Demographic Factors and Determinants of Physical Activity and Breast Feeding Practices During Puerperium in Saudi Women

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ABSTRACT

Aim: This cross-sectional study describes the practice of different myths regarding newborns and maternal physical activity among Saudi women during puerperium. Material and Methods: The study was conducted at Mother and Child Hospital, Buraidah from January to December 2011. Results: The multinomial logistic regression (MRA) on age, education, occupation, parity and mode of delivery was statistically significant ($\chi^2_{(60)} = 487.656, p < .001$). Individuals who were between 25 and 30, had education level primary or below, para 2-4 were more likely to limit household activities. Women in the age group of 25-30 were 41 times more likely to have no exercise. Women with parity 2-4 were 24 times more likely to abstain from sex during puerperium as compared to Para 5 and above. Individuals who had a normal vaginal birth were approximately 9 times less likely to be in the kofalaya group. Individuals below college level education were more likely to believe that breast feeding in front of others may steal mother’s milk. Women below 25 years of age and women with vaginal delivery were more likely to avoid colostrums feeding. Conclusion: Health Education programs are needed to encourage women to increase physical activity during puerperium and encourage breast feeding. Focus groups for improving physical activity should include age group 25-30 and women with primary and below level education. Women with cesarean delivery should be counseled against kofalayas and women with vaginal delivery should be encouraged for colostrums feeding. Key words: Puerperium, Breast feeding, Physical activity.

1. INTRODUCTION

Post partum period or puerperium is the time period from delivery of placenta and 6 weeks afterwards (1). This is the time when mothers come out of the effects of pregnancy. Traditional practices are very much prevalent in different societies during this time period. A Jordanian study reported that women confine themselves to bed, do not breast feed and wrap their babies tightly (2). Most of the Turkish women avoid sex during puerperium, dump the umbilical cord in the ground of mosque or throw it in river, even wrap the babies in a yellow cloth so that baby can be protected from jaundice (3). Saudi society is not exempt from traditional practices during this time period and many of the dietary myths have been reported in the literature (4). Literature is deficient in other practices of women during this time period and there is a need to study in this area. Knowledge about the prevailing myths will help to develop education programs targeted towards unusual dangerous practices. This is important in improving maternal and child health during puerperium.

2. METHODS

A self structured questionnaire was used to collect data. The study was conducted at Mother Child Hospital, Buraidah which is a major tertiary care facility in the region with annual delivery rate of 10,000. Demographic factors, breast feeding practices, physical activity, sexual practices and myths about newborn babies were inquired. Women presenting for 6 week postnatal visit were included in the study. Sample size of 360 women had a 95% confidence level and a confidence interval of 5. Actually the study is a continuation of one of the author’s previous study in which dietary habits of Saudi women during puerperium were studied. Same data set and study population was analyzed further in this study (4). (With permission from Wiles Blackwell). Data was kept anonymous and approval was taken from the local ethical committee. To identify the effects of demographic characteristics on different practices multinomial regression analysis was used. SPSS version 19 and Microsoft office 2007 for windows 7 was used.

3. RESULTS

3.1. Demographics

Most of the participants were over the age of 25, attended middle school or below, were housewives and were G2-4 or above. Only 20% of participants were under 25, less than 20% were employed, only 20% attended high school and approximately 12% went to college (4) (Table 1).
3.2. Logistic Regression for Myths Regarding Activities (MRA)

The multinomial logistic regression of MRA on age, education, occupation, parity and mode of delivery was statistically significant ($\chi^2 (60) = 487.656, p < .001$). The reference group for the logistic regression model was the individuals who reported none of the above ($n = 177, 50\%$). When evaluated individually, four of the demographic variables were significant predictors of whether a participant would be in the limits household activity group, compared to the none of the above group (Table 2). Individuals who were between 25 and 30 were approximately seven times more likely to be categorized in the limits household activity group compared to individuals who were above 30. Individuals who went to primary school or below were 5872 times more likely and individuals who went to middle school were 34 times more likely to be categorized in the limits household activity group versus the none of the above group, compared to individuals who went to college or above. Individuals who had between two and four prior births were approximately four times more likely to be in the limits household activity group compared to individuals who had five or more previous births. One of the demographic variables was a significant predictor of whether a participant was categorized in the no exercise group versus the none of the above group. Individuals between the ages of 25 and 30 were 41 times more likely to be categorized in the no exercise group compared to individual above 30. None of the demographic variables were significant predictors of whether individuals were categorized in the do not go outside group versus the none of the above group. One of the demographic variables was a significant predictor of whether a participant was categorized in the abstain from sex for 40 days group versus the none of the above group. Individuals who had two to four previous births were 24 times more likely to be in the abstain from sex group compared to individuals who had more than five previous births. Individuals who had between two and four previous births were also nine times more likely to be categorized in the any 2 or 3 of above group compared to individuals who had five or more previous births.

3.3. Logistic Regression for Myths Regarding Breast Feeding

The multinomial logistic regression of MRB on age, education, occupation, parity and mode of delivery was statistically significant ($\chi^2 (48) = 375.106, p < .001$). The reference group for the logistic regression model was the individuals who reported none ($n = 147, 41\%$). When evaluated individually, only one of the demographic variables was a significant predictor of whether a participant was in the kofalaya group, compared to the none group (Table 3). Individuals who had a normal vaginal birth were approximately 9 times less likely to be in the kofalaya group versus the none group compared to individuals who had a cesarean section. Five of the demographic variables were significant predictors of whether individuals were categorized as observation during breast feeding steals mothers milk (STEALS). Individuals who went to primary school or below were 1241 times more likely, individuals who went to middle school were 99 times more likely and individuals who went to high school were 13 times more likely to be categorized in the steals group versus the none group compared to individuals who went to college or above. Individuals who had not given birth before were approximately six times more likely and individuals who had given birth two to four times previously were approximately four times more likely to be categorized in the steals group versus the none group compared to individuals who had given birth over five times previously. Two of the demographic variables were significant predictors of whether a participant was categorized in the do not feed colostrum (COLOSTRUM) group compared to the none group. Individuals who were younger than 25 were approximately 6 times less likely to be categorized in the colostrum group versus the none group compared to individuals who were above 30. Individuals who had a normal vaginal birth were approximately seven times less likely to be categorized in the colostrum group versus the none group compared to individuals who had a cesarean section. Five of the demographic variables were significant predictors of whether participants were categorized in the 2 or 3 of above group versus the none group. Individuals who were below 25 were approximately five times less likely and individuals who were between 25-30 were approximately seven times less likely to be categorized in the 2 or 3 of above group compared to individuals who were above 30. Individuals who had not given birth before were approximately 8 times less likely and individuals who had an instrumental birth were approximately 21 times less likely to be categorized in the 2 or 3 of above group versus the none group compared to individuals who had a cesarean section.

| Variable          | Level   | Frequency | Percent |
|-------------------|---------|-----------|---------|
| Age               | Below 25| 74        | 20.8    |
|                   | 25-30   | 120       | 33.8    |
|                   | Above 30| 161       | 45.4    |
| Education         | Primary or below | 127     | 35.8    |
|                   | Middle school    | 113     | 31.8    |
|                   | High school      | 72      | 20.3    |
|                   | College and above| 43      | 12.1    |
| Occupation        | House wife       | 289     | 81.4    |
|                   | Teaching          | 47      | 13.2    |
|                   | Professional      | 8       | 2.3     |
|                   | Government Service| 11      | 3.1     |
| Parity            | Primiparous      | 52      | 14.6    |
|                   | G2-4              | 155     | 43.7    |
|                   | G5 and above      | 148     | 41.7    |

Table 1. Count and Percent Statistics for Demographic Variables. "Dietary practices of Saudi women during puerperium" by Saadia Z, Rashidy S, Sager F, Alshin S, 2012. JOGR, doi: 10.1111/j.1447-0756.2012.02035.x (Early view). Used with permission from Wiley Black-Well

4. DISCUSSION

Physical activity and mobility during puerperium should be resumed as early as possible to avoid the risk of thromboembolism. However women prefer to rest during this time and confine themselves to bed which increases the risk of deep vein thrombosis. It has been documented that postpartum women especially those who underwent cesarean section were more at risk of mortality due to thromboembolism (5). This might have been due to more bed rest in women with cesarean section as compared to women with vaginal delivery who tend to
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| Activities          | Predictors    | B (Std. Error) | Wald  | df | Sig.  | Exp(B) |
|---------------------|---------------|----------------|-------|----|-------|--------|
| Limits household activity | Intercept    | -40.720 (4212.398) | 0.000 | 1  | 0.992 | 1.000  |
|                      | Below 25      | 0.456 (0.832)   | 0.300 | 1  | 0.584 | 1.578  |
|                      | 25-30         | 1.980 (0.698)   | 8.056 | 1  | 0.005 | 7.242  |
|                      | Above 30      | 0b              | .     |    |       | .      |
|                      | Primary or Below| 8.678 (1.545)   | 31.538| 1  | 0.000 | 5872.384|
|                      | Middle School | 3.526 (1.387)   | 6.461 | 1  | 0.011 | 34.003 |
|                      | High School   | 2.366 (1.456)   | 2.640 | 1  | 0.104 | 10.659 |
|                      | College or Above| 0b              | .     |    |       | .      |
|                      | Housewife     | 15.871 (3636.563)| 0.000 | 1  | 0.997 | 7807792.583|
|                      | Teaching      | 17.593 (3636.563)| 0.000 | 1  | 0.996 | 43724872.999|
|                      | Professional  | -4.396 (5803.253)| 0.000 | 1  | 0.999 | 0.012  |
|                      | Government Service | 0b              | .     |    |       | .      |
|                      | Primiparous   | 0.467 (1.034)   | 0.204 | 1  | 0.651 | 1.595  |
|                      | G2-4          | 1.380 (0.652)   | 4.475 | 1  | 0.034 | 3.975  |
|                      | G5 and above  | 0b              | .     |    |       | .      |
|                      | Normal Vaginal Birth | 17.517 (2125.960)| 0.000 | 1  | 0.993 | 40526940.657|
|                      | Instrumental delivery | 21.338 (2125.960)| 0.000 | 1  | 0.992 | 1850000000.000|
|                      | Cesarean section | 0b              | .     |    |       | .      |
| No exercise         | Intercept    | -39.792 (8125.070)| 0.000 | 1  | 0.996 | 1.000  |
|                      | Below 25      | 0.823 (1.795)   | 0.210 | 1  | 0.646 | 2.278  |
|                      | 25-30         | 3.724 (1.306)   | 8.127 | 1  | 0.004 | 41.432 |
|                      | Above 30      | 0b              | .     |    |       | .      |
|                      | Primary or Below| 21.312 (3385.150)| 0.000 | 1  | 0.995 | 1802000000.000|
|                      | Middle School | 15.215 (3385.150)| 0.000 | 1  | 0.996 | 40541065.57 |
|                      | High School   | 0.968 (4341.871)| 0.000 | 1  | 1.000 | 0.380  |
|                      | College or Above| 0b              | .     |    |       | .      |
|                      | Housewife     | 1.106 (6521.628)| 0.000 | 1  | 1.000 | 3.022  |
|                      | Teaching      | -13.094 (7428.863)| 0.000 | 1  | 0.999 | 0.000  |
|                      | Professional  | -18.707 (0.000) | .     | 1  | 1.000 | 0.000  |
|                      | Government Service | 0b              | .     |    |       | .      |
|                      | Primiparous   | 0.469 (1.738)   | 0.073 | 1  | 0.787 | 1.598  |
|                      | G2-4          | 0.882 (0.991)   | 0.793 | 1  | 0.373 | 2.416  |
|                      | G5 and above  | 0b              | .     |    |       | .      |
|                      | Cesarean section | 16.531 (4238.525)| 0.000 | 1  | 0.997 | 15118808.758|
|                      | Normal Vaginal Birth | 19.189 (4238.525)| 0.000 | 1  | 0.996 | 2156000000.000|
|                      | Instrumental delivery | 0b              | .     |    |       | .      |
| Do not go outside   | Intercept    | -25.344 (12447.776)| 0.000 | 1  | 0.998 | 1.000  |
|                      | Below 25      | -15.665 (1991.958)| 0.000 | 1  | 0.994 | 0.000  |
|                      | 25-30         | 1.410 (1.476)   | 0.912 | 1  | 0.340 | 4.095  |
|                      | Above 30      | 0b              | .     |    |       | .      |
|                      | Primary or Below| 3.440 (4639.208)| 0.000 | 1  | 0.999 | 31.191 |
|                      | Middle School | 17.444 (4026.292)| 0.000 | 1  | 0.997 | 37665574.238|
|                      | High School   | -1.272 (5102.748)| 0.000 | 1  | 1.000 | 0.280  |
|                      | College or Above| 0b              | .     |    |       | .      |
|                      | Housewife     | -13.233 (12384.081)| 0.000 | 1  | 0.999 | 0.000  |
|                      | Teaching      | -28.353 (12782.346)| 0.000 | 1  | 0.998 | 0.000  |
|                      | Professional  | -13.573 (15970.149)| 0.000 | 1  | 0.999 | 0.000  |
|                      | Government Service | 0b              | .     |    |       | .      |
|                      | Primiparous   | -14.057 (2752.109)| 0.000 | 1  | 0.996 | 0.000  |
|                      | G2-4          | 2.204 (1.231)   | 3.209 | 1  | 0.073 | 9.064  |
|                      | G5 and above  | 0b              | .     |    |       | .      |
|                      | Normal Vaginal Birth | 17.937 (2310.701)| 0.000 | 1  | 0.994 | 61679572.792|
|                      | Instrumental delivery | 1.938 (7262.895)| 0.000 | 1  | 1.000 | 6.946  |
|                      | Cesarean section | 0b              | .     |    |       | .      |
It's an established fact as reported by studies from various parts of the world that women limit themselves inside boundaries of home environment and do not perform household activities (3, 7). Breast feeding, perineal injuries and hormonal changes leading to reduced libido limit postpartum sexual activity (8, 9). Johnson performed a literature review and found that many myths and caution prevail during pregnancy as regards sexual activity and it’s a neglected field. Proper counseling is required to promote sexual health during pregnancy as well as postpartum (10).

The present study tried to explore the determining factors for limiting physical activity in the form of household activity, going outside or sexual activity. It was noticed that women between the ages of 25-30, education level primary or below, Para 2-4 are more likely to limit their household activities. Individuals between 25-30 years of age were 41 times more likely to avoid exercise. Individuals with parity 2-4 were more likely to abstain from sex as compared to individuals who had 5 or more children. Such unhealthy activities were more prevalent in the younger population so the study identifies the target group for counseling and health education in this aspect.

Women who had normal vaginal delivery were 9 times less likely to use kofaleyas for the newborns. This is a practice of tightly wrapping the babies which has been reported in the Arab literature (2). Women believed that wrapping newborns keep them secure and babies are not scared and have a sound sleep. It may keep the baby warm in winters and may not be a wrong practice however too much wrapping can cause to asphyxia or hyperthermia especially in summers. This practice was more frequent in women who had operative delivery. This may be because women with cesarean section were more cautious and worried about their babies.

Breast milk is the best source of nutrition for the newborn. It mobilize early (6).

### Table 2. Model Summary for Multinomial Logistic Regression of MRA on Demographic Variables

| Activities Predictors | B     | Std. Error | Wald | df | Sig. | Exp(B) |
|-----------------------|-------|------------|------|----|------|--------|
| Any 2 or 3 of the above | Intercept | 13.415 | 1139.414 | 0.000 | 1 | 0.991 |
| Below 25 | 0.374 | 0.773 | 0.234 | 1 | 0.629 | 1.453 |
| 25-30 | 0.166 | 0.706 | 0.055 | 1 | 0.814 | 1.180 |
| Above 30 | 0b | . | . | 0 | . | . |
| Primary or Below | 20.438 | 980.691 | 0.000 | 1 | 0.983 | 752000000.000 |
| Middle School | 15.803 | 980.691 | 0.000 | 1 | 0.987 | 7298974.745 |
| High School | -4.164 | 3708.435 | 0.000 | 1 | 0.999 | 0.016 |
| College or Above | 0b | . | . | 0 | . | . |
| Housewife | -31.425 | 1499.484 | 0.000 | 1 | 0.983 | 0.000 |
| Teaching | -45.458 | 1984.990 | 0.001 | 1 | 0.982 | 0.000 |
| Professional | -28.689 | 4614.254 | 0.000 | 1 | 0.995 | 0.000 |
| Government Service | 0b | . | . | 0 | . | . |
| Primiparous | -25.405 | 3951.088 | 0.000 | 1 | 0.995 | 0.000 |
| G2-4 | 2.211 | 0.662 | 11.147 | 1 | 0.001 | 9.122 |
| G5 and above | 0b | . | . | 0 | . | . |
| Normal Vaginal Birth | 0.069 | 0.600 | 0.013 | 1 | 0.909 | 1.071 |
| Instrumental delivery | -32.082 | 3310.038 | 0.000 | 1 | 0.992 | 0.000 |
| Cesarean section | 0b | . | . | 0 | . | . |
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### Breast Feeding Predictors

| Breast Feeding                  | Predictors | B      | Std. Error | Wald | Df | Sig. | Exp(B) |
|--------------------------------|------------|--------|------------|------|----|------|--------|
| Kofalayas                      | Intercept  | -17.751| 3510.862   | 0.000| 1  | 0.996|        |
|                                | Below 25   | -0.895 | 0.762      | 1.379| 1  | 0.240| 0.408  |
|                                | 25-30      | 0.223  | 0.607      | 0.134| 1  | 0.714| 1.249  |
|                                | Above 30   | 0b     | .          | .    | .  | .    |        |
|                                | Primary or Below | 21.583| 1507.963 | 0.000| 1  | 0.989| 2363000000.000 |
|                                | Middle School | 19.224| 1507.963 | 0.000| 1  | 0.990| 2233000000.000 |
|                                | High School | 1.341  | 1911.684   | 0.000| 1  | 0.999| 3.822  |
|                                | College or Above | 0b    | .        | .    | .  | .    |        |
|                                | Housewife  | -0.974 | 3377.221   | 0.000| 1  | 1.000| 0.378  |
|                                | Teaching   | -0.286 | 3377.221   | 0.000| 1  | 1.000| 0.751  |
|                                | Professional| -17.168| 7832.005 | 0.000| 1  | 0.998| 0.000  |
|                                | Government Service | 0b | . | . | . | . |        |
|                                | Primiparous | 0.290 | 1.290     | 0.050| 1  | 0.822| 1.336  |
|                                | G2-4       | 1.133  | 0.596      | 3.618| 1  | 0.057| 3.106  |
|                                | G5 and above | 0b | . | . | . | . |        |
|                                | Normal Vaginal Birth | -2.194| 0.682 | 10.345| 1 | 0.001| 0.112  |
|                                | Instrumental delivery | 0.530| 1.105 | 0.230| 1 | 0.632| 1.698  |
|                                | Cesarean section | 0b | . | . | . | . |        |
| Observation during breast feeding steals mothers milk | Intercept | -20.461| 2386.958 | 0.000| 1  | 0.993|        |
|                                | Below 25   | -0.450 | 0.637      | 0.499| 1  | 0.480| 0.638  |
|                                | 25-30      | -0.061 | 0.554      | 0.012| 1  | 0.912| 0.941  |
|                                | Above 30   | 0b     | .          | .    | .  | .    |        |
|                                | Primary or Below | 7.124 | 1.292 | 30.425| 1 | 0.000| 1241.289 |
|                                | Middle School | 4.598  | 1.211      | 14.406| 1 | 0.000| 99.263 |
|                                | High School | 2.598  | 1.176      | 4.882| 1  | 0.027| 13.431 |
|                                | College or Above | 0b | . | . | . | . |        |
|                                | Housewife  | 15.214 | 2386.958   | 0.000| 1  | 0.995| 4048292.684 |
|                                | Teaching   | 16.417 | 2386.958   | 0.000| 1  | 0.995| 13485321.578 |
|                                | Professional| -3.579 | 0.000      | .    | 1  | .    | 0.028  |
|                                | Government Service | 0b | . | . | . | . |        |
|                                | Primiparous | 1.783 | 0.806     | 4.897| 1  | 0.027| 5.949  |
|                                | G2-4       | 1.448  | 0.553      | 6.849| 1  | 0.009| 4.252  |
|                                | G5 and above | 0b | . | . | . | . |        |
|                                | Normal Vaginal Birth | -1.132 | 0.668 | 2.874| 1 | 0.090| 0.322  |
|                                | Instrumental delivery | 1.436| 1.050 | 1.870| 1 | 0.172| 4.203  |
|                                | Cesarean section | 0b | . | . | . | . |        |
| Do not feed colostrum          | Intercept  | -32.459| 3544.123   | 0.000| 1  | 0.993|        |
|                                | Below 25   | -1.719 | 0.842      | 4.165| 1  | 0.041| 0.179  |
|                                | 25-30      | -0.382 | 0.633      | 0.845| 1  | 0.358| 0.559  |
|                                | Above 30   | 0b     | .          | .    | .  | .    |        |
|                                | Primary or Below | 21.570| 1800.054 | 0.000| 1  | 0.990| 2331000000.000 |
|                                | Middle School | 18.118 | 1800.054 | 0.000| 1  | 0.992| 73864489.962 |
|                                | High School | 15.766 | 1800.054   | 0.000| 1  | 0.993| 7030263.288 |
|                                | College or Above | 0b | . | . | . | . |        |
|                                | Housewife  | 14.271 | 3052.969   | 0.000| 1  | 0.996| 1577301.652 |
|                                | Teaching   | 14.870 | 3052.969   | 0.000| 1  | 0.996| 2870143.195 |
|                                | Professional| 15.350 | 3052.970   | 0.000| 1  | 0.996| 4639181.048 |
|                                | Government Service | 0b | . | . | . | . |        |
|                                | Primiparous | 1.533 | 0.981     | 2.442| 1  | 0.118| 4.632  |
|                                | G2-4       | 0.375  | 0.668      | 0.315| 1  | 0.575| 1.455  |
|                                | G5 and above | 0b | . | . | . | . |        |
|                                | Normal Vaginal Birth | -1.916| 0.764 | 6.290| 1 | 0.012| 0.147  |
|                                | Instrumental delivery | 0.924| 1.164 | 0.630| 1 | 0.427| 2.519  |
provides immunity and prevents the baby from infections besides that provides some degree of natural contraception (11). On one hand the trend toward breast feeding is decreasing and on the other hand there are prevailing myths which limit the duration and frequency of breast feeding. The common myth encountered in the current study was that feeding in the presence of others can steal mother’s milk. Women who were intending mothers for the first time were more likely to fall in the group who believed in above myth. This suggests that Primigravidas and women with low education status should be targeted for health education. Women experiencing cesarean deliveries should be encouraged for colostrums feeding.

Colostrum is rich in immunoglobulin which provides natural immunity to the newborn (12). Significant predictors for avoiding colostrums feeding were age below 25 and women undergoing cesarean section. Women with vaginal delivery were more likely to initiate colostrums feeding as compared to operative delivery. This may be because there is delay in initiating breast feeding in cesarean women due to effect of anesthesia and pain.

Thus health resources should be utilized to target the low education, Primigravidas and young women of 25-30 years. The issues to stress upon includes encourage breast feeding, increase physical activity, initiate colostrums feeding and avoid tight wrapping of newborns. There is a need to relay myths about activity and breast feeding practices in puerperium. Women in age group of 25-30, education below primary level and Primigravidas should be considered as high risk group for practicing these myths and should be targeted population for health education. Women undergoing cesarean section should be counseled against using kofalayas and women with vaginal deliveries should be encouraged for colostrums feeding.

**CONFLICT OF INTEREST: NONE DECLARED**

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