evaluating the effect of mindfulness –bases intervention program on pregnant women to reduced stress during pregnancy.

3. Hypothesis

Mindfulness-based intervention Program will improve pregnant woman awareness and reduced stress during pregnancy

4. Subjects and Methods

Design: A quasi experimental design was utilized to conduct the study.

Setting: This study was conducted at the obstetric outpatient's clinics in Kafr El sheikh. University Hospital.

Sampling: A purposive sample of 100 pregnant women. The total number of pregnant women attending in the last year (2017-2018) in the obstetric Outpatients' clinics of in Kafr El sheikh. University Hospital. was about 1000. 10% were chosen randomly (100 pregnant women). according to the following criteria: pregnant women in third trimester, and who accepted to participate in the study.

4.1. Tools of the Study

Three tools were used for data collection

The first tool: An interviewing questionnaire format, it was constructed by the researchers after reviewing relevant literatures. The questionnaire was divided into three parts:

Part I: Includes **demographic characteristics** of studied sample such as age, educational level, occupation, marital **status**, residence and monthly income.

Part II: obstetric history: this part was concerned with age of menarche, age of marriage, number of gravida, number of abortions, number of deliveries, types of delivery, number of living children, antenatal care during previous pregnancy, gestational age and expected date of delivery.

Part III: Pregnant women knowledge about meaning, benefits for mothers and fetus after birth, application of mindfulness during pregnancy and methods to apply mindfulness intervention program.

Scoring system: for knowledge items, a correct complete answer was scored (Two points) and a correct incomplete answer was scored (One point), while the wrong answer or don't know was given (Zero), according to pregnant women answers, their knowledge was categorized into (Good knowledge) ≥ 75%, (Average knowledge) ≥ 50% - < 75% and (Poor knowledge) < 50%.

Tools II: perceived Stress Scale (PSS):

The perceived Stress Scale is a classic stress assessment instrument. While originally by Cohen &Williamson in (1988) [10]. The question in this scale ask about the feeling and thoughts during last month Question it is consisted of 10 items each item was examined in a five points Liker scale (0-4). The rating scale scores the stress as (0) for never,(1) for almost never, (2) for sometimes. (3) for often. (4) for very often.

4.2. Scoring System

Scores are obtained by reversing responses (e.g, 0= 4/1 = 3/2 = 2/3 = 1/&4 = 0) to the four positively stated items (items 4, 5, 7 & 8) and then summing across all scale items and categories as the following.

- Scoring ranging from 0-13 considered low stress.
- Scoring ranging from 14-26 considered moderate stress.
- Scoring ranging from 27-40 considered high perceived stress.

Tool III: Mindfulness Attention Awareness Scale (MAAS):

The trait MAAS is a 15-item scale designed by [11] to assess a core characteristics of mindfulness namely. A receptive state of mind in which attention, informed by a sensitive awareness of what is occurring in the present, simply observes what is taking place. This contrasts with the conceptually driven mode of processing. In which events and experiences are filtered through cognitive appraisals, evaluations, memories, beliefs and other forms

of cognitive manipulation. Stressed pregnant awareness assessment items, each was six points Liker scale (1-6) as 1= almost always, 2=very frequently, 3= somewhat frequently, 4= somewhat infrequently, 5= very infrequently, 6= almost never.

4.3. Scoring System

The total score of each pregnant women was ranged from 15-90, and categorized into "low mindfulness" when she achieved ≤ 50% of the total score. and "high mindfulness" was considered when the she achieved more than ≥ 50% of total score. Accordingly, the women who had from 15-48 points of the total score, were considered as "low mindfulness" and those who had 49 to 90 points were considered as "high mindfulness".

4.4. Operational Design

4.4.1. Preparatory Phase

A review of the current, past, local and international related literature and theoretical knowledge of various aspects of the study using books, articles, internet, periodicals and magazines was done.

Validity of the tools: Content validity was done through five experts from Faculty Members of obstetric Health Nursing department and Medical Specialty to ascertain relevance and completeness

Reliability: Reliability coefficients were calculated for questionnaire items. The coefficient alpha was 76.00 %.

Pilot Study: A pilot study was conducted on 10% (10 pregnant women) to test the content clarity and time needed to fill the tool as a pre-test. According to pilot study no modification done. So, the pilot study sample was included in the study sample.

4.4.2. Ethical Consideration

Each pregnant women were informed about the purpose and benefits of the study then oral consent was obtained before starting the data collection. Strict confidentiality was ensured throughout the study process. The study subjects were assured that all data was used only for research purpose and pregnant women were informed of the rights to refuse or withdraw at any time with no consequences.

4.4.3. Fieldwork

After official permissions to carry out the study, the aim of the study was explained to the selected subjects. The study was carried out along a period of 6 months starting from the beginning of September 2017 to the end of February 2018. The average time consumed to fill tool was 30 minutes. The previous mentioned settings were visited by the researchers two days/week (Saturday and Thursday) from 10.00 am to 2.00 pm.

Mindfulness-based intervention Program: it included 4 phases:-

Phase I: Assessing: This phase encompassed interviewing the pregnant women during attending to the outpatient clinics in the waiting area to collect baseline data. At the beginning of interview the researchers greeted the pregnant women, introduced themselves to each one included in the study. That was based on baseline data that obtained from pre-program assessment and reviewing of current and past, local and international related literature on different aspects of problems facing pregnant women was done using textbooks, articles, and periodicals.

Phase II: planning phase: Developing the program according to **general objective** to enhance the pregnant women to reduced stress during pregnancy was achieved through Mindfulness Attention Awareness Scale according to four steps

Content of mindfulness-based intervention Program 4 steps:

STEP 1: Morning Meditation wake up in the morning, sit in a comfortable posture and close your eyes. Make sure you are not disturbed for 5- 10 minutes. Take a few deep breaths. Breathe in through your nose, breathe out through your nose. Scan your body starting from head to toe. Check whether you have any physical discomfort in your body. Physical discomfort can happen due to improper body positioning during sleep or lack of sleep, once you identified the physical discomfort, just by closing your eyes, do some stretching exercise. If you still have the physical discomfort, just be aware of the pain for few seconds.

STEP 2: Mindful Eating: It is advisable to eat after 15 – 30 minutes after you wake up. Fruits will be ideal to eat soon after you wake up. Gently take the fruit in your hand. For few seconds, mindfully look at the color, texture and the nature of the fruit. Then repeat the affirmations in your mind. "Let this fruit provide the necessary nutrition to me and my baby." Now mindfully slowly eat the fruit. Take at least 10 minutes to eat mindfully. You shall practice this technique while having your meals.

STEP 3: Mindful Walking If you are a working women, it is necessary to take small breaks during your working hours. Just go for a mindful walking. It is better to do the walking in the barefoot. If you are living in a too hot or cold region, wear a comfortable footwear. Begin by standing still and becoming aware of your body and how it feels. Notice your posture, feel the weight of your body pressing down toward the ground, and your heels pushing into your shoes; become aware of all the subtle movements that are keeping you balanced and upright. And Continue this mindful walking anywhere between 10-20 minutes everyday morning and evening.

STEP 4: Evening Meditation/ Sleep Meditation. You can do this meditation in the evening or before you go to sleep. This technique will help you to sleep well. You can comfortably sit on a convenient posture, or you can lie down. Gently close your eyes.

Now effortlessly, bring your awareness to your breathing. Can you feel your breath coming in and going out Just relax and breathe however is natural to you. Concentrate on your chest or abdomen rising and falling – can you feel it your mind will probably wander at some point, and thoughts will arise. Now gently shift your focus to your baby. Place both your hand on your stomach and feel your baby for few seconds. Now, ask your baby to go to sleep. If possible sing a lullaby. Tell the baby to sleep for 8-10 hours. Then, slowly count from 10 to 1. Mother who have trained their child during pregnancy to sleep for 8 – 10 hours have slept for longer hours in the night after birth. Talking to the child mindfully during pregnancy

greatly help to reprogram the infant's body and mind for their well-being. Pregnant women knowledge related to mindfulness intervention program such as meaning, benefits for mothers and fetus after birth and appropriate timing for application of mindfulness program and methods to apply mindfulness program.

Phase III: Implementing: The Mindfulness-based intervention Program was implemented over a period of 6 months; it was carried out through 5 sessions. The duration of each session ranged from 20-30 minutes. The intervention program was implemented either individually or in groups from 2 to 4 pregnant women in the. At the beginning of each session the researchers started by a summary about what was given through the previous session, taking into consideration using simple and clear language to suit the pregnant women educational level. Different teaching methods were used including small group discussion, brain storming, demonstration and re-demonstration. The teaching aids used were brochures, colored posters and laptop screen show. At the end of each session, the studied sample was informed about the content of the next session and its time.

Phase V: Evaluating Mindfulness-based intervention Program was done after two weeks from implementation of the Mindfulness-based intervention program during their follow up by using the same pre-program format.

5. Statistical Design:

Data entry and analysis were performed using statistical package for Social Science (SPSS) version 17. Data were presented using descriptive statistics in the form of frequency, percentages, means and standard deviations for quantitative variables. Qualitative catgoral variables were compared using paired t test. Statistical significance was considered at P-value < 0.05.

6. Results

Table 1. Demonstrate that 46.0% of studied women were age group (20≤25 years) with mean of 22.3±4.7 years, and 55% of them were living in rural areas. As regards marital status, 78.0% of them were married and 11.0% were either divorced or widow. more than half of studied women have not enough monthly income 56.0%, regarding the level of education 40.0% of them illiterate, 30.0% of them secondary education.

Table 2. Revealed that only 14.0% of them were primigravida, while 74.0% of them 3 or more gravida have no abortions 56.0%, while 37.0% had 1-2 abortions 56.0% of studied women delivered one to two times. Regarding antenatal care during previous pregnancy,56.0% of them mentioned that they did antenatal care in previous pregnancy, while 21.0% did not do antenatal care.

Figure 1 shows that 62.0% of studied women were delivered cesarean section.

Table 3. Demonstrate the positive effect of mindfulness intervention on the stress levels among studied mothers. 49.0% of Mothers who were suffer from high perceived stress in pre intervention, decreased to 5.0% in post intervention. The difference between stress scale levels

pre and post intervention was highly significant (p=0.000). Moreover. the mean of the total of perceives stress scale before intervention (26.6±6.8) decreased to (12.9±2.6) post intervention, indicating the lower significant stress levels after intervention.

Table 1. Distribution of demographic characteristics of studied women (n=100)

demographic characteristics	no	%
Age:		
20≤25 years	46	46.0
25≤30 years	28	28.0
≥30 years	26	26.0
Mean ±SD	22.3±4.7 years	
Marital status:		
Married	78	78.0
Divorced	11	11.0
Widow	11	11.0
Occupation		
Housewife	75	75.0
Employee	25	25.0
Residence :		
Rural	55	55.0
Urban	45	45.0
Level of education:		
Illiterate	40	40.0
Read & write	20	20.0
Secondary education	30	30.0
University and more	10	10.0
Monthly income:		
Enough	44	44.0
Not enough	56	56.0

Table 2. Distribution of studied women according to their obstetric history (n=100)

obstetric history	No	%
Age of menarche (years)		
10-12	74	74.0
13-15	26	26.0
Age of marriage(years)		
20-24	85	85.0
25-30	15	15.0
Number of Gravida:		
No	14	14.0
1-2	39	39.0
≥3	47	47.0
Number of Abortions:		
No	56	56.0
1-2	37	37.0
≥3	1	1.0
Number of deliveries:		
No	14	14.0
1-2	65	65.0
≥3	21	21.0
Number of living children:		
No	14	14.0
1-2	60	60.0
≥3	21	21.0
Antenatal care during previous pregnancy:		
Done	65	65.0
Not done	21	21.0
Not applicable	14	14.0
Gestational age :		
1-3 months	16	16.0
4-6months	84	84.0

Figure 2. Demonstrates that approximately 49.0% of them were suffering from high perceived stress, followed by 39.0% of them suffered from moderate stress, and the lowest percentage was in low stress 12.0%

Table 4 shows that there was statistical significant improvement in pregnant women knowledge levels regarding mindfulness courses at the post intervention program, compared to pre program in all knowledge items at p≤0.001.

Figure 3 reveals that, there was statistical significant improvement in pregnant women total knowledge levels regarding mindfulness courses at the post educational program, compared to pre program in all knowledge items at p≤0.001.

The Table 5 revealed that paried t test determined that mean total score of Mindful Attention Awareness Scale differed with highly statistical significant p value between pre, post intervention (paried t=13.2. p≤ 0.000). The mean scores of each items pre intervention were lower for all the fifteen items than the post intervention mean score. In addition, the table revealed the effectiveness of Mindfulness courses in elicited a significant increase in mean total Mindful Attention Awareness Scale from pre-intervention (57.7± 6.8) to post intervention (67.8±7.1). which was highly statistical significant statistically (p=0.000). Therefore, we can conclude that mindfulness courses, elicits a statiscally significant increase in level of dispositional mindfulness.

Table 6. Revealed that a statistical significant positive correlation between pregnant women age, marital status, occupation, residence educational levels and monthly income and total MAAS scores p≤0.001.

Table 7. Revealed that a statistical significant positive correlation between pregnant women age, marital status, occupation, residence educational levels and monthly income and level of total stress scores p≤0.001.
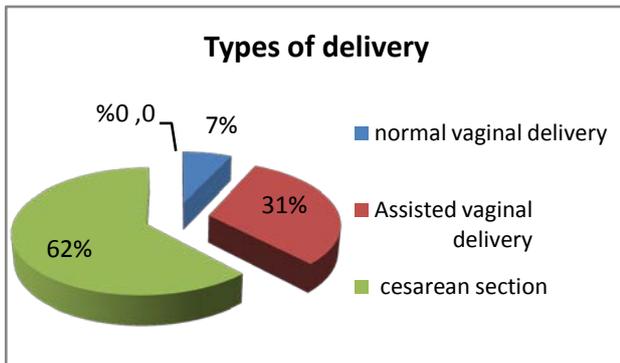

Figure 2. Assessment of studied women total score stress levels during pregnancy(pre intervention)

Figure 3. Distribution of total score of correct knowledge pre, and post intervention program (No=100)

Figure 1. Distribution of studied women according to their type of delivery

Table 3. Total perceived stress scale levels during pregnancy pre and post intervention (n=100)

Total perceived stress scale	Pre intervention	post intervention	P value
	%	%	
Low stress: (0-13)	12.0	65.0%	X^2=77.5 P=0.00**
Moderate stress: (14-26)	39.0	30.0	
High perceived stress: (27-40)	49.0	5.0	
Mean total perceived stress scale	26.6±6.8	12.9±2.6	t=19.8 P=0.00**

** highly significant (p=0.000).

Table 4. Distribution of pregnant women according to their level of correct knowledge about mindfulness courses pre and post intervention

Correct Knowledge	Pre-program			post -program			Paired t test	P value
	wrong answer	Incomplete	Complete	wrong answer	Incomplete	Complete		
	%	%	%	%	%	%		
Meaning of mindfulness courses during pregnancy	45.5	44.6	9.9	9.9	19.8	70.2	11.742	0.000
Benefits of mindfulness courses during pregnancy	42.1	57.9	0.0	8.3	29.8	62.0	13.540	0.000
Benefits of mindfulness courses for the fetus after birth	33.9	59.5	6.6	8.3	29.8	62.0	9.796	0.000
Appropriate timing for application of mindfulness courses	24.8	62.0	13.2	62.8	35.5	1.7	10.052	0.000
Methods to apply mindfulness courses during pregnancy	10.7	77.7	11.6	5.0	32.2	62.8	8.480	0.000

Table 5. Mindful attention awarnace scale (MAAS) of pregnant women pre, and post intervention.

Mindful attention awarnace scale (MAAS)items	Pre Intervention	Post Intervention	Paired t-test	P value
	Mean±SD	Mean±SD		
1-I could be experiencing some emotion and not be conscious of it unit sometime later	3.31±8	3.97±0.5	4.2	0.000 HS**
2-I break or spil things because of carelessness, not paying attention, or thinking of something else.3.	4.32±1.1	4.9±0.7	4.5	0.000 HS**
3-I find it difficult to stay focused on what's happening in the present	3.96±0.8	4.5±0.6	8.0	0.000 HS**
4-I tend to walk quickly to get where I'm going without pying attention to what I experience along the way.	3.83±0.6	4.9±0.9	4.3	0.000 HS**
5-Itend not to notice feeling of physical tension or discomfort unit they realy grab my attention.	3.25±0.7	3.6±0.4	6.0	0.000 HS**
6-I forget a person's name almost as soon as I;ve been told it for the first time.	4.13±1.0	4.7±0.8	5.9	0.000 HS**
7-It seems Iam "running on automatic" without much awareness of whate I'm doing.	4.47±0.9	5.2±0.8	7.2	0.000 HS**
8-I rush though activities without being eally attentive to them.	3.98±0.9	4.9±0.8	2.9	0.000 HS**
9-I get so focused on the goal Iwant to achieve that I lose touch with whate Iam doing right now to get there.	3.75±0.7	4.1±0.7	5.5	0.000 HS**
10-I do jobs or tasks automatically, without being aware of what I'm doing	3.79±0.7	4.7±0.9	8.8	0.000 HS**
11-Ifind myself if listening to someone with one ear, doing something alse at the same time.	3.73±0.9	4.4±0.7	6.9	0.000 HS**
12-Idrive places on "automatic pilot" and then wonder why Iwent there.	4.72±1.0	5.3±0.9	5.2	0.000 HS**
13- I find myself preoccupied with the future or the past.	3.16±0.7	4.4±1.2	8.9	0.000 HS**
14-Ifind myself doing things without paying attention.	3.49±0.7	4.4±1.0	8.4	0.000 HS**
15-I snack without being aware that I'm eating.	4.0±0.7	4.7±0.8	5.4	0.000 HS**
Total Mindful attention awarnace scale (MAAS)items	57.71±6.8	67.8±7.1	13.2	0.000 HS**

** highly significant (p=0.00).

Table 6. Relation between pregnant women demographic characteristics and level of their level of total MAAS (n=100).

Items	Total MAAS groups			
	Pre intervention		Post intervention	
	Poor Mindful	Good mindful	Poor Mindful	Good mindful
	%	%	%	%
Age				
20≤25 years	40.0	60.0	0	100.0
25≤30 years	55.0	45.0	0	100.0
≥30 years	70.0	30.0	1	96.2
X^2=6.29. p = 0.17				
Marital status:				
Married	40.0	60.0	0	100.0
Divorced	60.0	40.0	0	100.0
Widow	55.0	45.0	1	98.0
X^2=5.109. p =0.27				
Occupation				
Housewife	44.0	56.0	20.0	80.0
Employee	30.0	70.0	5.0	95.0
X^2=9.88. p =0. 001				
Residence :				
Rural	60.0	40.0	3.0	97.0
Urban	40.0	60.0	5.0	95.0
X^2=7.109. p =0.20				
Level of education :				
Illiterate	60.0	40.0	30.0	70.0
Read & write	55.0	45.0	20.0	80.0
Secondary education	40.0	60.0	10.0	90.0
University and more	30.0	70.0	0.0	100.0
X^2 = 2.51, p= 0.64				
Monthly income :				
Enough	44.0	56.0	20.0	80.0
Not enough	30.0	70.0	5.0	95.0
$X^2$7.11. p = 0. 67				

Table 7. Relation between the demographic characteristics of pregnant woman and their level of total stress score (n=100)

Items	Total stress score					
	Pre intervention			Post intervention		
	Low stress (0-13)	Moderate stress (14-26)	High Stress (27-40)	Low stress (0-13)	Moderate stress (14-26)	High Stress (27-40)
	%	%	%	%	%	%
Age						
20≤25 years	50.0	20.0	30.0	17.3	37.0	45.7
25≤30 years	60.0	20.0	20.0	3.6	32.1	64.3
≥30 years	40.0	40.0	20.0	11.5	50.0	38.5
X^2=2.17. p =0. 7						
Marital status:						
Married	40.0	15.0	45.0	15.4	50	34.6
Divorced	50.0	30.0	20.0	0	0	100
Widow	40.0	20.0	4.0	0	0	100
X^2= 10.79. p=0. 09						
Occupation						
Housewife	50.0	30.0	20.0	12	42.7	45.3
Employee	40.0	40.0	20.0	12	28	60
X^2 = 2.51, p= 0.64						
Residence :						
Rural	50.0	30.0	20.0	10.9	36.4	52.7
Urban	40.0	40.0	20.0	13.3	42.2	44.4
X^2 =8.51, p= 0.69						
Level of education :						
Illiterate	40.0	40.0	20.0	19.6	42.9	37.5
Read & write	45.0	30.0	25.0	2.3	34.1	63.6
Secondary education	30.0	40.0	30.0	1.0	30.0	69.0
University and more	25.0	40.0	65.0	0.0	0.0	100.0
X^2 =9.51, p= 0.74						
Monthly income						
Enough	35.0	20.0	45.0	12.0	39.0	49.0
Not enough	50.0	30.0	20.0	10.0	20.0	80.0
X^2 =10.51, p= 0.70						

7. Discussion

Pregnancy and childbirth are some of the most significant, exciting and scary experiences that a Woman Will experience in her lifetime. The experience and mental health of the Woman during pregnancy and throughout the post- pregnancy period are of utmost importance for the well-being of both the mother and her child (Billie et al., 2016). Stress and pregnancy outcome have been established. Stress can influence maternal mental health during pregnancy and postpartum period and or can influence the pregnancy outcome, [12].

The current study aimed to evaluate the effect of the Mindfulness-based intervention program on Stress reduction during pregnancy.

The current study revealed that about half of studied pregnant Women were in young age group 20-≤25 years with a mean of 22.3±4.7 years and half of them were living in rural areas. About marital status, more than three-quarters of them were married and more than half of studied pregnant Women have not enough monthly income. This result is supported by [13], who Studied the stressors and social support among pregnant women in Egypt, who reported that, that almost two thirds of the pregnant women aged from 20 to 29 years with mean 27.6±5.9, more than half of the pregnant women respectively were from rural residence and were working women. In relation to family income, more than half of the pregnant women stated that their income was not enough.

Also, the study finding is incongruent with a study conducted by [14] ho studied the perceived social support and stress among pregnant women at health of Iran- which found that the mean of the participants' age and gestational age was 35 years, and majority of the pregnant women were housewife. Also, [15] who studied the stress and its predictors in pregnant women they reported that the mean age of the sample was thirty years, with age ranging between 18 and 45 years.

Regarding the obstetric history of the studied pregnant women, the results of the present study revealed that. The majority of studied pregnant women were had three or more gravida. More than two thirds of studied pregnant women delivered one to times, slightly less than two thirds delivered cesarean. Regarding antenatal care during previous pregnancy, nearest to two-thirds of studied pregnant women mentioned that they did antenatal care in previous pregnancy, while one fifth did not do antenatal care.This study was in an agreement with, [16], who investigated the effectiveness of the caring for body and mind in pregnancy in reducing perinatal depression, anxiety and stress in Cochrane, they stated that most of the sample had no previous children. Approximately one-quarter of the sample had one previous child, and one participant had three previous children. Prior miscarriages were experienced by less than one-quarter of the sample.

Also, this finding was supported by [13] who displayed that, three-quarters of the pregnant women were multigravida, almost half of the pregnant women were multipara, while respectively of the pregnant women had a previous abortion and had previous stillbirth baby. However, [17] who studied the risk factors for stress during antenatal period among pregnant women in tertiary care hospital of Southern India, which reported that more than half of group was primigravida. Moreover, concerning to the perceived stress scale during. Pregnancy pre-intervention, the current study revealed that. the majority of studied woman have stress during pregnancy. "the mean of the total of perceived stress scale before the intervention was 26.6± 6.8" This finding is congruent with the similar study of. [15] who studied the stress and its. Predictors in pregnant women, which reported that the Level of perceived stress was relatively high in our sample, with a mean score 18.6 ±SD 5.3 and a rate of high-perceived. Stress of more than one third of the sample. This study finding disagreed with [18]. Who studied social support and its relation to perceived stress. pregnant Iranian women they reported that, a mean. Perceived stress level of 11,5+- SD 5,5. Reducing stress. among pregnant women may require intervention programs. This study finding was [19] who studied. The effect of amindfulness-based intervention on women's. Psychological distress and well - being in Pakistan, they concluded that. three of four treatment group participants the majority of. Studied sample experienced a clinically reliable decrease in stress symptoms from baseline to post-treatment, with at least. One participant reporting a reliable change on the majority of measures. In another study conducted by [20] Who studied the development of antenatal psychological stress. Scale for pregnant women in Kerala, India they found that. Three _quarters of participants had the stress of which one-. quarter of participants had severe stress and half of the. Participants had moderate stress. Only one -quarter of participants reported no stress. These findings were highly supported with the study of participants reported no stress. These findings were highly supported with the study of. [13] Who studied the stressors and. Social support among pregnant women, which displayed that, the majority of the pregnant women stressors were concerned. to increase in the prices of everyday goods, feeling unwell. during pregnancy, household responsibilities, and husband. Worries. This could be due to the pregnant women are. impacted by the periodontal disease with a positive relationship between stress and periodontal disease-related hormonal changes.

This study results clarified that approximately half of the mothers were suffering from high perceived stress, followed by more than one of them were suffering from moderate stress, and the lowest percentage was in low stress. These findings were highly supported by the study [21] pointed out that, lifetime stress influences the quality of life in Tornto. They asserted that stressed people have a higher risk of poor quality of life rather than who do not feel stress at all.

Concerning to the positive effect of mindfulness course intervention on the stress levels among studied mothers, the current study revealed that, mothers who suffered from high perceived stress in pre-intervention, decreased in post-intervention, mothers who were suffered from low-stress pre-intervention, increased in post-intervention, mothers who were suffered from moderate stress pre-intervention, decreased in post-intervention. This could explain that mindfulness-based intervention program was effective on reducing participant's anxiety and improve depressive symptoms. A probable reason for lowering anxiety and alleviating of depressive symptoms may be

since the program has helped the pregnant women to learn new skills to deal with stress and expressed their depressive symptoms in acceptable ways.

This finding was in an accordance with [22] who studied the effect of mindfulness meditation on perceived stress scores and autonomic function tests of pregnant Indian women which reported that an active ingredient in a stress reduction program may be mindfulness, which has been effective in symptom reduction and general health improvement in a variety of conditions, such as anxiety, depression, back pain, and stress levels of mindfulness were found to increase in pregnant women participating in a mindfulness intervention group and to increase as pregnant women progressed through the intervention. Mindfulness practice has been hypothesized to develop the capacity to observe the changing mental an physiological states and sensations without necessarily trying to change those, [3].

This study supported with [23] who studied the relationship of coping ways and anxiety with pregnancy specific-stress demonstrated that pregnancy-specific stress was associated negatively with stress management and self-actualization in pregnant women in USA. These findings are consistent with those of another study that also reported that pregnancy-specific anxiety reduced the sense of personal responsibility in pregnant women.

In the same line for [24] who studied the antenatal mindfulness intervention reduced depression, anxiety, and stress in bulgharia, they reported that mindfulness-based intervention program during pregnancy is considered crucial for successful preventive interventions; for the future wellbeing of the mother, child, and family.

These findings were in accordance with the study of [25] who studied the mindfulness-based intervention program on anxiety and depressive symptoms among pregnant in Egypt, who reported that, the pregnant women who participate in a mindfulness-based intervention havereductions in anxiety and depressive symptoms during pregnancy with statistically significant differences between experimental and control groups.

These results were congruent with the study conducted by Ya [26] to determine the effect of mindfulness integrated cognitive behavior therapy on depression and anxiety among pregnant women in Eiraq, revealed that, of mindfulness integrated cognitive behavior therapy was efficient in alleviating depression and anxiety even one month after the intervention. However, [27] suggested that mindfulness training alone may not be enough to consistently reduce levels of perceived stress during pregnancy and mindfulness may improve perceived stress not only in clinical populations but also in healthy individuals.

Moreover, there was difference between stresses scales levels pre and post-intervention was highly significant. Moreover, the mean of the total of perceived stress scale before intervention decreased in post-intervention, indicating the lower significant stress levels after the intervention.This study finding was supported by [25] who studied the mindfulness-based intervention program on anxiety and depressive symptoms among pregnant demonstrated that the pregnant women participating in a mindfulness-based intervention showed a statistically significant reduction in stress and depression.

This study finding is incongruent with a study by Donegan [9] mentioned that pregnancy is a key time to be caring for the mothers' mind and mental attitude. One way in which this can be supported is through mindfulness, known to promote emotional positivity and stability. According to the Fisher, [28] who studied the pregnancy and labor alternative therapy research in Al-urdun, reported that mindfulness-based interventions show promise in addressing several adverse outcomes, such as antenatal depression and anxiety, providing pregnant women with more empowerment and satisfaction with labor.

The current result agrees with a study conducted by [8]stated that mindfulness-based interventions allow the development of abilities that are important for pregnant women and new mothers. This finding was consistent with [29] who found that the mindfulness-based cognitive therapy (MBCT) is a promising method for reducing symptoms of psychological distress and preventing the development of postpartum mood disorders. MBCT tries to get pregnant women to here and now so that they could be detached from the past and future.

This could be due to the interventions encourage the practice of awareness and acceptance of one's thoughts, emotions, and body sensations, building stress tolerance, reducing reactivity and avoidance of uncomfortable experiences.

This study results clarified that the mean total score of mindful attention awareness scale (MAAS) differed with high statistical significance between pre-& post-intervention.

This finding was congruent with [30] who studied the mindfulness-based cognitive therapy for perinatal women with depression or bipolar spectrum disorder mindfulness is a skill that can be trainable in Australin, they reported that the continuous practice can lead to favorable changes in cognitive and behavioral patterns. In recent years, mindfulness interventions are used to deal with problems such as depression and anxiety during pregnancy. In the same line with [6] who studied the effectiveness of a mindfulness-based childbirth education pilot study on maternal self-efficacy and fear of childbirth in Alyaman, they reported that the implemented an eight-session mindfulness-based educational program for pregnant females. Results showed that anxiety and negative factors decreased significantly in females who received the mindfulness intervention.

Similarly, [31] showed that mindfulness-based intervention significantly reduced the depression and the psychological distress scores after the intervention and during follow-up compared to those of the period before the intervention. This finding not supported by [26] mentioned that Mindfulness training can facilitate social functioning by balancing attentiveness to inner and outer events, and enhancing conscious attention directed to one's own and others' performances. This result is agreed with. [32] significant studies in mindfulness-based programmes that deserve serious attention to widen and deepen the growing evidence base practice in Toronto. Evidence for the benefits of mindful awareness training in adults has been shown in several reviews and meta-analyses.

Comparable to [33], who mentioned that the females who learn mindfulness can use the skills to manage

stressful aspects of pregnancy, and therefore by reducing psychological distress, improve their psychological well-being and health.

This could be due to, the mindfulness training can provide a self-regulation strategy to females that may help them to cope with stressful situations, management of emotions and increase awareness for what is happening in each moment, with an accepting attitude. Mindfulness training during pregnancy can increase females' coping strategies. When females receive new information and skills during pregnancy, this can help them to adapt better with pregnancy.

This study results clarified that, the efficacy of educational courses for pregnant women. The postintervention program revealed a highly significant improvement in the different aspect of knowledge regarding mindfulness. These results in agreement with [34] who studied a workplace mindfulness intervention may be associated with improved psychological well-being and productivity mindfulness as measured by two scales improved by two scales improved significantly during the training. However, [35] suggested that mindfulness training alone may not be enough to consistently reduce the levels of perceived stress during pregnancy in Bakistan. It may, therefore, be of relevance to explore if mindfulness in combination with additional support/interventions may contribute to a more consistent reduction in perceived stress during pregnancy. Moreover, [31] suggest that, for women involved in some sort of mindfulness-based training, stress levels are significantly lower at program conclusion as for when compared to baseline.

This could be due to; the mindfulness-based programs are safe and effective interventions for stress reduction during pregnancy.

Concerning to the association between studied woman' socio-demographic characteristics and the total score MAAS groups, the current study revealed that mothers of younger age group as well as age groups 26-30 years had the highest percentage of high mindfulness, the difference was not significant statistically. The only studied woman who had low mindfulness post-intervention were married, housewife however, the difference was not statistically significant respectively.

Also, the result almost agrees with these study findings, [25] who studied the mindfulness-based intervention program on anxiety and depressive symptoms among pregnant demonstrated that there were significant relations between pregnant women's age categories and perceived stress. This result agreed with [36] who studied the mindful pregnancy and childbirth: effects of a mindfulness-based intervention on women's psychological distress and well-being in Iran, the perinatal period found that there were no significant relations between anxiety and the age of pregnant women.

This result was in agreement with [37] who studied the screening for antepartum anxiety and depression and their association with domestic violence among Egyptian pregnant women, who found that, there were no significant differences in maternal age, educational level, employment status and marital and socioeconomic statuses between the respondents in all three pregnancy trimesters. On the other view, this finding was disagreement with [38] revealed that, the pregnant women

with a higher education experience less anxiety during pregnancy in comparison to those with lower educational levels

This finding could be due to the pregnant women were at high risk for anxiety and the program is considered acceptable treatment of anxiety among pregnant women participated and completed the mindfulness-based intervention program who reported a significant reduction in anxiety.

Concerning to the association between studied women' socio-demographic characteristics and the total score stress scale groups, the current study revealed that mothers of younger age group had the highest percentage of moderate stress. Divorced or widow mothers showed the highest percentage of stress. Also, an employee mothers showed a higher percentage of low stress than housewife, urban mothers showed a higher percentage of low stress than rural ones, and mothers have not enough income was a higher percentage of low stress than mothers of enough income.

This result almost agrees with these study findings, [13] who studied the stressors and social support among pregnant women they displayed that, the association between general characteristics of the pregnant women and count of stressors for those aged from 20 years to 29 years, who were from urban residence, those with secondary and university education, those who were working, and women whose husbands had university education. The women with low family income status were more stressed than others. Parallel to these study findings, a descriptive study conducted by [39] who founded that, the most common stressful life events were among young age pregnant women who live in urban areas.

This result in alien with [33] who investigate the association between the socioeconomic status and stress rate during pregnancy they reported that the family income is one of the most significant socioeconomic elements that can affect the count of stress during pregnancy.

Moreover, the study finding is in accordance with [39] who studied the effect of personal and partner experiences of stressors and the buffering effects of social relationships they realized that pregnant women with high socioeconomic status can experience greater stress during pregnancy rather than those with lower socioeconomic status. [40] who examined the associations of family income and general stressful life events, perceived stress; they reported that family income was not significantly associated with stress count during pregnancy.

This study finding could be due to, the fact that we considered as one of the developing countries whose income barely meets its needs and a significant association between pregnant women's education and occupation and stress count during pregnancy. Meanwhile occupation, it considered another stress conflict which engulfed women with work overload especially during pregnancy.

8. Conclusion

The present study and research hypothis concluded that there is positive effect of mindfulness course intervention

on the stress levels among pregnant women. The study approved that the research hypothesis" Mindfulness was have positive effect on reducing stress level among pregnant women." was correct and accepted

9. Recommendation

In the light of the present study findings, the following were recommended:
- Heath educational program about mindfulness should be provided to all health care providers whom communicate with pregnant women, because there are the main sources of information for them.
- Continuing mindfulness program about reduced stressful aspect of pregnancy
- Future researches are needed to detect the other problems to early management

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