

# Beyond Marital Status: The Quality of the Mother–Father Relationship and Its Influence on Reproductive Health Behaviors and Outcomes Among Unmarried Low Income Pregnant Women

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**Abstract** In populations where the majority of pregnancies occur to unmarried women, exploring the quality of partner relationships and reproductive health is warranted. This study assesses differences in psychosocial characteristics, health behaviors, and birth outcomes between unmarried pregnant women who reported having a ‘good’ relationship with their baby’s father, compared to those who reported having a ‘fair’ or ‘poor’ relationship with their baby’s father. This research was part of a prospective study of low-income urban women. All unmarried women ( $n = 3,633$ ) enrolled during their first prenatal visit were asked questions designed to differentiate between being in a good, fair or poor relationship with the baby’s father. The worse the quality of the relationship, the worse the outcome, with dose–response associations between the quality

of the relationship, emotional health, health behaviors, and birthweight. Compared to women in good relationships, those in poor relationships were more likely to have depressive symptoms (aPR 1.93; 95% CI: 1.65, 2.25), stress (aPR 1.24; 95% CI: 1.14, 1.35), use drugs (aPR 1.34; 95% CI: 1.11, 1.61) and smoke (aPR 1.28; 95% CI: 1.10, 1.49). Although infants born to mothers in poor relationships had the highest rate of low birth weight, the differences were not significant. Delving beyond marital status to assess the quality of partner relationships among unmarried mothers is important. Further research is needed to understand the complex interplay of individual, social and environmental factors promoting or hindering stable and supportive partner relationships among socially disadvantaged populations of pregnant women.

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## Introduction

Empirical evidence suggests that women who are married compared to those who are not have better health behaviors, physical health and emotional well being, although causal pathways underpinning such relationships are unclear [1, 2]. In general, married women have lower mortality and morbidity rates [2–4], report being happier and healthier, and are less likely to report being stressed or have depressive symptoms than their unmarried counterparts [5]. Consistent with these findings, published findings in the perinatal research literature indicate that married women have better reproductive health outcomes relative to unmarried women [6–11]. In the U.S., for example,

preterm birth rates are lower for married women than for unmarried women, a pattern that is consistent across all racial/ethnic and age groups [8].

Interpretation of the findings linking marital status to important reproductive health behaviors and outcomes has been regarded by some observers as somewhat controversial and problematic, especially since the underlying causal mechanisms for reported differences between married and unmarried women have not been thoroughly explored, either empirically or theoretically [12]. Thus the implied assumption is that ‘married’ and ‘unmarried’ women are oppositional categories, representing undifferentiated or monolithic social groups, one associated with an array of ‘good’ behaviors and outcomes and the other with ‘bad’ behaviors and outcomes. However, the salient point may be that there are ‘good’ marriages and ‘bad’ marriages; similarly, outside of marriage, there are intimate partner relationships that can be either ‘good’ or ‘bad’. ‘Bad’ marriages may provide little in the way of financial security or stability, and rather than emotional support may introduce conflict, stress, or even abuse [13, 14], negating any health advantage normally associated with ‘being married’. Conversely, good relationships outside of marriage could provide many of the same indirect and direct health-related advantages, often associated with, and in some ways attributed to, ‘being married’.

Compared to married couples, families headed by single women have higher rates of poverty, live in neighborhoods with high rates of crime, and are more likely to experience food and housing instability and homelessness [15–18]. Material hardship, poverty, and low socioeconomic status in general, have been shown to be important factors that are negatively associated with health status, and with poor pregnancy and birth outcomes in particular [18–20]. Divorce, separation, or widowhood expose many women to a significant loss of income [21, 22], while single woman and female-headed households, in particular, are more seriously and adversely affected by the loss of employment resulting from illness or other factors [23, 24]. Hence, unmarried women may be more vulnerable to life events associated with economic insecurity, material hardship and social dislocation, having negative consequences that both directly and indirectly affect their health status. Being in a married relationship may also be indicative of an emotionally supportive partner, enhancing emotional well-being by reducing stress, and decreasing the likelihood of depression—an important consideration in light of the growing body of literature suggesting significant relationships between stress, depression and poor health outcomes, including those related to pregnancy and childbirth [25–27].

This issue of the importance of the quality of intimate partner relationships outside the context of lawful marriage

is particularly important to consider in exploring the reproductive health behaviors and outcomes in childbearing populations of low income and minority women, where the vast majority of pregnancies occur outside of marriage. More than 70% of all African American and about 65% of all Hispanic women, for example, are unmarried at the time of delivery [28]. The percentages are even higher among, urban minority women living in low income neighborhoods, where out of wedlock births have been shown to be as high as 85–90% in some cases [29]. In such cases, and for a variety of reasons, marriage is clearly the exception and not the rule, and dividing women into ‘married vs. unmarried’ is obviously of limited usefulness. In particular, it seems reasonable to suggest that among the vast majority of women who are not married but become pregnant, deliver and parent children, some portion involve supportive partner relationships contributing to the emotional and physical well being of the mother. We are unaware, however, of any published studies exploring the basic question of how the quality of the intimate relationships may influence factors related to maternal health.

The purpose of this study was to assess the influence of the quality of the partner relationship on maternal health, among a large cohort of urban, low income pregnant women, who reported being unmarried to the baby’s father at the time of entry into prenatal care. As described in detail below the objective of the study was to assess differences in psychosocial characteristics, health behaviors, and birth outcomes between unmarried women who reported having a ‘good’ relationship with their baby’s father, compared to those who reported having a ‘fair’ or ‘poor’ relationship with their baby’s father.

## Methods

This research was part of a larger, prospective, community-based study examining maternal stress, birth outcomes, and maternal and infant health and health-related behaviors. The larger study involved recruitment of women who enrolled for prenatal care at a consortium of health centers in Philadelphia, Pennsylvania, between February 1999 and September 2004. The data for this study were collected, after written consent was obtained, during a face to face interview at the time of their first prenatal care visit (mean gestational age,  $14.7 \pm 6.9$  weeks). All interviews were based on structured surveys, conducted in English and Spanish by trained female interviewers. Women with a singleton intrauterine pregnancy who spoke either English or Spanish were considered eligible for recruitment. Ninety percent (90%) of all eligible women enrolled in the study. Additional findings and more details about the larger study have been published elsewhere [30]. The study was

approved by the institutional review boards of the Philadelphia Department of Public Health, Drexel University, and the University of Pennsylvania. The study sample for this investigation was comprised of all unmarried women who were enrolled ( $N = 3,633$ ), or 86.2% of all those who agreed to participate.

## Study Variables

### *Marital Status and Perceived Partner Relationship Quality*

The construct of ‘relationship quality among disadvantaged unmarried parents’ is undeveloped and somewhat absent in the perinatal literature, especially in its relation to maternal infant health. After thoroughly reviewing the literature, we were guided to measure relationship quality among disadvantaged mothers based on reported findings from the Fragile Families Study [31]. Mother’s reports of future plans for marriage along with financial and/or in-kind contributions by the father appear as important attributes of a good relationship [31, 32]. Thus, we constructed our measurement based on the mother’s reported perception of future marriage with the baby’s father along with her belief of his involvement and support for the baby.

All unmarried women enrolled were asked three questions, designed to differentiate between unmarried women who perceived themselves as being in a ‘good’ as opposed to a ‘fair’ or ‘poor’ relationship with the baby’s father. The exact wording of these questions and the frequency of responses is shown in Table 1. A woman was classified as being in a ‘poor relationship’ if, for every question she indicated that the relationship was undesirable. Specifically, women included in this category stated that they: (1)

**Table 1** Relationship quality among unmarried women: scoring and distribution

Quality of relationship scale for unmarried women
Question 1. <i>What do you think the chances are that you would marry the baby’s father?</i>
1. An almost certain chance (25%)
2. A pretty good chance (20%)
3. A 50–50 chance (23%)
4. A little chance (7%)
5. No chance (25%)
Question 2. <i>Do you want the baby’s father involved in raising the child after the baby is born?</i>
1. Yes (94%)
2. No (6%)
Question 3. <i>Has the baby’s father told you that he will provide financial support for the child after the baby is born?</i>
1. Yes (91%)
2. No (9%)

thought there was a 50% or less chance of the relationship ever ending in marriage; (2) did not want the baby’s father involved with the raising the child after it was born; and (3) thought the father would not provide financial support to his child after delivery. In contrast women were classified as being in a ‘good relationship’ if they responded in an opposite manner to all three questions—that they thought there was better than a 50–50 chance of the relationship resulting in marriage; that they wanted the father involved with the child; and that he would provide financial support after the child was born. All remaining women, by definition, had at least one response indicating a positive relationship, and one indicating a negative relationship and for the purpose of this study were classified as being in a relationship that was of ‘fair’ quality.

### *Dependent Variables*

Four dependent variables were used in the analyses: (1) chronic maternal stress, (2) maternal depressive symptoms, (3) health behaviors, and (4) infant birth weight. Maternal stress was assessed using the Cohen Perceived Stress Scale (PSS) [33]. The PSS possesses strong psychometric properties, including reliability across gender, socioeconomic status, age groups, race/ethnicity, and other demographic characteristics. This 14 item self report scale measures the degree to which a respondent appraises her life as being stressful. The scores were divided into quartiles as follows: low  $\leq 19$ ; low/moderate 20–24; moderate/high 25–28; and high  $\geq 29$  [25]. Maternal depressive symptoms were measured using the Center for Epidemiological Studies Depression Scale (CES-D), a pre-tested, reliable and valid instrument used widely in studies of depression for more than a decade, including populations of women in pregnancy and postpartum [34–36]. In this study, mothers were categorized as having depressive symptoms if their scores on the CES-D were  $\geq 23$ , and as not having depressive symptoms if their scores were  $< 23$ . This cutoff point corresponds to the 90th percentile scores for community samples and has a 95% sensitivity for diagnosing major depressive disorder (MDD) among low income women, although the specificity and positive predictive value for MDD are low (70% and 0.28, respectively) [35–38]. Health behaviors included the previous use of contraceptives prior to becoming pregnant, current antenatal smoking and drug use. A wide range of descriptive sociodemographic characteristics were collected during the interviewing process, including maternal age, race/ethnicity, mean annual income, education, and parity, and were used in an effort to describe differences between the groups.

Chi-square tests for categorical variables were used to assess the significance of differences between groups, where appropriate. Univariate relationships involving

statistically significant differences related to health behaviors, stress or depression were further explored using multivariate analyses, in order to determine if the relationships were robust, or confounded by sociodemographic factors that may have been related to relationship status. In

accordance with the recommended approach for high-prevalence binary outcomes [39, 40], Poisson regression was used to estimate adjusted prevalence ratios. Stata 9.2 software [41] was used for all analyses pertaining to the study.

**Table 2** Characteristics of the study sample, by relationship status

	Good relationship (n = 2,676)	Fair relationship (n = 583)	Poor relationship (n = 374)	Total (n = 3,633)
<i>Sociodemographic</i>				
Maternal age***				
≤18	14.0%	18.5%	13.6%	14.7%
19–25	58.8%	49.6%	51.1%	56.5%
26–30	15.3%	16.0%	16.3%	15.5%
31–45	12.0%	16.0%	19.0%	13.3%
Race/ethnicity***				
Non-Hispanic White	10.0%	6.3%	4.8%	8.9%
Hispanic	20.1%	22.3%	23.5%	20.8%
Non-Hispanic Black	67.8%	70.5%	68.4%	68.3%
Other	2.1%	0.9%	3.2%	2.0%
Income***				
0–\$6,500	45.8%	49.2%	58.0%	47.6%
\$6,500–10,000	16.4%	16.6%	15.2%	16.3%
\$10,000 or more	37.8%	34.1%	26.7%	36.1%
Education***				
<High school	37.1%	46.3%	45.7%	16.6%
High school or GED	45.6%	40.0%	38.2%	44.0%
Beyond high school	17.3%	13.7%	16.0%	39.4%
Parity**				
No children	47.5%	48.0%	49.5%	47.8%
One child	28.5%	22.5%	25.1%	27.2%
Two or more children	24.0%	29.5%	25.4%	25.0%
Birthweight (g)				
Mean (SD)	3,129 (635.6)	3,087.6 (631.1)	3,082.9 (602.1)	3,117.9 (631.6)
LBW (<2,500 g)	12.6%	12.0%	13.5%	12.6%
Health behaviors				
Used contraceptives				
No	55.4%	58.3%	59.4%	56.3%
Yes	44.6%	41.7%	40.6%	43.7%
Used drugs*				
No	80.4%	76.0%	74.1%	79.0%
Yes	19.6%	24.0%	25.9%	21.0%
Smoked*				
No	79.4%	73.5%	72.1%	77.7%
Yes	20.6%	26.5%	27.9%	22.3%
Stress <sup>a</sup> ***				
Not stressed (≤3rd quartile)	48.9%	41.3%	35.1%	46.2%
Stressed (≥3rd quartile)	51.1%	58.7%	64.9%	53.8%
Depression <sup>b</sup> ***				
Not depressed (CES-D < 23)	81.4%	75.4%	64.4%	78.7%
Depressed (CES-D ≥ 23)	18.6%	24.6%	35.6%	21.3%

\*  $P < .05$ , \*\*  $P < .01$ ,  
\*\*\*  $P < .001$

<sup>a</sup> Cohen Stress Scale: The Perceived Stress Scale (PSS)

<sup>b</sup> CES-D: Center for Epidemiologic Studies-Depression Scale

## Results

Sociodemographic and other characteristics of the study population are presented in Table 2. Of the 3,633 women in the study sample, 74% ( $n = 2,676$ ) were classified as having a ‘good’ relationship with the baby’s father, 16% ( $n = 583$ ) were classified as being in a ‘fair’ relationship, and 10% ( $n = 374$ ) were classified as being in a ‘poor’ relationship. Unmarried women reporting ‘good’ vs. ‘poor’ relationships did not differ by maternal age, but there were other sociodemographic differences between the two groups. In general those in ‘good’ as opposed to ‘fair’ or ‘poor’ relationships were more likely to identify themselves as non-Hispanic White, and were more likely to be in the higher income and educational attainment groups. Associations between relationship quality, emotional well being, health behaviors, and birthweight revealed a consistent theme, of dose–response associations between the quality of the relationship, and measures of emotional health, related behaviors and birthweight. Women classified as being in a ‘poor’ relationships had higher levels of perceived stress (64.9 vs. 58.7%), and their responses to the CES-D indicated a higher prevalence of depressive symptomatology (35.6 vs. 24.6%) compared to women classified as being in a ‘fair’ relationship. Similarly, those in ‘fair’ relationships had higher levels of perceived stress (58.7 vs. 51.1%) and more frequent occurrence of depressive symptomatology (24.6 vs. 18.6%) than those classified as being in a ‘good’ relationship. In addition, a greater percentage of those in ‘poor’ as opposed to ‘good’ relationships reported higher frequency of drug use prior to pregnancy (25.9 vs. 19.6%), and higher rates of antenatal

smoking (27.9 vs. 20.6%). As was the case for perceived stress and depressive symptomatology those in ‘poor’ relationships had higher rates of both smoking and drug use than those in ‘fair’ relationships. Likewise, those in ‘fair’ relationships had higher rates than those in ‘good’ relationships. Higher rates of contraceptive use before pregnancy were associated with the quality of the relationship but the differences between the groups were not statistically significant. Similarly, the infants born to the group of mothers in ‘poor’ relationships had the lowest mean birthweight and the highest rate of low birthweight infants, but these birthweight differences among the three groups of unmarried mothers were not statistically significant.

Results of Poisson regression analyses are presented in Table 3 and reveal that the association between relationship status and emotional health were independent of any differences between the groups in terms of the sociodemographic and behavioral factors listed in Table 2. Specifically, women in ‘poor’ relationships were almost two times more likely (aPR 1.93; 95% CI: 1.65, 2.25) than unmarried women in ‘good’ relationships to have depressive symptomatology, as well as significantly more likely to have relatively high perceived stress levels (aPR 1.24; 95% CI: 1.14, 1.35). Similarly women in ‘fair’ relationships were more likely to have depressive symptomatology (aPR 1.33; 95% CI: 1.13, 1.57) and report relatively high levels of perceived stress (aPR 1.12; 95% CI: 1.04, 1.22) compared to those in ‘good’ relationships.

The Poisson regression analyses results pertaining to the association between health behaviors and relationship status are presented in Table 4. Although there were no statistically significant differences related to contraceptive

**Table 3** Poisson regression results: relationship quality status, depressive symptomatology and stress

	Depressive symptomatology		Stress scale	
	Adjusted prevalence ratio <sup>a</sup>	(95% CI)	Adjusted prevalence ratio <sup>a</sup>	(95% CI)
Non-married—‘good’	1.0		1.0	Ref
Non-married—‘fair’	1.33	(1.13, 1.57)	1.12	(1.04, 1.22)
Non-married—‘poor’	1.93	(1.65, 2.25)	1.24	(1.14, 1.35)

<sup>a</sup> Adjusted for all descriptive characteristics in Table 2, including health behaviors

**Table 4** Poisson regression results: relationship quality status and health related behaviors

	Used contraceptives		Used drugs		Antenatal smoking	
	Adjusted prevalence ratio <sup>a</sup>	(95% CI)	Adjusted prevalence ratio <sup>a</sup>	(95% CI)	Adjusted prevalence ratio <sup>a</sup>	(95% CI)
Non-married—‘good’	1.0		1.0		1.0	Ref
Non-married—‘fair’	0.97	(0.87, 1.07)	1.23	(1.04, 1.44)	1.28	(1.10, 1.49)
Non-married—‘poor’	0.98	(0.86, 1.11)	1.34	(1.11, 1.61)	1.36	(1.15, 1.61)

<sup>a</sup> Adjusted for all descriptive characteristics in Table 2, including measures of maternal stress and depressive symptomatology



use, women in ‘poor’ relationships were more likely to have reported using drugs (aPR: 1.34; 95% CI: 1.11, 1.61), as well as more likely to have reported smoking cigarettes (aPR 1.36; 95% CI: 1.15, 1.61) than were women in ‘good’ relationships. In addition, women in ‘fair’ relationships were also more likely to have reported using drugs (aPR: 1.23; 95% CI: 1.04, 1.44), as well as more likely to have reported smoking cigarettes (aPR 1.28; 95% CI: 1.10, 1.49) than were women in ‘poor’ relationships. Hence, in general, the worse the quality of the relationship, the worse the outcome, in terms of increased risk of depressive symptomatology, and of relatively high levels of perceived stress, drug use, and antenatal smoking.

## Discussion

While the vast majority of women (74%) reported being in good relationships, the findings from this study indicate that there are important differences among unmarried women, according to the quality of the relationship with the baby’s father. Specifically, unmarried women in our sample who we assessed as having relatively poorer relationships with the baby’s father appeared to be more stressed and depressed, and to have used drugs and to have smoked during pregnancy, compared to those assessed as being in better relationships. The results from the multivariate analyses suggest that these differences were most likely not a function of other sociodemographic factors such as age, income, education or race/ethnicity. In broader terms the data lend support to the notion that there may be certain health benefits associated with supportive, intimate partner relationships—relationships that exist outside the boundaries of lawful marriage.

It is worth noting that some research has been devoted to examining the effect of cohabitation as opposed to marriage on the effects of perinatal as well as other health outcomes [4, 6, 7, 9, 42], but the results have not been consistent. The effect of cohabitation on physical and emotional well-being is certainly a legitimate subject for investigation; one implication of the findings from this study, however, is that it may be the quality of the relationship, as opposed to marriage or cohabitation per se that represents the salient factor that influences health-related behaviors and outcomes. Hence, future research comparing married to unmarried women, or women living with a partner to those who do not, should perhaps be more nuanced, taking into account the quality of the relationships—including the extent in nature of the material or emotional support—that is involved. Consistent with this notion the results from previous research indicate that not all marriages involve good relationships, and that remaining in a ‘poor’ married relationship can be

quite toxic to one’s psychological and physical health [1, 43–45].

It is important to note that 53.8% of all women in the study sample had elevated stress, as defined by a score of >29 on Cohen’s Perceived Stress Scale, and 21.3% had depressive symptoms, as defined by a score  $\geq 23$  on the CES-D Depression Scale. Thus, despite the reported relationship quality with the baby’s father, high levels of perceived stress and depressive symptomatology were relatively common in this cohort of urban, unmarried low income women. Our findings are reasonably consistent with other reports of comparable urban populations of childbearing women [34, 46].

The focus of the larger study from which these data were drawn [30] was on the relationship between reproductive health outcomes, individual and community-level stressors, bacterial vaginosis, and preterm birth. A women’s relationship with the baby’s father was regarded as one possible issue to explore, but the original surveys did not include extensive or detailed questions about the quality of the relationship. Thus the specific conflict or stressors involved in ‘poor’ relationships, or the protective factors involved in more supportive or ‘good’ relationships were not documented. As noted above this is an important area for future research to explore.

Questions about the quality of the relationship with the baby’s father were not asked of women in the study who were married, and thus we could not differentiate and compare married women based on this factor. It remains unclear whether the associations reported here for the low income unmarried women apply to married women in the sample, representing just under 15% of the women enrolled in the larger study. Including married mothers and further developing the measurement of the exposure, the quality of the relationship, is warranted in subsequent research.

The survey questions in the original study were also specific to the relationship with the baby’s father. It is possible that for some of the women their ‘partner’ at the time of survey was not the same person as the baby’s father. Due to the proximity in time of the interviews (initiation of prenatal care) to conception, we believe that this would not often be the case. To the extent that it was, the strength of the associations reported were likely to have been under- rather than over-estimated.

Finally it is important to note the analyses were cross-sectional by design. As a result, issues related to the direction of causality, associated with all observational studies of this kind, are appropriate to consider. Although it seems reasonable to assume that poor partner relationships do not promote healthy behaviors or more positive emotional and physical health outcomes, it is possible that the reverse is also true. In a variety of imaginable ways, physically and emotionally healthy women, who are health

conscious in attitude and behavior, may tend to select more supportive and stable partners—and vice versa. In all likelihood causality operates in both directions, whereby supportive relationships reinforce positive health behaviors and promote positive emotional and physical health outcomes, while poor relationships reinforce negative behaviors and promote relatively poor emotional and physical health outcomes.

Despite these limitations we believe the findings presented are valuable in terms of informing future research, highlighting the importance of considering the quality of relationships as a salient factor influencing reproductive health behaviors and well-being of unmarried urban low income women—especially in light of the fact that the vast majority of childbearing women in many low income neighborhoods are unmarried when they become pregnant and at the time of delivery. Future research that confirms and deepens our understanding of this issue may, in turn, point to promising interventions designed to promote supportive, intimate partner relationships, leading to more positive health-related behaviors and outcomes.

In much broader terms the topic of the paper does touch on an important and somewhat highly charged public policy debate about the benefits of marriage, or the promotion of marriage as a means to improve the health and welfare of urban, low income families. Any in depth discussion of the issue is clearly beyond the scope of this paper. Suffice it to say, however, that there are those that view the promotion of marriage as a viable strategy to address the needs of urban, low income women—and that the breakdown of the nuclear family is, at least in part, responsible for the high risk behaviors and relatively poor conditions and outcomes observed in this population [47–49]. Opponents of this view argue that the point is that marriage is *not* a viable option for many women in these communities, given the socio-structural problems (lack of educational and unemployment, inadequate services, etc.) that undermine the prospects for successful, life-long, and stable healthy relationships between reproductive-age men and women [50, 51]. In this view out-of-wedlock childbearing is a predictable adaptation to the economic, social, and cultural context of women's lives, within which reproductive behaviors and choices are made, and invoking the 'norm' of marriage as a solution to these problems is futile, judgmental, and perhaps counterproductive [52–54]. Geronimus, for example, has challenged researchers to use a different lens to explore norms of marginalized childbearing populations [52, 55]. She states “cultural imperatives toward economic and reproductive success suggest that, for any group, culturally regulated fertility and family behavior will be exquisitely attuned to ensuring economic and reproductive success...the dominant culture imposes values and judgment of such, to childbearing in high-

poverty, urban African American communities' that would threaten economic and reproductive success” (p. 885) [52]. Thus, perhaps expecting women to just assume the norms of the dominant group and 'value' marriage as a prerequisite to childbearing is unrealistic and ignorant of the socio-cultural context in which childbearing outside of marriage is perhaps most adaptive. [50, 51, 54, 56]. Further research is certainly needed in order to better understand the complex interplay of social and environmental factors affecting the costs and benefits of marriage in socially disadvantaged populations of pregnant women as well as the differing contingencies promoting or hindering stable and supportive partner relationships among women in low income communities.

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