Characteristics of Women Who Deny or Conceal Pregnancy

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In order to assess characteristics of women with denial or concealment of pregnancy until delivery, the authors conducted a retrospective study of women with no history of prenatal care who presented to their institution for delivery or immediately postpartum. Among these women, 29% had denied pregnancy, and 9% had concealed pregnancy. Authors constructed models predicting denial or concealment of pregnancy and further elucidated subtypes of denial and concealment of pregnancy. Strikingly, psychiatric consultation was rare for women who had denied or concealed their pregnancies, and yet they would often subsequently take responsibility for their infants. (Psychosomatics 2007; 48:117–122)

Miller[1] described three types of denial of pregnancy: 1) pervasive denial; 2) affective denial; and 3) psychotic denial. Pervasive denial "occurs when not only the emotional significance but the very existence of the pregnancy is kept from awareness (p 84)." Weight gain, amenorrhea, and breast changes may not be present or may be misconstrued; even labor pains may be misinterpreted.[1,2] Partners and families may also fail to notice pregnancies.[2] Women with "affective denial" are intellectually aware of their pregnancy; however, they make little emotional or physical preparation, and "continue to think, feel, and behave as though they were not pregnant (p 83)." Within this category, some women with substance-use disorders experience affective denial to defend against guilt from potentially harming their fetus through substance use. Last, "psychotic denial" of pregnancy may occur in women with psychosis and a history of loss of custody of other children.[3]

Risk factors for denial of pregnancy may include age, intellectual limitations, social isolation, substance abuse, psychiatric disorder, or irregular menses.[1,4] Psychological conflicts that may result in denial of pregnancy include anger at the father of the baby, repressed sexuality, religious prohibitions, relationship with their mother, fear of abandonment, or anticipation of custody loss.[1,5] Also, some women who deny pregnancy may experience dissociation or conversion symptoms at the time of delivery.[2,4,6]

In contrast to the denial of pregnancy, concealment of pregnancy occurs in women who know that they are pregnant and actively conceal pregnancy from family, partners, friends, teachers, and coworkers. Their reasons for doing so may include a fear of others' reaction to the pregnancy and/or the woman's plans to place the child for adoption.

Denial of pregnancy and concealment of pregnancy both lead to inadequate prenatal care, yet few studies have attempted to define these two entities more clearly. We are aware of a single prospective study that found hospital delivery rates of 1 in 475 deliveries in Germany; using the definition of denial of pregnancy as a subjective unawareness of pregnancy until at least Week 20 of gestation.[7] Sub-

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jects were categorized in three ways: denied pregnancy, concealed pregnancy, and a smaller group of adolescents who attempted to "forget" their pregnancies.[8] The rate of "pervasive denial" was 1:2,455. Denial was not further delineated from concealment, and thus the sociodemographic, psychiatric, and other maternal characteristics associated with either concealment or denial of pregnancy are unknown.

The aim of this exploratory study was to describe and compare the varying characteristics of women with denial or concealment of pregnancy more comprehensively. We hypothesized that women who deny or conceal pregnancy would most likely be young, primigravida, living with their parents, and educationally deprived. Also, they would have poor social support networks (or the perception of poor support) and would be likely to have been a victim of abuse. We also expected to find a population of women with frequent psychiatric referrals. We further hypothesized that the women who concealed pregnancy would have been aware of their pregnancies earlier than their counterparts who denied pregnancy.

METHOD

After Institutional Review Board approval, a retrospective record review was completed at our urban academic medical center. All women without prenatal care with pregnancies reaching the third trimester who presented to the hospital for delivery or immediately postpartum between January 1997 and December 2003 were eligible for inclusion. The subjects were identified by the ICD-9 code V23.7 (Insufficient Prenatal Care). Relevant medical records were then reviewed to ascertain cases with a complete absence of prenatal care. The medical records were also reviewed for any information that could help to discern the cause for this absence of prenatal care. We ultimately included in these analyses only cases in which the absence of prenatal care was secondary to denial or concealment of pregnancy.

Both qualitative and quantitative data were abstracted from all chart notations from physicians, social workers, nursing, and emergency medical technicians. When two data-points differed, we routinely followed the more comprehensive dataset (often documented by the social worker). We assessed multiple medical and sociodemographic factors: history of pregnancy/miscarriage/abortion, social support system, history of abuse, history of substance-use disorders and toxicology results, history of mental illness or retardation, location of the birth, precipitant to hospital presentation, the time during gestation at which the woman reported noticing the pregnancy (if any), contraceptive use, reason for lack of prenatal care, and infant placement.

For this study, denial of pregnancy was specifically defined as "no prenatal care before delivery, including women who were completely surprised by their pregnancy at delivery (pervasive denial) to those having some period of overt cognitive awareness of the pregnancy but no acknowledgment of their pregnancy (affective denial)." Concealment of pregnancy was defined as "conscious awareness of a pregnancy, which was then purposefully hidden from others." This behavior must have been specifically noted in the record. Although substance abuse has been related to some cases of denial of pregnancy in the literature,[1] we made the *a priori* decision to exclude women for whom the primary rationale for a lack of prenatal care was the presence of a substance-use disorder, because substance use itself has been shown to be associated with poor prenatal care[9] and would likely have a confounding effect.

Analysis was performed with SAS 9.1.[10] Chi-square tests or Fisher's exact tests were first used to test the association between each categorical (or categorized) variable and women's response (denial versus conceal of pregnancy). On the basis of univariate and bivariate analyses, logistic regression was performed, including stepwise selection of variables to help identify those that significantly independently affect women's response and predict the outcome variable of denial of pregnancy.

RESULTS

During the study period, there were 31,475 deliveries at our institution; 216 deliveries occurred among 211 women with no prenatal care; 61 of these women met our criteria for denial of pregnancy, and 20 met our criteria for concealment of pregnancy. Two women with denial of pregnancy had subsequent pregnancies in which they again presented with denied pregnancy during the study period. Women with denial or concealment of their pregnancies, therefore, represented 0.26% of all deliveries.

Characteristics of Women Who Denied or Concealed Pregnancy

The demographics of the women with denial or concealment of pregnancy are reported in Table 1. Women with either denial or concealment of pregnancy had mean ages in their early twenties; 23% and 40%, respectively, were age 18 or younger. The women most frequently lived

with their mothers. Several women with denial of pregnancy (13%) lived with a partner, whereas none of the women with concealment of pregnancy did. Predominantly, mothers of women in both groups were noted to be sources of social support; fathers of the infant were listed as sources of social support 50% and 32% of the time, respectively; 66% of women with denial of pregnancy and 45% of women with concealment had completed their high school education. The women with denial of pregnancy were significantly more likely to be employed, whereas those with concealment were more likely to be students ($p<0.05$). A history of abuse was documented rarely (8% and 12%, respectively).

Pregnancy and delivery data are reported in Table 2. The index pregnancy was the first for only 26% of women with denial of pregnancy and 35% of those with concealment, whereas 20% and 15%, respectively, had experienced previous miscarriages or therapeutic abortions. Of those reporting the length of time that they knew of their pregnancy, a minority of women with denial of pregnancy (31%), compared with a majority of women with concealment of pregnancy (72%), had known about their pregnancy for more than 1 month ($p<0.05$). Among mothers who denied pregnancy, one-fourth presented to the hospital for abdominal pain, and one-fifth (19%) for vaginal bleeding; 45% presented with other signs of pregnancy, such as eclampsia or back pain. The women concealing pregnancy presented for similar reasons. Several women each with denial and concealment of pregnancy, delivered precipitously, after less than 1 hour of labor. Four women (6%) with denial of pregnancy delivered at home, as did three women (15%) who concealed pregnancy. The overwhelming majority of the women gave birth in the hospital, despite their lack of prenatal care. Four women (6%) with denial of pregnancy reported having used birth control (three with hormonal methods and one with barrier) at conception, whereas another woman reported that she had abstained from intercourse in the previous year. One woman (5%) who concealed pregnancy reported being status post-tubal ligation procedure.

Mental retardation was diagnosed in four women (6%) with denial of pregnancy, and one mother with concealment of pregnancy was noted to appear "slow." Six (10%) and three (15%) of the women, respectively, had positive urine toxicology screens for the presence of illicit drug metabolites at delivery. Psychiatry consultation was rarely requested for either denial or concealment of pregnancy (only one request among mothers with denial and three requests among mothers who concealed) during the immediate postpartum period. Four of the women with denial of pregnancy (6%) and five of those concealing pregnancy (20%) had a documented history of mood disorder. Infants were removed from maternal custody at hospital discharge

TABLE 1. Demographics of Women With Denial and Concealment of Pregnancy

Variable	Denial (N = 61)	Concealment (N = 20)	p
Age, years			NS
≥30	11 (18%)	2 (10%)	
18–29	36 (59%)	10 (50%)	
<18	14 (23%)	8 (40%)	
Race			NS
White	6 (10%)	1 (5%)	
Black	53 (88%)	19 (95%)	
Living situation			NS
With mother	28 (46%)	6 (33%)	
Alone	12 (20%)	6 (33%)	
With others	21 (34%)	6 (33%)	
Unknown	0	2 (1%)	
Location of other children			NS
Maternal custody	27 (61%)	6 (50%)	
Support noted			NS
Mother	40 (71%)	13 (68%)	
Father	7 (13%)	2 (11%)	
Father of baby	28 (50%)	6 (32%)	
Other	28 (50%)	11 (58%)	
High school completed	33 (66%)	9 (45%)	NS
Employment			0.0429
Employed	23 (42%)	3 (15%)	
Student	14 (23%)	10 (50%)	
Unemployed	18 (30%)	7 (35%)	
History of abuse	4 (8%)	2 (12%)	NS

TABLE 2. Pregnancy and Delivery Data for Women With Denial or Concealment of Pregnancy

	Denial (N = 61)	Concealment (N = 20)	p
Gravida			NS
1	16 (26%)	7 (35%)	
>1	45 (74%)	13 (65%)	
Pregnancy loss history	12 (20%)	3 (15%)	NS
Awareness of pregnancy prior to delivery			0.0322
Within weeks	24 (69%)	3 (27%)	
>1 month	11 (31%)	8 (72%)	
Data missing	26	9	
Reason for hospital presentation			NS
Abdominal pain	13 (25%)	4 (22%)	
Vaginal bleeding	10 (19%)	2 (11%)	
Other: symptoms/signs of pregnancy	24 (45%)	11 (61%)	
Other	6 (11%)	1 (6%)	
Psychiatry consult requested	1 (2%)	3 (15%)	0.0447

TABLE 3. Stepwise-Selection Model (Dependent Variable: Reason for No Prenatal Care: Denial of Pregnancy)

	Estimate	Standard Error	$p > \chi^2$	Point Estimate	95% Wald Confidence Limits
Intercept	1.2690	0.4141	0.0022		
Previous pregnancies: any	0.9407	0.4757	0.0480	6.562	1.017–42.346
Length of time pregnancy noted: >1 month	–1.2780	0.4844	0.0083	0.078	0.014–0.518

in 13 cases of denial of pregnancy (22%) and 7 cases of concealment (39%).

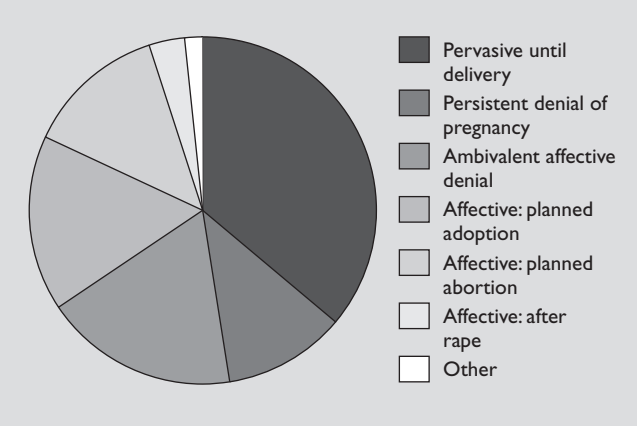
Model for Denial and Concealment of Pregnancy

Table 3 shows the logistic model for denial of pregnancy. Results of the logistic model were confirmed by both a backward-selection model and a best-subsets selection model, with and without use of the variable regarding "length of noting pregnancy," because of missing data. Only two of the studied variables were independently significantly associated with the outcome in the stepwise-selection model: the number of pregnancies and the documented time that the mother reported knowing of the pregnancy. In the backward-selection model, we also found that the variable for employment was significantly associated with denial of pregnancy.

Subtypes of Denial and Concealment of Pregnancy

Subjects who denied pregnancy were separated into the types of denial of pregnancy described by Miller.[1] We further subcategorized by apparent subtypes, shown in Figure 1. Of the 61 cases of denial of pregnancy, 22 women (36%) had "pervasive denial" of pregnancy; 7 (11%) women experienced denial of pregnancy that was persistent until their third trimester, at which time the women did note pregnancy, yet did not obtain prenatal care.

FIGURE 1. Subtypes of Denial of Pregnancy



"Affective denial" occurred in 52% (32 patients). On the basis of the reasons reported by these women, the following subtypes of affective denial of pregnancy emerged: ambivalent affective denial (N = 11; 18%); affective denial with plans for adoption (N = 10; 16%); failed plan to procure abortion, with subsequent affective denial (N = 8; 13%); affective denial after rape (N = 2; 3%); and other (N = 1; 2%). No cases of psychotic denial of pregnancy occurred within this sample.

Concealment of pregnancy was also further subcategorized: 14 women (70%) concealed their pregnancy until delivery, and 6 women (30%) denied their pregnancy until their third trimester, with subsequent concealment until delivery. One woman who concealed her pregnancy reported that her pregnancy resulted from rape.

Women with affective denial were significantly more likely than those with pervasive denial to have had a previous pregnancy ($p = 0.0017$); have another living child ($p = 0.0002$); and not live with their mother ($p = 0.0122$). Also noted was a trend toward a greater likelihood of unemployment in the women with affective denial, as opposed to those with pervasive denial ($p = 0.0559$). Women who concealed throughout pregnancy were significantly more likely than those who denied until the third trimester, and then concealed, to have another living child ($p = 0.0181$) and not live with their mother ($p = 0.0112$).

DISCUSSION

This study of women with no prenatal care comprehensively describes characteristics of women with denial and/or concealment of pregnancy. The results of this retrospective study of peripartum women who denied or concealed pregnancy and received no prenatal care were somewhat unanticipated. Contrary to our hypotheses, women with denial or concealment of pregnancy were predominantly over the age of 18 and were multigravidas. They were primarily students or employed. Women with denial of pregnancy were primarily high school graduates. More than half of the women noted that their mothers were sources of support, whereas only half or fewer noted support from the father of the baby. Women with concealment of pregnancy

were aware of their pregnancy earlier than women with denial of pregnancy. Again, contrary to our hypothesis, abuse histories were not commonly noted. Perhaps the most striking finding was that for women who either denied or concealed pregnancy, psychiatry consultation was rarely requested, although infants were frequently discharged to the care of mothers who had denied or concealed their existence until birth.

An earlier inquiry[11] into denial of pregnancy at our medical center noted "the lack of attention to the phenomenon of pregnancy-denial mirrors the silent stance of these patients." Women's mothers, as well as their physicians, also appeared to join in their denial. The German study previously noted found that the median maternal age was 27 years and that one-third of their sample were primigravida.[7,8] A French study of 22 women with denial of pregnancy found that the phenomenon was most common among young primigravidas; also, one-fifth had been abused.[12] In contrast, the majority of mothers with denial of pregnancy in our sample were in their twenties and were not primigravidas, an unexpected finding. A history of abuse was noted in only a few women, although it may not have been routinely or carefully queried and, therefore, was not noted in the medical records.

In an Austrian sample,[13] many women experienced menstruation-like bleeding, minimal weight gain, and no nausea; a few took oral contraceptives during pregnancy. In the French study,[12] symptoms of pregnancy, when noticed, were rationalized and attributed to other causes. Similarly, in our sample, several women continued to use birth control throughout pregnancy, and the reasons for hospital presentation in some cases revealed a surprising lack of consideration of pregnancy as the possible cause of symptoms.

Psychiatric problems frequently complicate the denial of pregnancy. Of 27 Austrian women with "disavowal of pregnancy,"[13] 11 women experienced pervasive denial until delivery. Almost half of their sample (48%) had some documented mental disorder, and three (10%) were mentally retarded. The German study[7,8] included 65 women with denial of pregnancy, including 3 with schizophrenia, 2 with personality disorders, 3 with diminished intelligence, and 5 with substance-use disorders. In our sample, among women with denial of pregnancy, 4 (6%) had had previous mood disorder diagnoses; however, psychiatry consultation was requested only once. It is unlikely that the lack of formal psychiatric care in this American sample is due to an actual absence of psychiatric/psychological problems. It seems more likely to indicate an important missed opportunity for psychiatric intervention.

Clearly, women who deny or conceal pregnancy are often experiencing a severe form of psychological conflict. Niefert and Bourgeois[2] urged, "If we are fortunate enough to identify these women before delivery, it is imperative that intensive psychosocial counseling be arranged (p 568)." In our sample, very few women were referred to mental health services, even though denial persisted through delivery. It is our belief that women who have denied or concealed their pregnancies should routinely be referred for mental health evaluation, in addition to potential evaluation for parenting capacity.[1] Mental health assessment and appropriate treatment in this setting is likely to be beneficial to the health and adjustment of both mother and child.

Interestingly, in the Austrian sample, women often accepted their pregnancy after viewing prenatal ultrasound images.[13] Ultrasound may prove helpful when treating a woman with a propensity for affective denial of pregnancy. Women who change their mind after planning to abort should be strongly encouraged to seek prenatal care. Identified rape victims should be encouraged to either seek prenatal care or abortion services.

Physicians should consider the possibility of denial or concealment of pregnancy in young women presenting with complaints of nausea, weight gain, and abdominal symptoms, with or without amenorrhea.[2,14] Obviously, denial or concealment of pregnancy is unlikely to be a problem encountered by obstetricians early in patients' pregnancy. Therefore, prevention of this problem depends on other health professionals' (pediatrics, emergency medicine, internal medicine, and family practice) awareness and on the general education of the community. Except for some of the women who presented to the hospital with apparently unrelated physical complaints, the majority of women in our sample recognized that they should come to the hospital at the time of delivery. Why, then, did these women think that presenting to a hospital for their delivery was important when they apparently did not think that presenting before delivery for prenatal care was important? Future studies may shed some light on this paradox.

A lack of prenatal care because of denial or concealment of pregnancy should be seen as a "red flag" that automatically triggers consideration of referral for psychiatric assessment, evaluation of parenting ability, and social work assessment. Although routine drug screens are obtained on women with no prenatal care, they are not routinely screened for other mental health concerns. We need to in-

volve mental health clinicians more routinely in treatment-planning for women who have denied or concealed their pregnancies. Many cases in this sample came to the attention of the obstetrics team, but not to the attention of any mental health professional.

Methodological Issues

Strengths of this study include a systematic approach to case-identification, the comparatively large sample size, and explicit definition of diagnostic categories. Our study specifically identified mothers exhibiting a denial of pregnancy within a subset of mothers presenting at delivery with no prenatal care. Some previous studies have not specifically or carefully defined the term "denial of pregnancy." Earlier studies have combined in their sample women who received late prenatal care and those with a complete lack of prenatal care. These factors probably influenced previous study conclusions. In contrast, our sample size may have been limited by the exclusion of women with an affective denial of pregnancy, who sought prenatal care late in pregnancy when their awareness of the overwhelming physical changes associated with pregnancy no longer allowed them to deny reality. This would result in the underrepresentation in our study of women with an affective denial of pregnancy, perhaps weighting the validity of our conclusions toward women with "pervasive denial of pregnancy."

Because this study was a retrospective review of medical records, data quality was not ideal. The actual frequency of women who did not obtain prenatal care and who denied or concealed pregnancy is likely higher than what we found because some women never present to a hospital, and some neonaticides are never discovered. A second portion of the study was planned, with a follow-up telephone interview regarding parenting behavior and experience. However, of 60 women contacted for the study, only 2 responded.

SUMMARY

Women exhibiting denial or concealment of pregnancy present a distinct clinical challenge for all healthcare professionals, but especially obstetricians, psychiatrists, and social-service providers. This study provides documentation that the problem exists. Healthcare professionals appear to be relatively insensitive to the idea of using the occurrence of this denial or concealment as an interventional trigger for psychiatric assessment. Accurate early identification of at-risk individuals could potentially improve rates of appropriate prenatal care and allow for psychiatric and social interventions to prepare these women for successful motherhood.

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