



Preliminary Study on the Need for Birth Doulas among Pregnant Women in Northern Taiwan

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Objective: To explore the relationships between demographic variables and prenatal depression factors with the perceived need for birth doulas during delivery among pregnant women in northern Taiwan. **Materials and Methods:** A cross-sectional survey was conducted from two medical centers in northern Taiwan of representative samples of the pregnant women population (n=340). A self-report questionnaire was administered to gather demographic information and the participants' perceived need for a doula during delivery among pregnant women. In addition, the prenatal depression for labor was also assessed by Edinburgh Postnatal Depression Scale (EPDS). **Results:** The majority of participants (65.3%) reported that doulas would provide skills needed for the care of neonates as well as self-care techniques and physical, psychological, and peer support. Regression analysis revealed that the level of depression during pregnancy for labor was significantly related to the perceived need for a doula during delivery. Every one-point increase in the depression score was associated with a 0.121-point ($p=0.023$) increase in the perceived need for a doula. **Conclusion:** There is high need of birth doulas of pregnant women in northern Taiwan. Perceived need for birth doulas is higher among women who are more depressed during pregnancy. The results of this study reveal the necessary to establish the policy of implementation doula system in Taiwan.

Key words: doula, pregnant women, depression

INTRODUCTION

Taiwan is one of the lowest birth rates in the world, the average birth rate in Taiwan was 0.9 per woman and the total number of births per year decreased to 166,886 in 2010.¹ Although the Taiwan government offers some subsidy packages to boost the birth rate, a number of factors negatively influence the desire of women to get pregnant, for example, the psychological pressure faced during pregnancy and during the postpartum period.

The World Health Organization and the Coalition for Improving Maternity Services reached a consensus that birthing mothers should be offered continuous physical and emotional support during the delivery process.² A doula is defined as a person who provides non-medical assistance to birthing mothers in hospital settings by offering one-on-one psychological support with the aim of alleviating physical discomfort during delivery. Doulas also help birthing mothers and their families acquire information on labor.³⁻⁴

Prenatal depression affected 12.4% to 18.4% pregnant women by the definition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) in the United State.⁵⁻⁶ In Taiwan, the rate is approximately 12%.⁷ If using the Edinburgh Postnatal Depression Scale (EPDS) as the measurement criterion, then the rate of depression during pregnancy was 5.3% (2.4, 12.7), 11.7% (8.8, 14.7), 11.1%(6.4, 15.9) for each trimester respectively in western countries.⁸ Comparatively, the rate is 20%

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based on EPDS scores in Taiwan.⁹ It has been reported that postpartum depression. Symptoms originate in pregnancy stage affected about 58% of pregnant women.⁷ With the exception of physical factors affecting prenatal depression, lack of psychological and social support during pregnancy and the postpartum period has been shown to be positively related to prenatal and postnatal depression.¹⁰ Prenatal depression significantly influences the physical and psychological health of pregnant women and their unborn babies; therefore, early intervention, both psychological and social, may result in improved health benefits for both.¹¹⁻¹² The qualitative research indicated that family may lack the capacity to provide suitable care and support for the pregnant woman.¹³ In addition, although the majority of delivery room nurses are trained and qualified to provide emotional and physical support to birthing mothers and their families, the severe lack of nurses in most institutions in Taiwan precludes them from providing the one-on-one support needed during the delivery period. Until now, there is no birth doula service in Taiwan health care system. To explore the necessity of doulas from pregnant women's perspective could be the important information for policy establishment and increasing pregnant desire in order to increase Taiwan's birth rate by improving maternity health service quality.

In many countries, it has been shown that the birth doulas services effectively reduce the incidence of postpartum depression and the need for medical treatment.¹⁴ Studies have also shown that labor doula services can mediate the pain associated with normal spontaneous delivery, promote a higher rate of satisfaction among birthing mothers, and strengthen the mother-baby attachment. There is also evidence that care provided by doulas raises the willingness of women to breastfeed and increases confidence among new mothers in the postpartum period.¹⁵⁻¹⁶

In Taiwan, the limited effectiveness of family companions during the birthing process, and the inability of most delivery room nurses to provide one-on-one physical and psychological support during a woman's pregnancy yield the crucial to evaluate the appropriateness of doula services from pregnant women's perception of need. The purpose of this study was to explore the factors related to the perceived need for birth doulas among pregnant women in northern Taiwan.

METHODS

1. Participants

The study population was selected by convenience sampling of pregnant women from obstetric outpatient departments at the Tri-Service General Hospital and the Shin Kong Wu Ho-Su Memorial Hospital in northern Taiwan. The survey was reviewed and approved by the relevant ethical review committees of the two medical institutions. Participants were recruited if they had no history of gestational complications, were able to communicate fluently in either Mandarin Chinese or Taiwanese, and provided written informed consent to participate in the survey.

2. Instruments

Perceived need for labor doulas questionnaire

The self-report questionnaire of "perceived need for labor doulas questionnaire" was focused to survey the perceived need for labor doula services by pregnant women. The first part of the questionnaire was designed to gather personal information, including age, parity, estimated date of confinement, occupation, education level, religion, economic status, and marital status. The second part of the questionnaire was designed to assess the perceived need for doula services including support during labor and delivery, physical support, psychological support, informational support, advocacy, peer support, self-care after delivery, and care skills for newborns. The level of perceived need was measured by a four-point Likert's scale, in which 0 presented "not at all needed", 1 represented "unneeded", 2 indicated "needed", and 3 denoted "extremely needed". The response "no opinion" was not counted. Higher scores indicated a higher perceived need for doula services.

Depression Scale

The Chinese version of the Edinburgh Postnatal Depression Scale (EPDS) was used to measure the level of intensity of prenatal depression among pregnant women.¹⁷ The scale was first specifically designed to measure the degree of depression during the six-to-eight week's period after delivery.¹⁸ However, it is also appropriate to measure the non-pregnant women¹⁹, pregnant loss²⁰, and prenatal depression.²¹ Because of its easily administration, highly acceptance by the women and simplicity of incorporation into routine practice.²² The 10-item self-report questionnaire is rated on a four-point Likert's scale, where 0 represents "always so", 1 represents "generally so", 2 represents "seldom so", and 3 denotes "never". Among the ten questions, points in questions 3, 5, 6, 7, 9, 10 are credited in reverse order. The total score is derived

Table 1 Demographic Information of the Pregnant Women (n=340)

		Number	Effective Percentage	Accumulated Percentage
Educational Level	Junior High School	4	1.2	1.2
	Senior High School and Equivalent	74	21.9	23.1
	Polytechnic College	88	26.0	49.1
	Bachelor Degree	127	37.6	86.7
	Master Degree	44	13.0	99.7
	Doctorate Degree	1	.3	100.0
Religion	No Practice.	140	41.7	41.7
	Buddhism	136	40.5	82.1
	Christianity	9	2.7	84.8
	Taoism	44	13.1	97.9
	Others	7	2.1	100.0
Occupation	Public Servant	20	6.3	6.3
	Education	41	13.0	19.4
	Industry	7	2.2	21.6
	Commerce	81	25.7	47.3
	Service	63	20.0	67.3
	None	92	29.2	96.5
	Others	11	3.5	100.0
Marital Status	Married	333	98.2	98.2
	Unmarried	6	1.8	100.0
Family Income	< 40000 NT dollars	52	15.6	15.6
	40000-60000 NT dollars	113	33.8	49.4
	> 60000 NT dollars	150	44.9	94.3
	Others	19	5.7	100.0

by adding all of the individual scores. Heh recommended that a score of 9/10 on the Edinburgh Postnatal Depression Scale be used as the cutoff for depressive symptoms in postpartum Taiwanese women.¹⁷ Furthermore, according to Teng²³, a score greater than 13 points on the Edinburgh Postnatal Depression Scale may indicate clinical prenatal depression. Su *et al* identified 12/13 as the optimal cutoff of the EPDS-T at which the sensitivity of the scale was 83% and the specificity was 89%, and the area under ROC was 0.92.²⁴ The concurrent validity of the EPDS evaluated against the *Beck Depression Inventory* (BDI) scores was $r = 0.79$. The internal consistency (Cronbach's alpha) of the EPDS was 0.87 indicated that the scale has good validity and reliability.

3. Data collection

At the recruitment sites, the researcher explained the purpose and process of the study to the pregnant women

Table 2 Information Regarding Pregnancy (N=340)

		Number	Effective %	Accumulated %
Planned Pregnancy	Planned	229	67.8	67.8
	Non-planned	109	32.2	100.0
Lamaze Class Attendance	No	290	86.6	86.6
	Yes	45	13.4	100.0
Gravidity	First	196	57.6	57.6
	Second	118	34.7	92.4
	Third and Above	26	7.6	100.0
No. of Boys Already Have	Zero	275	80.9	80.9
	One	59	17.4	98.2
	Two	6	1.8	100.0
No. of Girls Already Have	Zero	255	75.2	75.2
	One	74	21.8	97.1
	Two	10	2.9	100.0
Gestational Complications	No	312	99.7	99.7
	Yes	1	0.3	100.0
Depression Possibility	EPDS* score: 0-13	272	89.2	89.2
	EPDS score: >13	33	10.8	100.0

before obtain the written informed consent. Participants were assured of confidentiality and could withdraw from the study at any time with equal quality of care.

4. Data analysis

The content validity of perceived need for labor doulas questionnaire was assessed by five experienced obstetrics physician, three nursing faculty of obstetrics, and two clinical nurse. The validity of the perceived need for labor doulas questionnaire was confirmed by a satisfactory level of agreement with a content validity index (CVI) of 0.97. After the pilot test from 166 pregnant women, the reliability of Cronbach's α score was 0.88 indicated that the self-report questionnaire has good internal consistency. The statistical significance was set up as p value < 0.05. Descriptive and inferential statistical analyses were performed by the statistical package SPSS for Windows (Version 17.0, SPSS, Chicago, USA).

RESULTS

We approached 377 pregnant women referred by obstetric physician from the two medical centers. A total of 340 pregnant women recruited from two medical centers agreed to participate in this study. The complete rate of EPDS and perceived need for labor doulas questionnaire

Table 3 The Descriptive Statistics on the Perceived Need on Doulas From Pregnant Women (N=340)

		Number	Mean (SD)	Effective %	Accumulated %
Need doula in Labor And Delivery	Extremely Needed	34	1.89	12.2	12.2
	Needed	182	(0.59)	65.5	77.7
	Unneeded	60		21.6	99.3
	Not At All Needed	2		.7	100.0
Physical Support From Doula	Extremely Needed	86	2.19	27.3	27.3
	Needed	203	(0.56)	64.4	91.7
	Unneeded	26		8.3	100.0
	Not At All Needed	0		0	100.0
Psychological Support From Doula	Extremely Needed	79	2.14	25.5	25.5
	Needed	198	(0.58)	63.9	89.4
	Unneeded	33		10.6	100.0
	Not At All Needed	0		0	100.0
Informational Support From Doula	Extremely Needed	61	2.10	20.1	20.1
	Needed	214	(0.53)	70.4	90.5
	Unneeded	29		9.5	100.0
	Not At All Needed	0		0	100.0
Advocate by Doula	Extremely Needed	38	1.95	12.9	12.9
	Needed	204	(0.55)	69.4	82.3
	Unneeded	52		17.7	100.0
	Not At All Needed	0		0	100.0
Peers' Support From Doula	Extremely Needed	41	1.94	14.3	14.3
	Needed	188	(0.58)	65.7	80.1
	Unneeded	57		19.9	100.0
	Not At All Needed	0		0	100.0
Postpartum Self-Care Skills From Doula	Extremely Needed	104	2.26	33.0	33.0
	Needed	192	(0.56)	61.0	94.0
	Unneeded	19		6.0	100.0
	Not At All Needed	0		0	100.0
Newborn Care Skills From Doula	Extremely Needed	112	2.28	35.3	35.3
	Needed	186	(0.59)	58.7	94.0
	Unneeded	17		5.4	99.4
	Not At All Needed	2		.6	100.0

Coding score: Extremely Needed =3; Needed=2; Unneeded=1; Not At All Needed=0; No Opinion=missing

was 89.7% and 81.7% respectively. The mean gestational age was 191 ± 58 days and the mean age of the participants was 32.87 ± 4.47 years old. The majority of the women were married ($n=333$, 98.2%) and most of them were college-educated or below ($n=293$, 86.7%). Most of the participants claimed that they without any religion ($n=140$, 41.7%) or claimed to be Buddhists ($n=136$, 40.5%). In addition, most of the participants had full-time jobs ($n=223$, 70.8%) (Table 1).

Many (32.2%) of the participants claimed that their

pregnancy was not planned, and the majority (86.6%) did not participate in Lamaze classes. Most of the participants were primiparous women ($n=196$, 57.6%). Among the women surveyed who already had children, 19.1% had a male child and 24.8% had a female child. Approximately three percent of the participants lacked confidence in labor and delivery. Furthermore, 10.8% of participants had depression symptoms during pregnancy with an Edinburgh Postnatal Depression Scale score greater than 13 points (Table 2).

Table 4 Regression Analysis on Factors Affecting Perceived Need on Doulas From Pregnant Women

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	15.824	.505		31.359	.000
	EPDS score	.123	.054	.154	2.305	.022

a. Dependent Variable: level of perceived need of labor doula

b. Need of Dou DS Score) ($R^2=0.024$)

The majority (65.3%) of the participants expressed that they “needed” (55%) or “extremely needed” (10.3%) the services of a doula during delivery. The most important services that they expected doulas provide included newborn care skills (90.9%), self-care skills after delivery (90.2%), physical support (87.8%), psychological support (84.5%), and informational support (84.1%) (Table 3).

We found that 33% of the participants had an Edinburgh Postnatal Depression Scale score of ten or greater, indicating that they had moderate depression symptoms and that 10.8% had an Edinburgh Postnatal Depression Scale score greater than 13, indicating severe depressive symptoms. Result of the regression analysis revealed that Edinburgh Postnatal Depression Scale score was significant predictors of the need for doula services (Table 4). The result indicates that the severity of depression has proportional association with a pregnant mother’s perceived need for doula services.

DISCUSSION

The result indicated that 65.3% pregnant women desire the birth doula services during their delivery in Taiwan. That revealed a little more requests than the results from China’s study, 58.33% pregnant women desired one-on-one doula delivery companion services.²⁴ In the USA, 15% to 20% of women gave birth with a labor doula service.²³ There is a high unmet need for birth doula care service in Taiwan; the maternity health care resources transformation may not be ignored.

The most important doulas services provided by pregnant women in this study include: (1) physical support; (2) psychological support; (3) informational support; (4) advocacy services; and (5) peer support. The finding is similar to that reported by Perez²⁵ and Sauls.²⁶ Pregnant women recognized that doulas could provide highly needed newborn care skills as well as self-care skills after delivery. The finding is similar to that reported by

Chen *et al.*²⁷ and may serve as a valuable reference in developing the expected role and functions of doulas in Taiwan.

From our data, we found that 10.8% of the participants with Edinburgh Postnatal Depression Scale scores greater than 13 presented with signs of depression during pregnancy (Table 2). The results are consistent with those published previously in Taiwan.⁷ We also found the more depressed pregnant women revealed the higher demanding of birth doulas service. It demonstrates the necessity of birth doulas service in maternity health care system in Taiwan. In a recent study, Lin & Zhong (2011) investigated the influence that labor doulas have on postpartum depression.²⁸ The finding suggested that the presence of a doula during the birth process may effectively reduce the occurrence of postpartum depression. Further large sample multisite randomized control trials to implement birth doulas services are necessary.

The primary limitation in this study is that we used convenience sampling to recruit participants from two outpatient clinics at two medical centers in northern Taiwan. Therefore, it may not be possible to generalize our results to all pregnant women even though the post hoc power analysis based on the results in Table 4 showed that the power could reach 0.713. Further studies comprising larger and more diverse samples of childbearing women are warranted.

CONCLUSION

Perceived need for doulas is higher among women who are more depressed during pregnancy. The results of this study can serve as a reference for establishing the doula system in Taiwan. Approaches for introducing the doula system and how to effectively put it into practice should be investigated in the future studies.

DISCLOSURE

The author declares that this study has no conflict of interest.

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