Healthcare Decision-making: Targeting Women as Leaders of Change for Population Health

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Abstract

This pilot study was a prospective survey of n = 500 postpartum mothers and n = 36 obstetricians (OBs) to assess characteristics, opinions, and experiences of healthcare. A convenient sample of women on the postpartum floors and OBs were invited to participate in a survey. The survey was distributed from 2013 to 2014 investigating general opinions from women about healthcare decision-making, healthcare experiences during a healthcare stay after delivery, and overall quality of life using the Patient Reported Outcomes Measurement Information System. The majority of women indicated that they made the healthcare decisions for themselves, n = 278 (57.3%) versus n = 191 (39.3%) indicated her and her spouse/partner together made healthcare decisions for her. Interestingly, only 39.3% (n = 69) of women reported that their spouse/partner were the only ones involved in their healthcare decisions whereas women reported to be more jointly involved in healthcare decisions of their spouse’s/partner’s health, n = 313 (66.6%). PROMIS® scores had a significant relationship (p = 0.022) in the global mental domain to age and insurance type with accessing the same facility for future healthcare. Further analysis revealed a significant (p = 0.013) relationship as PROMIS® global mental scores go down, the increased willingness to return to the same birthing facility for future healthcare goes up. Two specific PROMIS® global mental questions were identified as having a significant (p = 0.008) or trending towards significant (p = 0.08) negative value for Kendall’s tau indicating that the lower the score on the PROMIS® global mental question, the more likely they are to visit the same birthing facility in the future for other healthcare procedures. A substantial amount of women are responsible for their family’s health. Future studies should have a longitudinal design to assess the true lifetime impact of the birth experience for a woman on healthcare decision-making for her family.

Keywords: Decision-making; Pregnancy; Family health; Women’s health

Introduction

Approximately 80% of all working women in the United States (US) are a primary healthcare decision maker and care giver for their family or friends [1,2]. In fact, women decide on their family’s health plan, doctors, and doctor’s appointments [3]. Also, women are more likely to check in on friends and family members to ensure they are getting the right care they need.3 After delivery, women experience caring for a newborn’s health and safety that can cause a woman to be more conscientious and protective of her family [4]. Over the lifetime of a woman, several health events are experienced, in part, related to the reproductive routine care such as pregnancy and labor which allows women to translate those health experiences to other family members [2,5,6]. As a result of these complex medical experiences, a woman has many interactions with several healthcare professionals that provide them credibility to support family members and ensure their healthcare decisions align with their preferences [7]. Furthermore, a woman’s vast healthcare exposure provides her personal experiences to the medical culture such as; shared medical decision-making, non-verbal communication queues, and maintaining relationships with key healthcare providers [8,9].

The link to the high percentage of female influence of all healthcare decisions may be attributed to evolutionary and innate maternal characteristics [10]. Additionally, women with higher education, more children, and increased quality of life (QOL) participate more in healthcare decision making [11]. With higher education, women are more often engaged in health information seeking behavior and take a keen interest in who will care for their family’s health and well-being [12]. As far as having more children, this translates into women being the primary shopper for their household items online or in person [13-15]. A woman with a higher QOL, a valid and reliable measure of health status, demonstrates high psychological, social, and cognitive functioning to support others in healthcare decision-making [14].

How does the healthcare industry use female influence of all healthcare decisions? Unfortunately, there is a dearth of evidence of a woman’s influence on healthcare decision-making and how it impacts the business of healthcare. The current pilot study investigates general opinions from women about healthcare decision-making and opinions from their obstetricians, midwives, or family medicine physicians (OBs) to provide an understanding of how women influence healthcare, their experiences during a healthcare stay after delivery, and her overall QOL relates to these perspectives. The goal of this descriptive analysis was to assess the perspective of healthcare decision-making using the characteristics of women utilizing the healthcare system and from the OBs providing this care.

Methods

The pilot study was a prospective survey of n = 500 postpartum mothers and n = 36 OBs to assess characteristics, opinions, and
experiences of healthcare from July 1, 2013 to February 28, 2014. New mother participants were recruited from the postpartum floors in the hospital during a quiet time and not during any bonding with newborns or during breast feeding time. A convenient sample of women on the postpartum floors was invited to participate in the survey, except those who did not read English. Participants were asked to complete an online survey that contained no identifiable data and was taken only once. The 10-minute online survey (Survey Monkey, Palo Alto, CA) was provided to the participants using a Dell mini-laptop with Wi-Fi™ access. The online survey included the following components: demographic information, opinions of healthcare decision-making, and QOL using the Patient Reported Outcomes Measurement Information System (PROMIS) for global mental and global physical domains. The PROMIS from the National Institutes of Health (NIH) is a thoroughly validated set of multidimensional psychometric assessments [15]. The core PROMIS bank domains provide a method for measuring the entirety of a patient’s physical, social, and emotional well-being (or illness) in a manner that is broadly applicable to essentially any disease state, regardless of the actual nature or number of underlying pathophysiological processes present. Institutional review board approval was obtained to conduct the study.

The data for this pilot study was analyzed using the SPSS 22.0. Means with standard deviation (SD) or standard error (SE) are reported for all measures as applicable. For all statistical analyses, a P value less than 0.05 was considered statistically significant. P-values for age are from Kendall’s tau test of ordinal relationships, health insurance are from Fisher’s exact test, and the PROMIS’ mean scores. Data from individuals who withdrew prior to survey completion or missing data were not included in the final analysis. Conversion of the PROMIS global health scores and specific domain scores are reported as a raw score and converted to T-scores [16]. Due to the pilot nature of this study, a power analysis was not completed for the convenient samples.

**Results**

In total for this pilot study, n = 500 women from the postpartum floor completed the online survey (Table 1). The women that agreed to take part in the online survey were more likely to be in the 18-29 age group, n = 282 (57%); Caucasian, n = 362 (73%); not Hispanic, n = 483 (98%); having her first, n = 201 (40%) or second child, n = 172 (34%); and privately insured, n = 307 (61%). From the OB perspective, n = 36 providers completed the online survey. The OB respondents were more likely to be female, n = 21 (58%); a private attending, n = 24 (71%) versus a part time hospitalist, n = 5 (15%); a family practice physician, n = 4 (12%); a certified nurse midwife, n = 4 (12%); a full time hospitalist, n = 1 (3%) or a leadership/department head, n = 1 (3%); and between the ages of 30-39, n = 12 (34%) versus 40-49, n = 11 (31%); 50-59, n = 8 (23%) or 60+, n = 4 (11%).

Response categories for healthcare decision-making from postpartum women were compiled and reported in Table 2. In general, the majority of women indicated that they made the healthcare decisions for themselves, n = 20 (55%) versus n = 16 (44%) indicated her and her spouse/partner together made healthcare decisions for her. Only 2% (n = 2) of OBs reported that their patient’s spouse/partner were the only ones involved in their patient’s healthcare decisions whereas the OBs reported that their patients were more likely to be jointly involved in healthcare decisions of their spouse/partner’s health, n = 24 (71%). Surprisingly, OBs reported that they believe their patient made the healthcare decisions solely for the patient’s spouse/partner, n = 8 (24%).

Based on the patient survey results, a woman’s hospital experience appeared to influence her healthcare decision for future procedures. Specifically, the majority of women surveyed indicated that they either strongly agreed, n = 127 (27%) or agreed, n = 216 (45%) that having a baby at a specific institution impacted her decision in returning to the same institution for future healthcare procedures for her family (Figure 1). These results are supported by the OBs perspective as they either strongly agreed, n = 17 (47%) or agreed, n = 15 (42%) that having a baby at a specific institution impacted her decision in returning to the same institution for future healthcare procedures for her family (Table 3). Similarly, women strongly agreed, n = 135 (28%) or agreed, n = 254 (52%) that they would continue to use the institution for their specific healthcare needs since having a baby at the institution (Figure 2). Again, these results mirror the OBs perspective as the OBs strongly agreed, n = 9 (26%) or agreed, n = 19 (54%) that their patient would continue to use the institution for their specific healthcare needs since having a baby at the institution.

Other categories of influence from postpartum women surveyed

| Variable                        | Participant Demographics |
|---------------------------------|--------------------------|
| Age (Years) - n(%)              | n=499                    |
| 18-29                           | 282 (56)                 |
| 30-39                           | 211 (42)                 |
| 40-49                           | 6 (1)                    |
| Ethnicity - n(%)                | n=491                    |
| Non-Hispanic                    | 483 (98)                 |
| Hispanic                        | 8 (2)                    |
| Race - n(%)                     | n=498                    |
| Caucasian                       | 362 (73)                 |
| Black                           | 110 (22)                 |
| American Indian/Alaskan         | 1 (0.2)                  |
| Asian                           | 4 (0.8)                  |
| Native Hawaiian or Pacific Islander | 1 (0.2)       |
| Multiple Races                  | 15 (3)                   |
| Other                           | 5 (1)                    |
| Insurance Status - n(%)         | n=498                    |
| Private                         | 307 (62)                 |
| Public                          | 176 (35)                 |
| Self-Pay                        | 5 (1)                    |
| Other                           | 9 (2)                    |
| Number of Children - n(%)       | n=499                    |
| 1 child                         | 201 (40)                 |
| 2 children                      | 172 (34)                 |
| 3 children                      | 89 (18)                  |
| 4 children                      | 27 (5)                   |
| 5+ children                     | 10 (2)                   |

Table 1: Demographics.
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| Who makes the healthcare decisions for your health? - n(%) | n=485 |
|----------------------------------------------------------|-------|
| You                                                      | 278 (57) |
| Your spouse/partner                                       | 12 (2) |
| You and your spouse/partner together                      | 191 (39) |
| Your parents                                              | 4 (0.82) |
| Other                                                     | 0 (0) |

| Who makes the healthcare decisions for your spouse/partner's health? - n(%) | n=470 |
|---------------------------------------------------------------------------|-------|
| You                                                                       | 45 (9) |
| You and your spouse/partner together                                     | 313 (67) |
| Your Spouse/Partner only                                                  | 69 (39) |
| Their Parents                                                             | 2 (0.4) |
| Your Parents                                                              | 5 (1.0) |
| Other                                                                     | 36 (8) |

| Having my child at this institution impacts my decision in returning to this institution for future healthcare procedures - n(%) | n=485 |
|-----------------------------------------------------------------------------------------------------------------------------|-------|
| Strongly Agree                                                            | 127 (27) |
| Agree                                                                      | 216 (45) |
| Neutral                                                                   | 99 (20) |
| Disagree                                                                  | 25 (5) |

| I am more likely to visit this institution for my own healthcare needs since having my child here. - n(%) | n=486 |
|--------------------------------------------------------------------------------------------------------------------------------|-------|
| Strongly Agree                                                            | 135 (27) |
| Agree                                                                      | 254 (52) |
| Neutral                                                                    | 76 (16) |
| Disagree                                                                   | 11 (2) |

| What makes you choose this institution to receive your healthcare? - n(%) | n=488 |
|--------------------------------------------------------------------------|-------|
| My Insurance                                                              | 184 (38) |
| My Family                                                                 | 108 (22) |
| My Friends                                                                | 78 (16) |
| My Physician                                                              | 122 (25) |

| My previous experience at this institution                                | 165 (34) |
|----------------------------------------------------------------------------|-------|
| I prefer this institution over other healthcare system choices in the area | 41 (8) |
| This institution’s facilities are more clean, modern, and updated         | 109 (22) |

| Have you delivered other children at this facility - n(%) | n=488 |
|----------------------------------------------------------------|-------|
| Yes                                                            | 215 (44) |
| No                                                             | 273 (56) |

| What factors made your healthcare experience memorable? (check all that apply) - n(%) | n=485 |
|--------------------------------------------------------------------------------------------------------------------|-------|
| The staff focus on patient safety                                   | 268 (55) |
| The staff focus on quality care                                    | 367 (75) |
| The food                                                            | 18.9 (39) |
| The visitation hours                                                | 110 (23) |
| The room atmosphere/décor                                           | 240 (49) |
| The nursing staff                                                   | 416 (86) |
| The physician staff                                                 | 304 (63) |
| Other                                                               | 26 (5) |

| Did you feel that your caregivers were keeping you and your baby safe during your labor? | n=480 |
|--------------------------------------------------------------------------------------------|-------|
| Yes- my nurses and doctors told me/explained everything                                   | 430 (89) |
| Yes- they didn’t tell me exactly but I felt well cared for                               | 36 (8) |
| No                                                                                        | 6 (1) |
| Not Sure                                                                                  | 8 (2) |

| Did you feel like your labor was managed properly by the doctors and nurses? | n=471 |
|------------------------------------------------------------------------------|-------|
| Yes                                                                           | 444 (94) |
| No                                                                            | 16 (3) |
| Not Sure                                                                     | 11 (2) |

| Did you feel like you were given all the options for your healthcare experience? | n=479 |
|-------------------------------------------------------------------------------|-------|
| Yes                                                                            | 424 (88) |
| No                                                                             | 30 (6) |
| Not Sure                                                                      | 25 (5) |

Table 2: Patient perspective - healthcare decision survey.
Who makes the healthcare decisions for your patient’s health? - n(%)  

|                      | n (%) |
|----------------------|-------|
| Patient Only         | 20 (55) |
| Patient’s spouse/partner | 2 (6) |
| Patient and patient’s spouse/partner together | 16 (44) |
| Patient’s parents    | 2 (6) |
| Other                | 4 (11) |

Who makes the healthcare decisions for the patient’s spouse’s/partner’s health? - n(%)  

|                      | n (%) |
|----------------------|-------|
| Patient             | 8 (24) |
| Patient and patient’s spouse/partner together | 24 (71) |
| Patient’s Spouse/Partner only | 0 (0) |
| Patient’s Spouse/partner’s Parents | 4 (12) |
| Other               | 3 (9) |

Having a child at this institution impacts your patient’s decision in returning to this institution for future healthcare procedures. - n(%)  

|                      | n (%) |
|----------------------|-------|
| Strongly Agree       | 17 (47) |
| Agree                | 15 (42) |
| Neutral              | 3 (8) |
| Disagree             | 1 (3) |

A patient is more likely to visit this institution for her own healthcare needs since having a child here. - n(%)  

|                      | n (%) |
|----------------------|-------|
| Strongly Agree       | 9 (26) |
| Agree                | 19 (54) |
| Neutral              | 3 (9) |
| Disagree             | 3 (9) |

What factors do you think makes your patient choose this institution to receive healthcare? (check all that apply) - n(%)  

|                      | n (%) |
|----------------------|-------|
| Insurance            | 24 (68) |
| Family               | 17 (48) |
| Friends              | 15 (42) |
| Physician            | 22 (63) |
| Previous experience at this institution | 20 (57) |
| They prefer this institution over other healthcare system choices in the area | 3 (9) |
| This institution’s facilities are more clean, modern, and updated | 2 (6) |

What factors do you think made your patients’ birthing experience memorable? (check all that apply) - n(%)  

|                      | n (%) |
|----------------------|-------|
| The staff focus on patient safety | 7 (21) |
| The staff focus on quality care | 19 (58) |
| The food              | 5 (15) |
| The visitation hours  | 2 (6) |
| The room atmosphere/décor | 15 (45) |
| The nursing staff     | 23 (70) |
| The physician staff   | 17 (52) |
| Other                | 2 (6) |

Table 3: Provider perspective - healthcare decision survey.

Figure 1: Having my child at the hospital impacts my decision in returning for future health care procedures.

on their healthcare decisions were insurance type, n = 184 (38%); a previous experience at the institution, n = 165 (34%); and her hospital experience with the staff focusing on patient safety, n = 268 (55%) and quality care, n = 367 (75%).

From the OBs point of view, other factors that influence their patient’s healthcare decisions to receive care from a specific institution were insurance type, n = 24 (68%); her physician, n = 22 (63%); a previous experience the patient had at the institution, n = 20 (57%); focus on quality care, n = 19 (58%); nursing staff, n = 23 (70%); and physician staff, n = 17 (52%).

Analysis of the women’s QOL was conducted using the PROMIS® global mental and global physical domain raw scores and T-score conversions. The PROMIS global physical and global mental raw scores were 9.3 (±3.9) with a T-Score of 32.4 (±4.2) and 14.1 (±3.9) with a T-Score of 48.3 (±3.7), respectively. Of the women surveyed, PROMIS®
scores had a significant relationship (p = 0.022) in the global mental domain to age and insurance type with accessing the same facility for future healthcare on a 1-5 scale (Table 4). Further analysis revealed a significant (p = 0.013) relationship as PROMIS® global mental scores go down, the increased willingness to return to the same birthing facility for future healthcare goes up (Table 5). Lastly, two specific PROMIS® global mental questions were identified as having a significant (p = 0.008) or trending towards significant (p = 0.08) negative value for Kendall's tau indicating that the lower the score on the PROMIS® global mental question, the more likely they are to visit the same birthing facility in the future for other healthcare procedures (Table 6).

Discussion

This pilot study reinforced financial market data that women self-report to be the major healthcare decision-makers for themselves and jointly with their spouse/partner's health. More importantly, the study revealed that having a baby with a specific healthcare system appears to

| Variable           | Outcome Measure                                                                 |
|--------------------|----------------------------------------------------------------------------------|
| Question           | Q: I am more likely to visit this facility for my own healthcare needs since having a child here |
| 1=Strongly Disagree| 2=Disagree                                                                      |
| Neutal             | 4=Strongly Agree                                                                 |
| 5=Agree            | P value                                                                         |
| Age (Years)        |                                                                                 |
| 18-34              | 0.9                                                                              |
| 30-39              |                                                                                 |
| 40-49              |                                                                                 |
| Health Insurance   |                                                                                 |
| Private            | 0.912                                                                            |
| Public             |                                                                                 |
| Self-Pay           |                                                                                 |
| Other              |                                                                                 |
| PROWIS Tom®        |                                                                                 |
| Mean (SD)          | 24.0(283)                                                                        |
| PROMIS Menial      | 220(4.24)                                                                        |
| Mean (SD)          | 9.7(216)                                                                         |
| PROMIS Physical    | 86(181)                                                                          |
| Mean (SD)          | 1110(100)                                                                        |

P-Values for age are from Kendall's tau test of ordinal relationships, health insurance are from Fishers exact test, and PROMIS mean comparisons are from ANOVA tins of linearity.

Table 4: PROMIS® scores relationship with future healthcare.

| Outcome Source | Question                                                                 |
|----------------|--------------------------------------------------------------------------|
| PROMIS Menial  | Q: I am more likely to visit this hospital for my own healthcare needs since having a child here |
| PROMIS Physical|                                                                           |

In general, how would you rate your satisfaction with your social activities and relationships:

| 1=Strongly Disagree | 2=Disagree | 3= Neutral | 4=Strongly Agree | 5=Agree | P-Value |
|---------------------|------------|------------|------------------|---------|---------|
| 1-Poor              | 2(1.0%)    | 0(0%)      | 1(0.5%)          | 1(0.5%) | 0.002   |
| 2-Fair              | 6(2.9%)    | 4(2.0%)    | 2(1.3%)          | 1(0.5%) |         |
| 3-Good              | 1(13%)     | 3(3.0%)    | 14(20.9%)        | 1(0.5%) |         |
| 4-Verygood          | 1(14.3%)   | 2(28.6%)   | 0(0%)            | 3(42.9%)| 0.093   |
| 5-Excellent          | 0(0%)      | 0(0%)      | 1(50.0%)         | 1(50.0%)|         |
| How often have you been bothered by emotional problems such as feeling anxious, depressed or irritable |
| 1=Always            | 1(20.0%)   | 1(20.0%)   | 0(0%)            | 1(20.0%)| 0.093   |
| 2-often             | 0(0%)      | 3(10.3%)   | 5(17.2%)         | 15(51.7%)|         |
| 3-Sometimes         | 5(23%)     | 4(19.3%)   | 35(16.3%)        | 115(53.5%)|         |
| 4-Rarely            | 4(2.0%)    | 3(15.0%)   | 32(15.0%)        | 105(52.2%)|         |
| 5-Never             | 0(0%)      | 0(0%)      | 4(12.1%)         | 16(48.5%)|         |

PROMIS question comparisons are via Kendall's tau test of ordinal relationships.

Table 5: Relationship of specific global mental domain - PROMIS® questions with future healthcare.
influence women to return to the same institution for future healthcare services herself and her family. Healthcare systems and population health initiatives need to understand the importance of the birth experience to a woman and how this may persuade her healthcare decision-making process. Even with stable birth rates and obstetric units facing narrow financial margins, institutions should observe the value in investing in women's health services due to the influential nature of women and healthcare decision-making [17].

With healthcare reform, patients more than ever need navigation about medical conditions, access to qualified health professionals, and how to connect with the best medical information [18,19]. Despite public health and population health initiatives, much remains to be understood regarding engaging communities and families in health promotion [20]. Women make up 50.8% of the US population and 78.4% of the labor force in healthcare [21]. In 2013, the US labor force of mothers with children was almost 70% [22]. In 2022, women are projected to represent approximately 47% of the US labor force [23]. Thus, intentionally putting women as the focal point for patient-centered decision making and population health initiatives may be a productive strategy for improving patient reported outcomes [23]. Iravani et al. reported women's expectations during her pregnancy and labor included security, a sense of control, empowerment, respect, and trust to be well established prior to the birth experience [24]. This research along with our findings support the necessary ingredients for a woman to have a positive birth experience and consequently more likely to return to an institution for future services. Moreover, Nease et al. performed a study that found healthcare decision-making involvement and being young of age, more educated, employed, and female to have a significant association [25]. Similarly, our convenient sample mirrors a sub-group of women whereby not fully capturing a representative sample at the institution providing the woman healthcare services even with the diversity in the sample of race and ethnicity even with the institution being an urban hospital; however, the socio-demographics of the survey match our institutions' overall demographics in race, ethnicity, and insurance type. Plus, patients recruited for the study were mostly first time postpartum mothers within 48-hours of delivery and may have been experiencing hormonal shifts impacting their responses. The participants willing to complete the study may represent a specific sub-group of women whereby not fully capturing a representative sample of all women. Lastly, we didn't ask women to report their culture, religion, and beliefs in regards to family structure which may impact her ability to make healthcare decisions for her and her family. Overall, this limits our ability to conduct multivariable statistical analyses; however, future studies should incorporate this methodology.

There are several limitations to this study which include a convenient sample at the institution providing the women healthcare services providing a potential bias from the patients. Additionally, there was also a lack of diversity in the sample of race and ethnicity even with the institution being an urban hospital; however, the socio-demographics of the survey match our institutions' overall demographics in race, ethnicity, and insurance type. Plus, patients recruited for the study were mostly first time postpartum mothers within 48-hours of delivery and may have been experiencing hormonal shifts impacting their responses. The participants willing to complete the study may represent a specific sub-group of women whereby not fully capturing a representative sample of all women. Lastly, we didn't ask women to report their culture, religion, and beliefs in regards to family structure which may impact her ability to make healthcare decisions for her and her family. Overall, this limits our ability to conduct multivariable statistical analyses; however, future studies should incorporate this methodology.

This prospective pilot survey study indicates that women believe they have a direct effect on healthcare decision-making for their family. A substantial amount of women are responsible for their family's health and believe this impression begins with a life event of giving birth. However, with labor and delivery units closing across the US, health systems may be missing an opportunity to grow their loyal customer base and succumbing to the short term cut-back that obstetric units are money losers. The results of this study appear to indicate otherwise. Future studies should have a longitudinal design and control group to assess the true lifetime impact of the birth experience for a woman on healthcare decision-making for her family.
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