Effect of Education on Adherence to Recommended Prenatal Practices in the Indigenous Communities of Bocas Del Toro, Panama

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Abstract

Prenatal care is a significant factor in infant and maternal health. Rural communities of indigenous populations are significantly underserved medically, leading to a remarkable lack of prenatal care. While the lack of medical service is believed to contribute to negative perinatal outcomes in many of these remote locations, the lack of prenatal education will deliver the most recommended prenatal practices than those who did not receive any education. In order to test this, a survey was verbally administered to 1,375 women. Participants were categorized into which type of prenatal education they received including education from a family member (FM), a community member (CM), Floating Doctors (FD), the Ministry of Health (MINSA) or no education. The average GPP score for those who received education (65 participants) was 4.916 (range: 4 to 6). The average GPP score for a woman educated by the Ministry of Health was 5.192 (range: 3 to 8). The average GPP score for a woman educated by a community member was 3.95 (p=0.095). The average GPP score for those who did not received education (52 participants) was 3.750. Using a two-tailed test with a CI of 95%, the difference between these means was statistically significant and highly unlikely due to chance (p < 0.001). The average GPP score for a woman educated by a family member was 4 (p=0.14). The average GPP score for a woman educated by a community member was 3.95 (p=0.095). The average GPP score for a woman educated by the Floating Doctors was 4.916 (p=0.001). The average GPP score for a woman educated by the Ministry of Health was 5.192 (p=0.001).

Methods

Recruitment and Participants

Data was then categorized into which type of prenatal education they received including education from a family member (FM), a community member (CM), Floating Doctors (FD), the Ministry of Health (MINSA) or no education. Each participant was scored out of eight based on the amount of good prenatal practices (GPP) followed and they were categorized based on the type of education they received. This was compared to the scores of participants who did not receive any education. The data supports that there are significantly more good prenatal practices followed by women who were educated as compared to those who were not (p=0.013). Out of all the types of prenatal education, those who were educated by the Panamanian Ministry of Health received the highest mean GPP score and those educated by community members received the lowest. These results demonstrate the importance of educating indigenous populations on prenatal practices, as it can have a significant impact on health.

Results

Figure 1: Impact of Education on Prenatal Practice Score in all Communities

Figure 2: Impact of Education Type on Prenatal Practice Score in all Communities

Figure 3: Heat Map of Raw Data Survey

Figure 4: Hypothesis Testing with 95% CI

Figure 5: Distribution of Education Types

Discussion

It is believed that the lack of prenatal education in indigenous populations throughout Bocas Del Toro is a large determinant in poor maternal and infant health outcomes. Thus, it may be hypothesized that Ngabe-Bugle women who receive prenatal education will have a higher good prenatal practice (GPP) score than those who did not receive any education. This hypothesis was supported by our data. This GPP score (mean: 4.916) is based on five criteria of taking prenatal vitamins (2), avoiding alcohol (2), increasing caloric intake (1), maintaining physical activity level (1), and receiving prenatal check-ups (2) by a physician. The average GPP score for those who received education (65 participants) was 4.916. The average GPP score for those who did not received education (52 participants) was 3.750. Using a two-tailed test with a CI of 95%, the difference between these means was statistically significant and highly unlikely due to chance (p < 0.001). The average GPP score for a woman educated by a family member was 4 (p=0.14). The average GPP score for a woman educated by a community member was 3.95 (p=0.095). The average GPP score for a woman educated by the Floating Doctors was 4.916 (p=0.001). The average GPP score for a woman educated by the Ministry of Health was 5.192 (p=0.001). All of these data points are statistically significant, using a two-tailed test with a CI of 95%, with the exception of the difference between a community educated woman and a woman with no prenatal education. This data tells us that family members, Floating Doctors, and the Ministry of Health are all aptly teaching good prenatal practices while community members education is lacking in some degree. It is unknown which methods of teaching allow for FM, FD, and MINSA to show a significant increase in GPP score opposed to CM. It is also unknown whether it is the access to prenatal care provided by the FD and MINSA physicians that skew the GPP score opposed to the education provided by these groups. It is also important to note that while the score of educated women were significantly higher than women lacking prenatal care, very few women in these communities were scoring the maximum of 8. This calls for reflection of teaching methods and increased effort to disseminate knowledge and care to these communities. Ultimately, the data supports that there is a notable difference in prenatal outcomes when a woman receives education. This helps to direct future efforts in educating women in the indigenous communities in both Bocas Del Toro and across the globe.

Conclusion

A significant limitation of this study is that many women do not have access to prenatal checkups. Although Floating Doctors visit the communities every 3 months, it may be difficult for some women who live far away to be seen by a physician while they are pregnant. A second limitation is that the participants self-reports their previous or current prenatal practices and level of prenatal education. Although Floating Doctors visit the communities every 3 months, it may be difficult for some women who live far away to be seen by a physician while they are pregnant. A second limitation is that the participants self-reports their previous or current prenatal practices and level of prenatal education.

References

Dr. Erin Kelly, Dr. Sabrina Johnson, and Dr. Cynthia Soderstrom. 2017. A Needs Assessment of Family Planning Knowledge, Attitudes, and Practices in the Panamanian Communities of Bocas Del Toro, Panama. This study was supported by the Panama Ministry of Health and by Drexel University. Inclusion criteria for our study included women above 18 years of age living in Bocas Del Toro, Panama who were currently pregnant. A two-tailed test was performed (95% CI, α = 0.05, DF = 136, Z-critical value = 1.967). If p<0.05, the data is statistically significant and the null hypothesis can be rejected.

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