Issn 1110 -6352

THE EGYPTIAN JOURNAL OF FERTILITY AND STERILITY

Volume 27 Number 3 May 2023

EFSS

Social support and pregnancy outcomes among Egyptian women

Asmaa M. Elgedawy*, Omima T. Taha*, Mohamed Elprince*, Radwa M. Abd-El Aal *
*Department of Obstetrics and Gynecology, Faculty of Medicine, Suez Canal University, EGYPT.
Asmaa M. Elgedawy, MD
Lecturer of Obstetrics and Gynecology, Department of Obstetrics and Gynecology, Faculty of Medicine, Suez Canal University.
Email: asmaa_gedawy@yahoo.com
Omima T. Taha, MD
Assistant professor of Obstetrics and Gynecology, Department of Obstetrics and Gynecology Faculty of Medicine, Suez Canal University.
Email: omimatharwat@yahoo.com
Mohamed Elprince, MD
Assistant professor of Obstetrics and Gynecology, Department of Obstetrics and Gynecology Faculty of Medicine, Suez Canal University.
Email: prince.ma939@yahoo.com
Radwa M. Abd-El Aal, MD
Lecturer of Obstetrics and Gynecology, Department of Obstetrics and Gynecology Faculty of Medicine, Suez Canal University.
Email: dr.radwa_mohamed@yahoo.com

Corresponding author:
Omima T. Taha, MD Assistant professor of Obstetrics and Gynecology, Department of Obstetrics and Gynecology Faculty of Medicine, Suez Canal University.
Email: omimatharwat@yahoo.com

Abstract

Purpose: Determine the relationship between social support and unfavorable pregnancy outcomes.

Patients and Methods: This was a cross-sectional study conducted at the emergency department of the obstetrics and gynecology department. We recruited women admitted for delivery. Women were asked to fill in the Arabic validated Interpersonal Social Support questionnaire (short form 12). Adverse pregnancy outcomes (preterm birth, preeclampsia, antepartum hemorrhage, postpartum hemorrhage, and fetal growth restriction) were reported. Fetal birth weight, fetal sex, and fetal head circumference were also reported.

Results: The total support score was 17.83 ± 4.01. Individual domain scores were 5.45 ± 1.65, 6.08 ± 1.84, and 6.3 ± 1.88 for belonging, appraisal, and tangible. Seventy-three (71.6 %) women had no adverse pregnancy events. There was a negative correlation between the social support total score and fetal weight, fetal head circumference, and adverse pregnancy outcomes, yet it was insignificant (p-value 0.559, 0.421, and 0.413, respectively). Social support did not predict adverse pregnancy outcomes. Also, patients' education, occupation, parity, and fetal sex did not predict it either.

Conclusion: Social support was not associated with adverse pregnancy outcomes nor predicted its occurrence.

Key words: Adverse pregnancy outcomes; Pregnancy; Social support.

Introduction

Pregnancy is a particular lifetime associated with significant changes requiring psychological adaptations (1). Social support represents social relationships influencing attitudes and behaviors, making women able to adapt to significant traumas and life stressors (2,3). It includes emotional, instrumental, and informational aspects (4). It acts as a protective buffer against these stressors, significantly impacting maternal well-being. It has been reported that pregnant women who received social support had less anxiety during pregnancy (5).

Additionally, less social support predicted significant antenatal depression and anxiety (6). Many studies reported on social support and antenatal depression, (6-8) with few data reporting on social support and unfavorable pregnancy outcomes (9,10). This study aimed to evaluate social support and adverse pregnancy outcomes among Egyptian women.

Material and Methods

This was a cross-sectional study conducted at the labor and delivery ward of the obstetrics and gynecology department, Suez Canal University hospital, from December 2021 to June 2022. We recruited women who had a birth in our institute following predetermined inclusion and exclusion criteria. Inclusion criteria were a) patients' age 18- 45 years, b) pregnant women from 28- 41 weeks, c) laboring women vaginally or by cesarean section, and d) any adverse pregnancy outcomes such as preterm birth, preeclampsia, antepartum hemorrhage, postpartum hemorrhage, and fetal growth restriction. Any patient refusing to participate in the study was excluded.

All participants gave oral and written informed consent prior to entering the study. Patients eligible for the study were asked to fill in a questionnaire to detect social support. This was done using Arabic validated Interpersonal Support Evaluation List: (11) (shortened version-12 items), developed by Cohen, Mermestein, & Kmarck, (12) was developed to measure the quality of interpersonal relationships and the presence of social support. Cronbach's alpha for the full scale is 0.70. The questionnaire had three different subscales designed to measure three aspects of Perceived Social Support; Appraisal Support, Belonging Support, and Tangible Support. Each is measured on a 4-point scale ranging from 'Definitely True' to 'Definitely False.' Each response item was scored as 0 = definitely false, 1= probably false, 2= probably true, and 3= definitely true. Reversed items included questions 1, 2, 7, 8, 11, and 12. The appraisal subscale included the sum of items 2R, 4, 6, and 11R. The belonging subscale included the sum of items 1R, 5, 7R, and 9. The tangible subscale included the sum of items3, 8R, 10, and 12R. The sum of the three subscales represented the overall support. The average score ranged from 0- 36, with higher scores representing high levels of support (12).

The study instrument consisted of three parts sociodemographic information, history of the current pregnancy to determine any adverse pregnancy outcomes, and the interpersonal support evaluation list. Data about the newborn included birth weight, sex, and head circumference. Adverse pregnancy outcomes included premature rupture of membranes (defined as spontaneous leakage of the amniotic fluid before the onset of labor) (13), hypertensive disorders in pregnancy (either gestational hypertension defined as elevated blood pressure ≥ 140/90 without proteinuria after 20 weeks gestation, preeclampsia defined as elevated blood pressure ≥ 140/90 with evidence of protein in urine + 1or more by dip stick method after 20 weeks gestation, or eclampsia which is characterized by the occurrence of convulsions) (14), preterm labor (defined as the occurrence of uterine contractions with cervical changes before 37 weeks gestation (15), antepartum hemorrhage (defined as any bleeding from the genital tract starting from the age of viability till the delivery of the baby) (16), and fetal growth restriction (defined as fetal weight below the 10% percentile for gestational age) (17) .

One of the study researchers interviewed each patient. Women were interviewed in a private room after delivery in the labor and delivery ward. The questionnaire was anonymous to guarantee confidentiality. A researcher was available to provide if needed. The questionnaire was filled in about 15- 20 minutes.

The sample size was calculated at a significance level of 5% with a margin of error of 9.1 %, and a prevalence/proportion of stress among pregnant women = 26.25 % (18). A 10% drop-out proportion was added to the raw results giving a total sample size of 100 women.

Ethical approval

This study was conducted after approval of the research ethics committee of faculty of medicine at Suez Canal university on 29/11/2021 with a number of 4672#.

Results

One-hundred and eleven women were eligible for the study. Nine women declined to participate leaving 102 women for the final analysis. The mean age of the studied population was 29.85 ± 6.77. The great majority of them were uneducated and housewives. They were recruited in the third trimester (38.4± 1.4 weeks) (Table 1).

The total support score was 17.83 ± 4.01. Individual domain scores were 5.45 ± 1.65, 6.08 ± 1.84, and 6.3 ± 1.88 for belonging, appraisal, and tangible. Seventy-three (71.6 %) women had no adverse pregnancy events. The most adverse event reported was preeclampsia affecting 11 (10.8%) women (Table 2).

There was a negative correlation between the social support total score and fetal weight, fetal head circumference, and adverse pregnancy outcomes, yet it was insignificant (p-value 0.559, 0.421, and 0.413, respectively).

Social support did not predict adverse pregnancy outcomes. Also, patients' education, occupation, parity, and fetal sex did not predict it either (Table 3).

Discussion

The mean social support scale was 17.83 ± 4.01 representing middle support levels. In another study, the social support scale was 66.74 ± 14.02, with about 60% of their studied population reporting childhood trauma (19) An earlier one reported a total score of maternal social support as 86.81 ± 14.84. However, this study used the medical outcome study social support survey (20) Inconsistent results would be explained by the different measuring tools used in each study, the variable educational level of the participants, and different socioeconomic levels.

The current study reported an insignificant correlation between social support and adverse pregnancy outcome and fetal growth. Besides, social support did not predict adverse pregnancy outcomes. Previous studies reported a significant negative correlation between social support and asymmetric fetal growth and fetal birth weight (1, 9, 18). This discrepancy would be rendered to the effect of adverse childhood experiences (ACE), which was not evaluated in this study. An earlier study reported a small significant association between social support and fetal birth weight. However, this study recruited pregnant teenage women (21).

Another study reported an insignificant association between exposure to acute life stressors and adaptive potential for pregnancy. However, this study recruited vulnerable women (wives of soldiers) and used a different instrument to evaluate the adaptive response during pregnancy which is not representative of social support (22). Additionally, neither tangible nor emotional support was associated with any adverse pregnancy outcome (23). Also, partner support was not different between women who had preterm birth and those who delivered at term in a retrospectively conducted study (24). Social support represented by family functioning was not associated with fetal birth weight or gestational age (25).

Social support buffered the hazardous effects of low and moderate ACE but not among women with high ACE (18). The protective

effect of social support is mediated through the hypothalamic-pituitary-adrenal axis leading to decreased glucocorticoid release during fetal development. These substances at higher levels lead to placental dysregulation, low birth weight, and preterm birth (26, 27). Decreased social support was associated with unfavorable pregnancy outcomes among women with significant life events (23).

Variable results were reported regarding the association between social support and adverse pregnancy outcomes. This would be rendered to different definitions for social support as the independent variable and pregnancy outcomes as the outcome from one study to another. Different studies considered adverse pregnancy outcomes as pregnancy complications, birth weight, and preterm birth. Additionally, lack of control for biomedical and behavioral risk factors influenced the integrity of the results. A variable statistical representation of the results did not allow for proper comparison between studies. Also, a lack of information about how social support influences pregnancy outcomes affected the results (28). Besides, lost cases during follow-up lead to overestimated associations (20).

Strength and limitation

The small sample size is a limitation. This was the first study to address social support among Egyptian pregnant women. No information was obtained about ACE. Being a hospital-based study, the generalizability of the results would be limited.

Conclusion

Social support was not associated with adverse pregnancy outcomes nor predicted its occurrence.

Acknowledgments

None

Disclosure

the authors report no conflicts of interest in this work.

References

1. Elsenbruch S, Benson S, Rücke M, Rose M, Dudenhausen J, Pincus-Knackstedt MK, Klapp BF, Arck PC. Social support during pregnancy: effects on maternal depressive symptoms, smoking and pregnancy outcome. Human reproduction. 2007;22(3):869-77.
2. Julian M, Romney C, Mahrer NE, Schetter CD. Resilience to adversity. Encyclopedia of Behavioral Medicine. New York, NY: Springer. 2019:1-3.
3. Meng X, Fleury MJ, Xiang YT, Li M, D'arcy C. Resilience and protective factors among people with a history of child maltreatment: A systematic review. Social psychiatry and psychiatric epidemiology. 2018;53(5):453-75.
4. Nguyen TH, Ngo TV, Nguyen VD, Nguyen HD, Nguyen HT, Gammeltoft T, Wolf Meyrowitsch D, Rasch V. Intimate partner violence during pregnancy in Vietnam: prevalence, risk factors and the role of social support. Global health action. 2018 23;11(sup3):1638052.
5. Glazier RH, Elgar FJ, Goel V, Holzapfel S. Stress, social support, and emotional distress in a community sample of pregnant women. Journal of Psychosomatic Obstetrics & Gynecology. 2004;25(3-4):247-55.
6. Biaggi A, Conroy S, Pawlby S, Pariante CM. Identifying the women at risk of antenatal anxiety and depression: a systematic review. Journal of affective disorders. 2016; 191:62-77.
7. Lancaster CA, Gold KJ, Flynn HA, Yoo H, Marcus SM, Davis MM. Risk factors for depressive symptoms during pregnancy: a systematic review. American journal of obstetrics and gynecology. 2010;202(1):5-14.
8. Milgrom J, Hirshler Y, Reece J, Holt C, Gemmill AW. Social support—a protective factor for depressed perinatal women?. International journal of environmental research and public health. 2019;16(8):1426.
9. Feldman PJ, Dunkel-Schetter C, Sandman CA, Wadhwa PD. Maternal social support predicts birth weight and fetal growth in human pregnancy. Psychosomatic medicine.

2000;62(5):715-25.
10. Collins NL, Dunkel-Schetter C, Lobel M, Scrimshaw SC. Social support in pregnancy: psychosocial correlates of birth outcomes and postpartum depression. Journal of personality and social psychology. 1993;65(6):1243.
11. Aslam M, Alghamdi NG. Anger and interpersonal relationships: Social life in adolescence. European Online Journal of Natural and Social Sciences. 2017;6(2):pp-221.
12. Cohen S, Mermelstein R, Kamarck T, Hoberman HM. Measuring the functional components of social support. InSocial support: Theory, research and applications 1985 (pp. 73-94). Springer, Dordrecht.
13. Huang S, Xia W, Sheng X, Qiu L, Zhang B, Chen T, Xu S, Li Y. Maternal lead exposure and premature rupture of membranes: a birth cohort study in China. BMJ open. 2018;8(7):e021565.
14. Brown MA, Magee LA, Kenny LC, Karumanchi SA, McCarthy FP, Saito S, Hall DR, Warren CE, Adoyi G, Ishaku S. Hypertensive disorders of pregnancy: ISSHP classification, diagnosis, and management recommendations for international practice. Hypertension. 2018;72(1):24-43.
15. Sameshima H. Definition and diagnosis of preterm labor. In Preterm Labor and Delivery 2020 (pp. 7-15). Springer, Singapore.
16. Kavita C, Chavda R. Maternal and perinatal outcome in antepartum haemorrhage. Int J Obstet Gynaecol. 2019;3(1):221-5.
17. Beune IM, Damhuis SE, Ganzevoort W, Hutchinson JC, Khong TY, Mooney EE, Sebire NJ, Gordijn SJ. Consensus definition of fetal growth restriction in intrauterine fetal death: A Delphi procedure. Archives of pathology & laboratory medicine. 2021 Apr 1;145(4):428-36.
18. Appleton AA, Kiley K, Holdsworth EA, Schell LM. Social support during pregnancy modifies the association between maternal adverse childhood experiences and infant birth size. Maternal and child health journal. 2019;23(3):408-15.
19. Brunton R, Wood T, Dryer R. Childhood abuse, pregnancy-related anxiety and the mediating role of resilience and social support. Journal of health psychology. 2022;27(4):868-78.
20. Racine N, Madigan S, Plamondon A, Hetherington E, McDonald S, Tough S. Maternal adverse childhood experiences and antepartum risks: the moderating role of social support. Archives of women's mental health. 2018;21(6):663-70.
21. Fraser AM, Brockert JE, Ward RH. Association of young maternal age with adverse reproductive outcomes. New England journal of medicine. 1995;332(17):1113-8.
22. Nuckolls KB, Cassel J, Kaplan BH. Psychosocial assets, life crisis and the prognosis of pregnancy. American journal of Epidemiology. 1972;95(5):431-41.
23. Lancaster CA, Gold KJ, Flynn HA, Yoo H, Marcus SM, Davis MM. Risk factors for depressive symptoms during pregnancy: a systematic review. American journal of obstetrics and gynecology. 2010;202(1):5-14.
24. Berkowitz GS, Kasl SV. The role of psychosocial factors in spontaneous preterm delivery. Journal of psychosomatic research. 1983;27(4):283-90.
25. Pagel MD, Smilkstein G, Regen H, Montano D. Psychosocial influences on new born outcomes: a controlled prospective study. Social science & medicine. 1990;30(5):597-604.
26. Nugent BM, Bale TL. The omniscient placenta: metabolic and epigenetic regulation of fetal programming. Frontiers in neuroendocrinology. 2015;39:28-37.
27. Duthie L, Reynolds RM. Changes in the maternal hypothalamic-pituitary-adrenal axis in pregnancy and postpartum: influences on maternal and fetal outcomes. Neuroendocrinology. 2013;98(2):106-15.
28. Orr ST. Social support and pregnancy outcome: a review of the literature. Clinical obstetrics and gynecology. 2004;47(4):842-55.

Table 1: Primary demographic characters of the participants

Age (years) (mean ± SD)		29.85 ± 6.77
BMI (kg/m^2) (mean ± SD)		30.19 ± 7.56
Education N (%)	None	55 (53.9%)
	Middle	33 (32.4%)
	High	14 (13.7%)
Occupation N (%)	Housewife	82 (80.4%)
	Worker	10 (9.8%)
	Employee	10 (9.8%)
Mode of delivery N (%)	Vaginal	52 (51%)
	C.S.	50 (49%)
Gestational age (weeks) (mean ± SD)		38.4± 1.4
Systolic BP (mmHg) (mean ± SD)		123.72 ± 12.89
Diastolic BP (mmHg) (mean ± SD)		79.9 ± 7.9

BMI, body mass index; CS, cesarean section; BP, blood pressure

Table 2: Social support score and adverse pregnancy outcomes

Adverse pregnancy events N (%)	None	73 (71.6 %)
	PROM	6 (5.9%)
	Preeclampsia	11 (10.8%)
	Eclampsia	1 (1%)
	Preterm birth	7 (6.9%)
	APH	1 (1%)
	FGR	1 (1%)
	Gestational hypertension	1 (1%)
Fetal sex N (%)	Male	63 (61.8%)
	Female	39 (38.2%)
EFW (gm) (mean ± SD)		3170.93 ± 424.96
HC (cm) (mean ± SD)		33.77 ± 1.47
ICI		0.011 ± 0.001
Belonging (mean ± SD)		5.45 ± 1.65
Appraisal (mean ± SD)		6.08 ± 1.84
Tangible (mean ± SD)		6.3 ± 1.88
Total social support score (mean ± SD)		17.83 ± 4.01

PROM, premature rupture of membranes; APH, antepartum hemorrhage; FGR, fetal growth restriction; EFW, estimated fetal weight; HC, head circumference; ICI, infant cephalization index

Table 3: Predictors for adverse pregnancy outcomes

Model	B	Coefficient standard error	Standardized coefficient beta	Significance
Constant	0.376	1.285		0.771
Education	0.305	0.366	0.110	0.407
Occupation	-0.397	0.411	-0.123	0.337
Parity	-0.026	0.131	-0.021	0.846
Fetal sex	0.321	0.441	0.078	0.469
Appraisal	-0.548	2.192	-0.487	0.803
Belonging	-0.386	2.240	-0.327	0.860
Tangible	-0.367	2.198	-0.345	0.868
Total score	0.443	2.195	0.878	0.841