Brief Report: Factors Associated With Attrition Rate in a Supportive Care Service for Substance Using Pregnant Women in Brazil

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Background and Objectives: Retaining substance using women in antenatal care remains a major challenge. This study explored factors associated with attrition rate among women with substance use problems attending a supportive care service during pregnancy and soon after the birth of the infant.
Methods: Records of 166 women's antenatal consultations were analyzed.
Results: Attrition rate was high (75/166, 45.2%), and was associated with women having no schooling/primary schooling only, no family contact, having child(ren), crack-cocaine use, poly drug use, and substance use problems by the expected child's father.
Discussion and Conclusions: Attrition may be the outcome of socio-demographic, family, individual, and substance use issues not fully addressed in prenatal interventions.
Scientific Significance: Identification of who are at risk for dropping out affords services with an opportunity to prevent its occurrence. (Am J Addict 2017;XX:1–4)

INTRODUCTION

The population of women who use substances during pregnancy is growing and with complex needs.[1] Several physiological and psychological infant complications associated with in-utero substance exposure have been reported, including congenital anomalies, developmental lags and language problems, and emotional/behavioral and attention difficulties.[2] The experience of foster or kinship care

placement is highly common among children who have experienced in-utero substance exposure.[3] The prenatal period is an important time to provide services that encourage substance use recovery and associated factors of stability that facilitate mother-infant relation.[4] However, retaining substance using women in antenatal care remains a major challenge, with evidence suggesting that attrition rates in intervention trials may vary between 9.3% and 63%.[5,6] Studies on substance use among pregnant women in Brazil are limited.[7] Studies conducted elsewhere suggest that low education, young age, single marital status, lack of family and peer support, residential instability, and co-occurrence of psychiatric comorbidities are among the factors related with dropping out.[8,9] Currently, there is no evidence of the extent to which pregnant women in Brazil are engaging in antenatal care, or what factors are associated with attrition rates in such services.

In this study, we explored a population of substance using pregnant women who were referred to Amparo Maternal in the city of São Paulo, Brazil, to receive supportive care during the prenatal phase and soon after the birth of the infant. The Amparo Maternal is a care coordination program run by the Brazilian Public Health System (SUS) that provides under-privileged pregnant women a safe place to give birth. In response to the increased number of women who misuse substances and live in the streets in Brazil,[10] Amparo Maternal had become the main referral service for substance using pregnant women who live in the streets of the city of São Paulo. In addition to the obstetrical care, Amparo Maternal provides free shelter with housing, meals, leisure activities, professional training, psychiatric/psychological care, nursing, substance use treatment, and social support to pregnant women up to 6 months after birth. The only eligibility criteria

involve voluntary agreement to join the program. Despite this being an integrated and free service, the number of women who drop out of the program is a concern.

The purpose of this study was to (a) explore the attrition rate of substance using pregnant women attending a supportive care service in Brazil (Amparo Maternal); and (b) determine factors associated with attrition rate. The current study is an initial attempt to address the gap in the literature regarding substance using pregnant women attending services designed to support them in Brazil.

METHODS

A retrospective case-control study of pregnant women with substance use problems was performed. Data came from records from antenatal consultations in Amparo Maternal of women referred to the service between 2013 to June 2015. Of the 194 patients who were referred to Amparo Maternal with substance use problems, 166 patients (85.6%) had data available of their first and last consultation in the program and thus met the criteria for inclusion in this study. Ethical approval to conduct this study was granted by the Federal University of São Paulo.

Assessment

Information on participants' age, race, relationship status, employability, education, religious faith, and number of children alive were collected. Participants were asked to report age of onset for licit and illicit substances, which drug(s) they had used daily, and which drug(s) they were using at the time of the consultation. Poly drug use was defined as consuming more than one type of drug not including alcohol or tobacco. Participants were also asked to report whether they had been in abstinence of any substance for more than a week. Two forms of abstinence were defined: (a) not consuming any illicit substance; and (b) not consuming substance(s) apart from alcohol and/or tobacco. It was also asked whether the father of the expected child had substance use problems and whether the participant had a close family relative with substance use problems. Family contact was established by reports of having a family relative as a form of further contact. Mental health comorbidity was measured by reports of psychiatric assessment. Attrition was defined by dropping out the program at any stage.

Data Analysis

Descriptive statistics were calculated using frequencies and percentages for categorical data, and means and standard deviations for continuous data. Differences were assessed using t-tests for continuous data and chi-square tests for categorical data. Odds ratio (OR) and confidence intervals (95%) were calculated using a logistic regression analysis. Variables with cell counts of ≥ 10 and $p \leq .2$ in the univariate analyses were entered into separate backward stepwise binary logistic regression analyses to ascertain variables associated with attrition rate.

RESULTS

The mean age of participants was 26.4 years (SD 5.9, range 13–41) and average pregnancy duration was 3.3 months (SD 10.6) at the time of the first consultation. The majority of participants was non-white (55.4%), had a religious faith (74.1%), had no schooling or primary schooling only (71.1%), and were unemployed (75.3%). Only 18.1% of participants were currently married or in a civil partnership. The most commonly used illicit drugs were cocaine (69.9%), cannabis (67.5%) and crack-cocaine (56.6%), and 83.7% reported poly drug use. At the time of the first consultation 60.8% of participants reported smoking tobacco, 18.7% reported drinking alcohol, 18.1% reported using crack-cocaine, 15.1% cannabis, 12.7% cocaine, and 6% poly drug use. Over a quarter of the sample reported being in abstinence of any substance at the time of the consultation (28.3%) and 42.8% reported being in abstinence of illicit substances but continue with drinking and/or smoking.

Variables Associated With Attrition Rate

Attrition rate was high (75/166, 45.2%). The average length of time for dropping out the program was 34.4 (SD 7.8) days after first consultation. Univariate analysis (Table 1) revealed that the odds of women dropping out the program were over three times greater for those who had no family contact (OR 3.28, 95%CI 1.73, 6.21), 2.60 times greater among those with no schooling or primary schooling only (95%CI 1.27, 5.34), 2.38 times greater among those with child(ren) (95CI% 1.11, 5.10), 2.09 times greater for those who had used crack-cocaine daily (95%CI 1.10, 3.95) and 2.79 times greater among those who reported poly drug use daily (95%CI 1.05, 7.45). In multivariate analysis (Table 1), three factors remained significant in the model to determine factors associated with attrition rates: having no family contact, the child's father having substance use problems, and daily poly drug use.

DISCUSSION

Our findings show that rates of attrition among substance using pregnant women attending a supportive care service in São Paulo, Brazil, was high. 45.2 percent of women who had their records analyzed in the current study had dropped out the program. This figure is similar to a randomized prenatal trial among pregnant substance users conducted in France[6] and considerably higher than the 9.3 percent prevalence reported in a sample in Canada.[5] Results also show that, from the time of the first consultation it took an average of 1 month from the substance using pregnant women to drop out from the program.

TABLE 1. Factors associated with attrition from a neonatal care service: univariate and multivariate analyses

Univariate analyses	Attrition			
	No $N=91$	Yes $N=75$	p	OR (95%CI)
Demographics				
Age (mean [SD])	26.66 (5.9)	26.07 (5.8)	.519	.98 (.93, 1.03)
Non-white	55 (67.1%)	37 (60.7%)	.460	.73 (.36, 1.46)
Had a religious faith	67 (77.0%)	56 (80.0%)	.651	1.19 (.55, 2.58)
No/primary schooling only	57 (62.6%)	611 (81.3%)	**.008**	2.60 (1.27, 5.34)
Unemployed/receiving benefits	66 (72.5%)	59 (78.7%)	.361	1.40 (.68, 2.86)
Pregnancy time (month) (mean [SD])[a]	3.11 (1.9)	3.6 (1.9)	.093	1.15 (.97, 1.36)
Family relation				
Married/civil partnership	17 (18.7%)	13 (17.3%)	.906	1.05 (.47, 2.35)
No family contact	32 (35.2%)	48 (64.0%)	**<.001**	3.28 (1.73, 6.21)
Child's father had substance use problems	52 (57.1%)	52 (69.3%)	.106	1.70 (.89, 3.22)
Close family relative(s) with substance use problems	47 (57.3%)	35 (56.5%)	.917	.96 (.50, 1.88)
Alive child(ren)	59 (67.0%)	58 (82.9%)	**.024**	2.38 (1.11, 5.10)
Number of alive child(ren)	1.6 (1.6)	1.9 (1.6)	.250	1.12 (.92, 1.37)
Substance use				
Age onset for alcohol and/or smoking (mean [SD])	11.88 (7.0)	12.45(6.6)	.598	1.01 (.98, 1.06)
Age onset for illicit drug(s) (mean [SD])	16.28 (6.8)	15.83 (7.6)	.695	.99 (.95, 1.04)
Substance used daily				
Alcohol	57 (63.3%)	36 (49.3%)	.072	.99 (.95, 1.04)
Smoking	71(78.9%)	64 (87.7%)	.139	1.90 (.80, 4.51)
Cannabis	60 (66.7%)	52 (71.2%)	.532	1.24 (.63, 2.42)
Cocaine	67 (74.4%)	49 (67.1%)	.305	.70 (.35, 1.38)
Crack-cocaine	45 (49.5%)	49 (67.1%)	.023	2.09 (1.10, 3.95)
Glue	7 (7.8%)	5 (6.8%)	**.821**	.87 (.26, 2.87)
Inhalants	17 (18.7%)	11 (15.1%)	.520	.76 (.33, 1.75)
Poly drug use	72 (80.9%)	67 (89.3%)	**.043**	2.79 (1.05, 7.45)
Substance used at arrival[a]				
Alcohol	17 (18.7%)	14 (18.9%)	.969	1.02 (.46, 2.23)
Smoking	53(58.2%)	48 (64.9%)	.385	1.32 (.70, 2.94)
Cannabis	14 (15.4%)	11 (14.9%)	.926	0.96 (.47, 2.26)
Cocaine	13 (14.3%)	8 (10.8%)	.505	.73 (.28, 1.86)
Crack-cocaine	12 (13.2%)	18 (24.3%)	.065	2.12 (.94, 4.74)
Poly drug use	5 (5.5%)	5 (6.7%)	.752	1.23 (.34, 4.41)
Abstinence	25 (35.2%)	23 (47.9%)	.166	1.69 (.80, 3.57)
Abstinence illicit drugs only	46 (66.7%)	25 (35.2%)	.112	.54 (.25, 1.16)
Mental health				
Prescribed psychiatry drug(s)	27 (29.7%)	22(29.7%)	.993	1.00 (.51, 1.96)

Multivariate analyses[b]	OR (95%CI)
No family contact	4.02 (1.68, 9.65)
Child's father had substance use problems	2.74 (1.06, 7.03)
Poly drug use problems in life	18.50 (2.12, 161.15)
R^2	.29
Model fit	.367

Nagelkerke R square was used to test R^2 and Hosmer and Lemeshow test to check the goodness of the model fit.

Bold indicates statistically significant associations ($p < .05$).

[a]At the time of the first appointment. [b]Variables entered: no/primary schooling only, no contact with family, pregnancy time at arrival, child's father substance use problems, alcohol use in life, smoking, crack-cocaine, poly drug use, abstinence, and abstinence of illicit drugs only.

Participants who dropped out of the program were more likely to have had no contact with their family, had no or primary schooling only, had at least one child alive, had used crack-cocaine and multiple drugs daily, and had the expected child's father as a substance user. These findings are in line with previous studies conducted in other countries[6,8,9] and suggest that there is no single factor that explains attrition rate. Instead, it highlights that attrition may be the outcome of the interaction of socio-demographic, family, and individual characteristics in which crack-cocaine and poly drug use may moderate the impact of the other factors. It may well be that despite providing shelter, social, and psychological/psychiatric support, supportive care interventions aimed at improving prenatal outcomes among pregnant women who use substances are missing the opportunity to integrate pivotal characteristics that could improve engagement with services. Further work is needed to identify forms of addressing these factors in prenatal interventions in Brazil.

Our study has limitations. First, the sample size was relatively small, although findings were generally robust. Second, only accessing and analyzing women's appointment records limited the number of risk factors to be explored. Finally, the majority of women who were referred to Amparo Maternal were from lower socioeconomic classes. It is unclear how these findings would apply to women who were receiving care in other services and from other social classes.

Scientific Significance

Understanding the reasons for women dropping out a prenatal care is a complex and multifaceted issue for services. To our knowledge, this is the first study to examine factors associated with drop out in a care service that is specialized in supporting pregnant women with substance use problems in Brazil. Our findings on associated factors suggests that interventions in the prenatal phase among substance using populations could be improved not only by a better understanding of the epidemiology of substance use and the outcomes of in-utero substance exposure, but also by distribution of information to health care professionals about who are the women more likely not to engage in prenatal care. Indeed, this would be a valuable avenue for future research and application. Important also, is the needed to offer specialized assistance during the 1st month in the program. Interventions applied in substance use treatment settings elsewhere, such as motivational interviewing and contingency management, have shown promising outcomes in improving treatment retention.[11,12] The factors associated with attrition rate in the present study could be used to support the optimization of these interventions when implemented in services aimed at supporting women who use substances throughout the perinatal phase in Brazil.

CONCLUSIONS

Early identification of substance using pregnant women who are at risk for dropping out prenatal care affords services with an opportunity to intervene in order to prevent its occurrence. Our findings identified a set of risk factors for dropping out a supportive care service, and highlight the need for further examination of how these factors could be addressed through the Brazilian public health system to improve the engagement between substance using pregnant mothers and services.

Declaration of Interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this paper.

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