

Knowledge of prenatal health care among Costa Rican and Panamanian women

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Suggested citation

Guilford WH, Downs KE, Royce TJ. Knowledge of prenatal health care among Costa Rican and Panamanian women. *Rev Panam Salud Publica*. 2008;23(6):369–76.

ABSTRACT

Objectives. *There is evidence that health care during pregnancy is a crucial component in ensuring a safe delivery. Because the infant mortality rate in Costa Rica is almost half the rate of Panama, the researchers tested the hypothesis that women in Costa Rica are more knowledgeable about prenatal health care than women in neighboring Panama.*

Methods. *A multiple-choice survey was used to evaluate women's knowledge of prenatal care using WHO recommendations as the nominal standard. Oral surveys were administered to 320 women in Costa Rican and Panamanian health care clinics. The surveys consisted of multiple-choice questions designed to assess four specific domains of knowledge in prenatal care: nutrition, danger signs, threats from illness, and acceptable activities during pregnancy. Survey answers were scored, and significant factors in assessing women's knowledge of prenatal care were determined using analysis of variance and general linear models.*

Results. *Costa Rican women scored higher than Panamanian women in most domains of knowledge in prenatal health care. Only country of origin and educational level were significant factors in determining knowledge of prenatal care. However, country of origin was a stronger predictor of knowledge of prenatal care than was having completed high school.*

Conclusions. *These data suggest that Costa Rican women are more knowledgeable about necessary prenatal care than Panamanian women, and that this difference is probably related to direct education about and promotion of prenatal care in Costa Rica. This suggests an influence of cultural health care awareness that extends beyond the previously established negative correlation between maternal educational level and infant mortality.*

Key words

Maternal health services; prenatal care; health knowledge, attitudes, practice; Costa Rica; Panama.

While both Costa Rica and Panama are developing nations with limited access to health care services, the disparities in infant and maternal mortality rates are striking. Infant mortality

rates have declined across Central America over the past 50 years, and a further decrease in infant mortality remains an objective in Panama and Costa Rica (1, 2). In Costa Rica the infant mortality rate is 11 per 1 000 live births compared with Panama's, where the infant mortality rate is nearly double (19 per 1 000 live births). Likewise, Panama's maternal mortality rate is over six times that of Costa

Rica (160 per 100 000 live births compared with 25 per 100 000 live births) (3). The reasons for these differences are unclear, but may be related to application of prenatal care.

There is substantial evidence that health care during pregnancy is a crucial component of ensuring a safe delivery and a healthy mother and baby. The World Health Organization has published fundamental practices for a

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successful pregnancy, which include visiting a skilled health care worker at least four times during pregnancy, maintaining a healthy diet, knowing the signs of labor so as to seek delivery care at the appropriate time, and understanding danger signs during pregnancy (4). Women who receive prenatal care have lower rates of maternal and infant mortality, as well as better pregnancy outcomes (5), and utilization of prenatal care is correlated with higher mean birthweight and gestational age (6). Low birthweight and premature delivery have been shown to contribute to infant distress in Panama (7). Furthermore, children of mothers who did not receive prenatal care are twice as likely to die during infancy as children of mothers who received prenatal care (8).

Higher levels of general education among women are associated with improved birth outcomes (9–14). Indeed, the educational level of the mother is an especially significant factor in predicting infant mortality in Panama (15, 16). Whether education in general, or knowledge of prenatal care in particular, is the key factor in improving birth outcomes remains an open question. As a first step toward answering this question, we used an oral survey to evaluate women's knowledge of prenatal care in Costa Rica and Panama using the World Health Organization's recommendations as the nominal standard. We find that the country of origin is a better predictor of knowledge of prenatal care than is general educational level, though both are factors. The results of our study support our hypothesis that Costa Rican women are more knowledgeable about prenatal health care than women in Panama. This is consistent with knowledge of prenatal care contributing to the differences in infant and maternal mortality between these neighboring countries.

MATERIALS AND METHODS

Locations

In June and July of 2006, 320 women were surveyed in Costa Rica and

Panama to assess their knowledge of prenatal health care. In Costa Rica, the interviews were conducted daily in six local Caja Costarricense de Seguro Social (CCSS) public health clinics in the San José and Alajuela regions. The CCSS is the Costa Rican government's social security organization which provides health care at a relatively low cost to all insured citizens. In Panama, interviews were conducted in five different rural banana plantation communities in the Bocas del Toro province. The plantation communities, known as "fincas," were within an approximate three-hour drive of the city of Changuinola. One urban clinic was held in a local church in Changuinola. The clinics where interviews were conducted were run by Global Medical Training (GMT), a medical service organization. GMT provides free health care to underserved populations in Central America and works closely with local health care providers of the Panamanian Ministry of Health.

Field procedures

All survey participants had come to free clinics seeking attention of a medical doctor and agreed to answer our survey while waiting. Local Spanish-speaking translators were hired to conduct the personal interviews to overcome language barriers and make the participants more comfortable. In Panama, a second translator was used to interpret for speakers of the local Ngöbe tribe dialect; 6 of the 127 Panamanians interviewed spoke this dialect. The Ngöbe are an indigenous people originating in the central mountains of Panama.

Permission to interview was granted by the directors of the facilities before the study was commenced each day. To select participants, the researchers and a translator approached individuals who appeared to be above the age of 18, without pre-selection based on pregnancy history, formal education, or overall health. If the woman was interested in participating, informed consent was recorded on audio tape and the interview,

roughly 5 minutes in duration, was performed. The investigators assisted the interviewer (the hired translator) and recorded participants' answers in an organized grid in handwritten field notes. Additional observations, opinions, local stories, and histories from individual conversations with the women were recorded in the field notes and on tape. No identifying information was recorded.

The research protocol was approved by the Social and Behavioral Sciences Institutional Review Board at the University of Virginia, Charlottesville, Virginia, U.S.A.

Survey design

A 15-question oral survey (see the Appendix) was developed to assess participants' knowledge of prenatal health care practices. The researchers also collected basic demographic data on the subject populations (Table 1). The survey consisted primarily of knowledge-based, multiple-choice questions that required no previous participant preparation. Respondents were asked to qualify the level of importance of particular prenatal care practices (e.g., *a* = very important, *b* = little importance, *c* = not important). "Distracter" answer choices (e.g., "headaches" as a potential danger sign) were included in each section to ensure that participants were focused and answering after critical thought. Simple, fifth-grade level vocabulary was used and, because of the low literacy rates characteristic of both Costa Rica and Panama, an oral survey design was chosen. Standardized question format and answer choices were translated into Spanish by a local Costa Rican, so that consistent wording was used by the translators.

The knowledge to be assessed in the survey was derived from several sources. The World Health Organization's critical criteria for care during pregnancy were used as the nominal standard. In addition, the investigators consulted an obstetrics and gynecology specialist (personal communication, Y. Newberry, Family Nurse

TABLE 1. Characteristics of study samples of women surveyed about knowledge of prenatal health care, Costa Rica and Panama, 2006

Characteristic	Costa Rica (n = 193)	Panama (n = 127)	Total (n = 320)
Age ($\pm \sigma^a$)	33 \pm 11	31 \pm 9	32 \pm 11
Graduated high school	66 (34.2%)	51 (40.1%)	117 (37.3%)
Pay for water supply	180 (93.2%)	64 (50.4%)	244 (76.5%)
High income ^b	56 (29.0%)	8 (6.3%)	64 (20.4%)
Medium income ^b	85 (44.0%)	22 (17.3%)	107 (34.2%)
Low income ^b	49 (25.4%)	93 (73.2%)	142 (45.4%)

^a σ = standard deviation.

^b Study subjects were categorized as having "high" income if they reported a weekly household income of over US\$ 140; "medium" income was less than US\$ 140 weekly; "low" income was less than US\$ 50 weekly.

Practitioner, University of Virginia, Charlottesville, Virginia; April 2006), the American College of Obstetrics and Gynecology (ACOG) guidelines on prenatal nutrition (17), and the University of Michigan guidelines for prenatal clinical care (18).

The prenatal care information evaluated in the survey was organized into five major categories: diet, danger signs, illnesses, positive and negative activities, and labor signs. These aspects of prenatal care are most effectively encouraged and monitored through meetings with a skilled health care worker before, during, and after pregnancy. WHO advises that women should visit a health center at least four times during pregnancy (4); however, ACOG recommends at least twelve routine visits (17). A common theme encountered in global health is the dilemma that arises when the standards of developed countries exceed those possible in the developing world. Therefore, we designed the survey to take into account the potentially limited access to health care of the subject population. This was accomplished by assessing the minimum level of knowledge and recommendations for a safe, healthy pregnancy.

The dietary section of the survey was designed based on the recommendation for pregnant women to maintain a healthy, well-balanced diet (18). Foods particularly high in nutrients, such as spinach, are stressed because the Recommended Daily Allowance (RDA) of most nutrients increases dur-

ing pregnancy (17). The survey focused on foods that would meet these requirements and were available to the local population.

WHO also recommends that pregnant women learn and recognize danger signs, so that they will know when to seek the aid of a skilled health care worker. Therefore, potentially dangerous conditions, as well as illnesses that could have adverse effects on both mother and unborn baby, were included in the survey. Women who are informed of dangerous signs and illnesses that would require special attention will ideally be able to prevent negative outcomes for their babies and themselves.

Pregnancy differs from other "conditions" in which consistent medical care is advised because it is not an illness. It is recommended that women maintain their respective normal lifestyles during pregnancy, but avoid harmful activities such as using tobacco, alcohol, and medications not approved by a health care worker (over-the-counter or illicit), and participating in overly strenuous activities. Practices that can positively affect the health of mother and baby include taking multivitamins, folic acid and iron supplements, and drinking plenty of purified water (5). A number of these positive and negative activities were evaluated in the survey.

Finally, recognizing signs of labor is a vital part of preventing adverse outcomes in childbirth. The WHO recommends that women be able to identify

such signs, including painful contractions, broken water, or bloody and sticky discharge. The corresponding section of the survey included five potentially significant indications of labor.

Thirteen of the 15 questions on the survey were standard, multiple-choice format. The remaining two questions were about the participant's age, and an open-ended commentary on the study.

Data analysis

As interviews were completed, each participant's responses were recorded in an Excel database. The survey answers were converted into a numerical scoring system ranging from 0 to 2, indicating their degree of correspondence with best practices. 0 indicated an incorrect answer, 2 indicated a correct answer, and 1 indicated answer choices that could apply in some situations (e.g., a "maybe" response). After assigning each response a score, the average score of each category for each individual was calculated. This technique assigned each category the same statistical weight while the number of questions in each category varied. Statistics were calculated in Microsoft Excel (Microsoft Inc., Redmond, Washington, U.S.A., 2003) and SPSS software (SPSS Inc., Chicago, Illinois, 2006). Specific statistical tests are noted in the results. *P*-values less than 0.05 were considered significant.

RESULTS

A total of 320 women were interviewed; 193 were Costa Rican (60%) and 127 were Panamanian (40%) (Table 1). The mean age of Costa Rican respondents was 33, ranging from 18 to 74 years old. The mean age of Panamanian subjects was 31 with a range from 18 to 61 years old. Women under the age of 18 were excluded from the participant pool. Neither the age nor the education level of participants differed significantly between the two countries (analysis of variance [ANOVA] and

TABLE 2. Mean score per question about knowledge of prenatal care in study samples of women, Costa Rica and Panama, 2006

Question category	Costa Rica		Panama	
	Mean score ^a	σ^b	Mean score ^a	σ^b
Diet	1.78	0.20	1.43	0.34
Danger signs	1.57	0.27	1.33	0.39
Illness	1.58	0.27	1.26	0.41
Good/bad activities	1.91	0.19	1.75	0.26
Signs of labor	1.63	0.31	1.58	0.34
Total	1.69	0.14	1.46	0.26

^a The highest score was 2, indicating a correct answer; a score of 1 indicated an answer that could apply in certain situations; a score of 0 indicates an incorrect answer.

^b σ = standard deviation.

TABLE 3. Z-test values comparing differences in specific domains of knowledge of prenatal health care between women surveyed in Costa Rica and Panama, 2006

Statistic	Diet	Danger signs	Illness	Good/bad activities	Signs of labor	Overall
Z-test	10.37 ^a	6.05 ^a	7.67 ^a	5.80 ^a	1.37	9.07 ^a
Mann-Whitney	9.46 ^a	6.19 ^a	7.07 ^a	6.33 ^a	1.71	8.34 ^a

^a The difference in knowledge about prenatal health care between women in Costa Rica and Panama is significant ($P < 0.05$).

z-test); 34.2% of the Costa Rican and 40.1% of the Panamanian subjects had finished high school.

The economic difference between our two sample populations was much larger than might be expected, considering the similarity in their education levels. Of the Costa Ricans, 29% fell into our "high income" bracket, whereas only 6.3% of Panamanians were categorized as having "high income." Whether or not the respondents pay for their water was another economic measure used. This information is also an indicator of the quality of water supplied to the respondents' households. Of the Costa Ricans surveyed, 93.2% pay for their water, while only 50.4% of the Panamanians do.

The numeric results of tests of knowledge in both countries were normally distributed, as determined by Lilliefors test. Mean scores for each category are given in Table 2. The overall knowledge of prenatal care (un-weighted mean of categories) differed significantly between Panama and Costa Rica, suggesting a large disparity in maternal knowledge between the two countries. In every category,

except "signs of labor," the mean scores of Costa Ricans are higher than Panamanians as determined by z-tests and the Mann-Whitney test (Table 3). This suggests that the Costa Ricans and Panamanians interviewed are similarly knowledgeable of signs of labor. In a separate question (question 13; see Appendix) there was no significant difference between Costa Rican and Panamanian women in their knowledge of the best place to give birth (i.e., hospital, local clinic, or at home).

Univariate ANOVA in a general linear model (GLM) was used to determine what factors are most predictive of overall knowledge of prenatal care. The results are given in Table 4. Only country and educational level were significant factors in determining overall knowledge of prenatal care. This is in general agreement with other researchers who found that educational level is a significant predictor of infant mortality in the two countries (15), but especially significant in Panama (15,16). Neither income, paying for water (an indicator of both income and clean water availability),

TABLE 4. Univariate analysis of variance for determining the effects of several independent variables on overall knowledge of prenatal health care, Costa Rica and Panama, 2006

Factor	df ^a	F ^b	P
Country	1	5.172	0.025 ^c
Education	1	6.153	0.015 ^c
Income	2	2.362	0.100
Pays for water	2	.545	0.582
Age	45	.710	0.900

^a df = degrees of freedom.

^b F = F statistic.

^c $P < 0.05$, indicating that among those measured, only education and country of origin are significant factors in determining knowledge of prenatal care among women.

nor age were significant factors. When the countries are considered separately, education emerges as the only significant factor among Costa Rican women, whereas there were no significant factors differentiating Panamanian women (data not shown) in terms of their knowledge of prenatal care. Considered in those terms, the Panamanian women interviewed more closely resemble Costa Rican women in the sample who had not completed high school.

To further understand educational level and country of origin as factors in determining knowledge of prenatal care, a multivariate GLM was utilized. The significance of these factors in the GLM is given in Table 5. While both country and educational level are significant factors, the country of origin has a larger effect than having graduated from high school. The low partial eta-squared (η_p^2) suggests that education is a weak factor in the GLM compared to country. We can further dissect the relationship between these factors and individual measures of knowledge (see Table 6). Education is a significant factor in every area of knowledge except good and bad practices during pregnancy. Country is a significant factor in every area of knowledge except signs of labor.

DISCUSSION

The data are consistent with our hypothesis that women in Costa Rica are

TABLE 5. Multivariate analysis of variance for determining the relative effects of country of origin and educational level as factors in determining knowledge of prenatal care, Costa Rica and Panama, 2006

Effect	η_p^{2a}	F ^b	P
Country	0.232	34.007	0.000 ^c
Education	0.098	7.659	0.000 ^c
Education × country	0.020	2.110	0.064

^a η_p^2 (eta-squared) is a practical measure of the impact of a factor in the model. Higher values indicate a larger impact of that factor on the dependent variable (knowledge). Thus country of origin has a stronger influence in determining knowledge of prenatal care than does educational level.

^b F = F statistic.

^c P < 0.05, indicating that both country of origin and education are significant factors in the model.

TABLE 6. Multivariate analysis of variance in a linear model assuming only country of origin and educational level as factors in determining specific domains of knowledge of prenatal care, Costa Rica and Panama, 2006

Factor	Variable	F ^a	P
Education	Diet	15.95	0.000 ^b
	Danger signs	12.77	0.000 ^b
	Illness	29.03	0.000 ^b
	Good/bad activities	3.48	0.063
	Signs of labor	12.81	0.000 ^b
Country	Diet	123.18	0.000 ^b
	Danger signs	38.54	0.000 ^b
	Illness	71.20	0.000 ^b
	Good/bad activities	33.40	0.000 ^b
	Signs of labor	1.29	0.255
Education × country	Diet	7.54	0.006 ^b
	Danger signs	1.67	0.196
	Illness	3.74	0.054
	Good/bad activities	2.19	0.140
	Signs of labor	3.31	0.069

^a F = F statistic.

^b P < 0.05, indicating that the given factor has a significant influence on the dependent variable—the specific domain of knowledge of prenatal care.

more knowledgeable about prenatal health care than women in Panama. Since Costa Rica has lower rates of infant and maternal mortality, and since it is accepted that prenatal care has positive impacts on pregnancy outcomes, there is reason to believe that improving knowledge of prenatal care will improve both maternal and infant health. While we cannot make a direct correlation between higher rates of mortality and lower levels of knowledge, it is important to recognize the potentially influential aspects of prenatal health care awareness for the health and well-being of both mothers

and children. Our data suggest that a solid starting point for reducing the number of infant and maternal deaths may be the education of women about basic prenatal care practices. Bhutta (9) pointed out that while such approaches have been tried in industrialized countries, little is known about its efficacy in either industrialized or developing nations. Our study, while offering no experimental interventions, does predict an impact of prenatal health care education.

We encountered considerably greater interest and awareness about prenatal care in Costa Rica than in Panama.

While almost every participant in both countries was willing to participate, in some cases the Costa Rican women approached us showing interest in participating and often requested feedback on their scores. Several participants commented that they would remember what they had learned for future use. Willingness to learn and a general positive attitude toward health care seem to be closely related to women’s interest in prenatal care.

While culture certainly influences these opinions, access to health care providers plays an invaluable role. Both Costa Rica and Panama offer universal social insurance, but access is more limited in Panama (19). In Costa Rica, the CCSS public health facilities appear to be effectively reaching a wide range of their citizens. This is due in part to the decentralized nature of the health care system, in which hospitals and large clinics are located in central areas, and smaller clinics, often one or two rooms in size (locally known as EBAIS or basic care health teams), are located in the rural areas. In this way, secluded villages and women without access to transportation are able to receive health care. In Panama, the Ministry of Health has organized primary, secondary, and tertiary levels of care, but with less extensive management (20).

The small number of Ngöbe participants (6 of 127 Panamanians interviewed) within our data set does not affect the results. The small Ngöbe sample does not differ significantly in any of the knowledge categories from the rest of the Panamanians surveyed, though in absolute terms they scored somewhat lower in every knowledge category. It has been suggested by the United Nations Population Fund (UNFPA) that in the rural, mountainous regions of Panama, where the indigenous Ngöbe reside, lack of transportation to health care facilities and rugged lifestyle contribute to complications with childbirth (21). Regardless, the authors believe that lack of access to medical services does not necessarily predict a lower level of prenatal care knowledge, though additional studies will be needed to test this hypothesis.

This study complements previous work suggesting that higher levels of general education among women are associated with improved birth outcomes (9, 11–14). We find that maternal educational level is a significant factor in determining the knowledge of prenatal care even in the face of large disparities in economic status and urban versus rural populations. However, the country of residence outweighs educational level as a factor in predicting knowledge. This is reflected in the statistically equal fraction of Costa Rican and Panamanian participants who had completed high school, yet they displayed a significant gap in knowledge about prenatal care. This suggests an indirect effect of education on knowledge of prenatal care. For example, an educated local populace can give rise to culturally or socially imbued knowledge of prenatal care (22). Educated women may also be more comfortable interacting with a modern health care system (13). It is equally possible that Costa Rica's government is working successfully to inform women about prenatal care.

An interesting observation is that despite a significant knowledge gap between the two countries in many areas, all women, regardless of country of residence, appear to be equally knowledgeable about signs of labor. This may be due to knowledge of labor being inherent, being based on personal experience, or being passed between family or community members. Furthermore, according to surveys done in 1998, 90% or more of all births in Panama and Costa Rica were assisted by a skilled birth attendant, suggesting great labor awareness in both countries (23). It should also be noted that knowledge of the signs of labor, while beneficial to care, is not necessarily indicative of being better informed about prenatal care.

Recently the CCSS of Costa Rica made efforts to promote health care and prevention strategies as part of its services (20). For example, in a clinic in Higuito, Costa Rica, the nurses publicized a series of free weekly information sessions for pregnant women. We observed posters displaying informa-

tion with recommended practices that were organized into similar categories as those in our survey. Pamphlets with information were often readily available at the clinic and a billboard on the side of a busy street encouraged mothers to care for themselves during pregnancy. This approach has been shown to be effective for promoting postnatal care in Nepal (24).

Limitations of the study. It is evident that citizens with higher incomes (and perhaps a greater degree of maternal knowledge) see doctors in private clinics that are not paid by the government (personal communication, G.C. Galliano, M.D., Global Medical Training, 20 June 2006). We therefore chose to obtain our sample population from public clinics, because this is where all citizens, regardless of socioeconomic status, can receive equal care. This possibly biased our sample toward populations in a lower economic bracket. In addition, it should be considered that all women were interviewed in a medical setting. This would suggest that they have a predisposition to health care and a desire to keep both themselves and their children healthy, and may, therefore, possess a greater degree of maternal knowledge.

We reported the education level of participants based on whether they had graduated from high school. While our survey instrument was not designed to assess educational level in more detail, standard levels of education seemed to be at least through primary school; attending high school was less common and considered something of a privilege. Very few participants mentioned that they had attended college. Maternal education for women who have completed primary school but not high school is correlated with reduced infant mortality (9–16). However, it remains to be determined whether lower educational levels (e.g., women who have completed primary school versus those who have not) affect knowledge of perinatal care.

This study does not demonstrate a causal link between knowledge of pre-

natal care and improved pregnancy outcomes. To more directly assess such a relationship it would be necessary to question each subject about her pregnancy outcome. We chose not to question women on their childbirth experiences for two reasons. First, an estimated six instances of infant mortality would be expected in our sample size, making correlative statistics impossible. A much larger sample size would be required. The second reason was concern for the participants' social and mental welfare when responding to such questions could be traumatic. Now that baseline relationships have been established, such a study may be justifiable.

Conclusion

We conclude that Costa Rican women are more knowledgeable about necessary prenatal care than Panamanian women, and that this difference is probably related to direct education about and promotion of prenatal care in Costa Rica. While additional studies will be needed to separate prenatal health care education from other activities that affect pregnancy outcomes, our data suggest that focused educational efforts may prove a straightforward and relatively inexpensive approach to decreasing perinatal mortality. Peer education subsequent to such government interventions may benefit local communities as well as entire nations with minimal resources.

Acknowledgments. The researchers would like to thank Yvonne Newberry, University of Virginia, for her dedication and advice in the development of the project. We would also like to thank Karen Schmidt (University of Virginia) and the Global Medical Training Staff, including Santiago Mora, Gian-Carlo Galliano, Wil Johnson, Curtis Larsen, and Sondra Elizondro. We are most appreciative of the generous support of the Stull family and the Harrison Special Collection Institute of the University of Virginia.

APPENDIX. English text for survey administered to Costa Rican and Panamanian women about their knowledge of prenatal health care

Working through an interpreter, the investigators verbally explained the study.

If the participant was interested, the investigators (with the aid of an interpreter) said:

"As you know, I am a student from the University of Virginia in the United States. I am conducting a study on health care awareness regarding pregnancy and I would like to ask you some questions about that. I am tape-recording our conversation right now for my own records. But, if you would like to participate in the study, I will turn off and put away this tape-recorder while I ask you questions. If at any time during our talk a question is upsetting or if you feel uncomfortable answering a question, please tell me and you do not have to answer that question. Also, if at any time you want to stop answering questions and withdraw from this study, please tell me, and I will discard the information I have written down. I will not be capturing your name or any aspect of your identity as part of this study. I am doing this in order to ensure protection of your personal information. I will not reveal the content of our conversation beyond myself and people helping me, whom I trust to maintain your confidentiality, meaning no one will be told of your answers to this survey. Now I would like to ask you if you agree to participate in this study, and to talk to me about health care during pregnancy. Do you agree to participate?"

If the participant agrees, the following questions were asked verbally:

Part I—Background

1. How old are you?
 2. Did you graduate from high school?
 - a. Yes
 - b. No
 3. Do you pay for your water?
 - a. Yes
 - b. No
 4. What is your family's weekly income? (US\$1.00 = 1 Panamanian Balboa = 511.85 Costa Rican colones)
 - a. < CRC 25,000 or < US\$ 50
 - b. < CRC 70,000 or < US\$ 140
 - c. > CRC 70,000 or > US\$140
 5. Which country do you live in?
 - a. Costa Rica
 - b. Panama
 6. If you live in Costa Rica, which province do you live in?
 - a. Alajuela
 - b. Cartago
 - c. Guanacaste
 - d. Heredia
 - e. Limón
 - f. Puntarenas
 - g. San José
- Part II—Knowledge**
7. Please rate the importance for pregnant women to eat the foods listed.
 - a. Very important
 - b. Somewhat important
 - c. Not important

Sample Diet:

 - i. Chicken
 - ii. Plantains or bananas
 - iii. Chocolate
 - iv. Coffee
 - v. Rice
 - vi. Spinach
 - vii. Red beans
 - viii. Cheese
 8. Do you consider any of the following to be danger signs for pregnant women requiring a health care worker's help?
 - a. Yes
 - b. Maybe
 - c. No

Danger Signs:

 - i. Headache
 - ii. Blurred vision/ change in vision
 - iii. Vaginal bleeding
 - iv. Extreme weakness
 - v. Convulsions or "fits"
 - vi. Swelling of hands, fingers, face, and/or ankles
 - vii. Nausea and vomiting
 - viii. Sore throat
 - ix. Severe stomach pains (upper right side, close to lungs)
 - x. A premature labor and delivery
 - xi. High blood pressure
 9. Do you think that a pregnant woman's baby would be affected by any of the following illnesses?
 - a. Yes
 - b. Maybe
 - c. No
 - d. Unknown

Illnesses:

 - i. STDs
 - ii. Headache
 - iii. Rubella
 - iv. Cough
 - v. HIV
 - vi. Diabetes
 - vii. Anemia
 - viii. Gastritis
 - ix. Flu
 10. Do you believe that the following have a positive or negative impact upon pregnancy?
 - a. Positive
 - b. Negative
 - c. Neutral, no impact
 11. Do you consider any of the following to be labor signs for pregnant women?
 - a. Yes
 - b. Maybe
 - c. No

Signs of Labor:

 - i. Nausea
 - ii. Bloody vaginal discharge
 - iii. Headache
 - iv. Back pain
 - v. Contractions
 12. How often should you see a health care worker during your pregnancy?
 - a. Only if there are complications
 - b. 4–5 times during the pregnancy
 - c. Only during labor
 - d. More than 5 times
 13. What do you consider to be the ideal place for a pregnant woman to give birth?
 - a. Hospital
 - b. Local clinic
 - c. Home
 - d. Does not matter
 14. How important is prenatal care?
 - a. Very important
 - b. Of little importance
 - c. Not important
 15. Would you like to comment on having participated in this study?

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Manuscript received on 13 July 2007. Revised version accepted for publication on 11 January 2008.

RESUMEN

Conocimientos de las mujeres de Costa Rica y Panamá sobre el cuidado de la salud durante el embarazo

Objetivos. El cuidado de la salud durante el embarazo es un componente crucial para garantizar un parto sin riesgo. Como la mortalidad infantil en Costa Rica es casi la mitad de la registrada en Panamá, se probó la hipótesis de que las mujeres costarricenses conocen más acerca de los cuidados durante el embarazo que las panameñas.

Métodos. El conocimiento de las mujeres acerca de los cuidados de la salud durante el embarazo se evaluó mediante una encuesta, con las recomendaciones de la Organización Mundial de la Salud como estándar nominal. La encuesta se aplicó verbalmente a 320 mujeres en clínicas de Costa Rica y Panamá. Las preguntas de selección múltiple evaluaron el conocimiento en cuatro dominios específicos: nutrición, señales de alarma, amenazas por enfermedades y actividades aceptables durante el embarazo. Se asignaron puntuaciones a las respuestas. Se emplearon el análisis de varianza y modelos lineales para establecer los factores significativos que determinaron el conocimiento sobre los cuidados prenatales.

Resultados. Las mujeres costarricenses tuvieron una mayor puntuación que las panameñas en la mayoría de los dominios del conocimiento sobre los cuidados de la salud durante el embarazo. Los únicos factores significativos que determinaron esos conocimientos fueron el país de origen y el nivel educacional. El país de origen fue un factor de predicción de estos conocimientos más potente que haber completado la enseñanza media.

Conclusiones. Los resultados indican que las mujeres costarricenses tienen más conocimientos sobre los cuidados necesarios durante el embarazo que las panameñas y que esa diferencia puede estar relacionada con la educación directa sobre los cuidados prenatales y su promoción en Costa Rica. Esto podría indicar que hay una influencia de la cultura de concientización del cuidado de la salud que va más allá de la correlación negativa ya conocida entre la mortalidad infantil y el nivel de educación de la madre.

Palabras clave

Servicios de salud materna; atención prenatal; conocimientos, actitudes y práctica en salud; Costa Rica, Panamá.