

A B S T R A C T

Canadian data on prenatal exposure to alcohol, tobacco, psychoactive drugs, and caffeine are sparse. This study presents prevalence rates in Saskatoon for these four risk behaviours during the first trimester of pregnancy and their associations with sociodemographic factors. Personal interviews were conducted with 605 pregnant women (83% participation rate). The most commonly used substance was caffeine (87%), followed by alcohol (46%), tobacco (30%), and psychoactive drugs (7%). Overall, 36% of women reported using two substances, 16% three, and 4% all four substances. In general, risk behaviours were more prevalent among women with lower education and income levels, Aboriginal or Métis background, those not living with a partner, those with previous births, and, in some cases, younger women. The findings illuminate the needs of particular groups of pregnant women and the importance of understanding maternal risk behaviour within the structural and cultural realities of women's lives.

A B R É G É

Il y a peu de données sur l'exposition prénatale à l'alcool, au tabac, aux médicaments psychotropes et à la caféine au Canada. Cette étude présente les taux courants de prévalence à Saskatoon de ces quatre comportements à risque pendant le premier trimestre de la grossesse et leurs associations aux facteurs sociodémographiques. Des données ont été recueillies auprès de 605 femmes enceintes (taux de participation de 83 %) à l'aide d'entretiens personnels. La caféine était le produit le plus utilisé (87 %), suivi par l'alcool (46 %), le tabac (30 %), et les médicaments psychotropes (7 %). En tout, 36 % des femmes ont admis l'utilisation de deux de ces produits, 16 % de trois et 4 % de tous les quatre. En général ces comportements à haut risque sont plus répandus parmi les femmes avec de bas niveaux de scolarité et de revenu, d'origine autochtone ou Métis, ne vivant pas avec un partenaire, ayant eu des accouchements et, dans certains cas, d'un jeune âge. Ces résultats font ressortir les besoins de certains groupes de femmes enceintes et l'importance de comprendre le comportement à haut risque des mères à travers les réalités structurelles et culturelles de la vie des femmes.

Prevalence and Predictors of Health Risk Behaviours During Early Pregnancy: Saskatoon Pregnancy and Health Study

Nazeem Muhajarine, PhD,¹ Carl D'Arcy, PhD,² Lindsay Edouard, FRCOG¹

Prenatal exposure to alcohol, tobacco, psychoactive drugs, and possibly caffeine has been linked to such adverse outcomes as miscarriage,¹ prematurity,² low birth-weight,^{3,4} neonatal mortality,^{5,6} congenital malformations,^{7,8} and developmental problems.⁹⁻¹¹ Promoting maternal and child health requires information on the prevalence of substance use during pregnancy, as well as identification of groups at highest risk. At present, Canadian data on these risk behaviours are limited.

The Saskatoon Pregnancy and Health Study (SPHS), which began in 1993, is a longitudinal study examining the determinants and consequences of risk behaviour during pregnancy. This article describes the baseline characteristics of the study sample and presents prevalence rates and sociodemographic correlates of four risk behaviours, separately and in combination, during the first trimester of pregnancy.

1. Department of Community Health and Epidemiology, University of Saskatchewan
2. Applied Research/Psychiatry, University of Saskatchewan

This paper is based on a project initially funded by the Health Services Utilization and Research Commission, Saskatchewan, and continued with support from the National Health Research and Development Program (NHRDP), Health Canada. Dr. Muhajarine wishes to acknowledge the support of a National PhD fellowship from NHRDP, Health Canada.

Correspondence: Dr. Carl D'Arcy, Applied Research, Royal University Hospital, 103 Hospital Drive, Saskatoon, Saskatchewan, S7N 0W8, Phone: (306) 966-8767, Fax: (306) 966-8774, E-mail: darcy@usask.usask.ca

Reprint requests to: Dr. Nazeem Muhajarine, Department of Community Health and Epidemiology, University of Saskatchewan, 107 Wiggins Road, Saskatoon, Saskatchewan, S7N 5E5, Phone: (306) 966-7940, Fax: (306) 966-7920, E-mail: muhajarinen@usask.usask.ca

METHODS

Study population

Respondents were recruited from the population of women receiving either of two prenatal services—prenatal classes, or an outreach program for high-risk pregnant women¹²—from the Saskatoon Community Health Unit. Together, these services reach a diverse group of pregnant women in Saskatoon, in which primiparous women are disproportionately represented.

Recruitment

All women registering for prenatal classes or making contact with the outreach program between April 1, 1993 and March 31, 1994, who were between their fourth and seventh months of pregnancy were approached to take part in the study. All eligible women were sent a letter and pamphlet describing the study, then contacted by telephone to arrange an interview. Of the 728 women deemed eligible, we were unable to reach 14; of the remainder, 605 gave informed consent and completed the initial interview (83% participation rate). Interviewers completed a brief questionnaire with those who refused to participate.

Sample size calculations¹³ indicated that 600 subjects would be sufficient to estimate the proportions of risk behaviours during pregnancy in the range of 5% to 45% with a 95% probability that these estimates would be within 3.0% to 4.5% of the population values.

Interviews

Personal interviews were conducted by four trained female interviewers, who recorded data directly into a laptop computer using a computer-assisted personal

interview (CAPI) program.¹⁴ The CAPI procedure was uniformly well received by the participants.

Questionnaire

Participants were asked about their use of alcohol, tobacco, psychoactive drugs, and caffeine for two time periods: during the three months immediately before they knew they were pregnant (pre-pregnancy) and in the first trimester of pregnancy.

Alcohol use. Alcohol consumption was measured by a modification of the quantity-frequency questions developed by Day et al.¹⁵ For each beverage (beer, wine, and hard liquor), respondents reported their usual quantity and frequency of intake, and style of drinking. From this information an average daily volume (ADV) score was developed.

Cigarette smoking. Participants were asked whether they currently smoked cigarettes and, if so, the number of cigarettes smoked daily. Ex-smokers were asked when they had quit, and if during pregnancy, the week in pregnancy they had stopped, and the number of cigarettes usually smoked before quitting.

Psychoactive drug use. Respondents were asked whether they had used any psychoactive drugs and, if so, to indicate from a list the type(s) used.

Caffeinated beverage use. Quantity and frequency of consumption of coffee, tea, and caffeinated soft drinks were assessed using a parallel format to the alcohol questions.

Sociodemographic information was also collected (age, education, income, marital status, ethnic/cultural identity, and parity). Household income and number of persons in household were cross-classified to create a 5-level ordinal variable measuring income adequacy.¹⁶

Data analysis

Bivariate analysis tested associations between risk behaviour during pregnancy and sociodemographic variables (chi-square statistics).

Next, logistic regression analysis was conducted to examine the multivariate relationships between the sociodemographic variables and each risk behaviour. Each behaviour was coded as a dichotomous variable: those reporting having used a sub-

stance were coded as 1 and abstainers were coded as 0. (For smoking, "users" included those who had quit after becoming pregnant.) Dummy variable coding was used for categorical independent variables with the reference category chosen to represent the lowest expected risk of behaviour. The assumption of linear relationships between each risk behaviour and independent variables was examined using the -2 log-likelihood chi-square statistic, and where appropriate the final models were re-estimated using the correct scale of the variables.¹⁷ Thus, the income adequacy variable was modeled as a dichotomous variable for predicting alcohol use, and as a continuous ordinal variable for psychoactive drug use.

We used normalized sample weights in the analysis of these data. The sampling weight is the inverse of the probability of selection, which is represented by the proportion of the actual number of respondents in each age category among the total targeted population in that same age category. Age-specific counts of all women giving birth in 1992-93 in Saskatoon were obtained from Saskatchewan Vital Statistics. Sample weights assigned to each respondent were divided by the mean sample weight to adjust for differing sampling probabilities. This procedure has the effect of re-weighting the sample to approximate the population distribution, while maintaining the study sample size as the total number of observations used in the analysis.

RESULTS

Participation

Participants did not differ significantly from non-participants in terms of age, education, perceived health, parity, or whether they had seen a doctor during their pregnancy. However, those who participated were slightly more likely to be homemakers or out of the work force ($p < 0.05$).

Compared with all women giving birth in Saskatoon during 1992-93, study participants tended to be younger and were more likely to have had no previous births (both $p < 0.001$).

Sample characteristics

Table I presents the sociodemographic characteristics of the study group. One

TABLE I
Characteristics of the Study Population, Saskatoon Pregnancy and Health Study, 1993-94 (n=605)

	No.	(%)
Age (years)		
19 or less	47	(7.8)
20-24	130	(21.5)
25-29	187	(30.8)
30-34	176	(29.1)
35 plus	65	(10.8)
Marital Status		
Married/common-law	485	(80.2)
Not married/not common-law	120	(19.8)
Educational Status		
Grade school (1-8 yrs)	15	(2.5)
High school (9-12 yrs)	266	(43.9)
Postsecondary (13+ yrs)	324	(53.6)
Income Adequacy		
Lowest	99	(16.8)
Lower middle	108	(18.3)
Middle	113	(19.2)
Upper middle	197	(33.4)
Highest	73	(12.3)
Ethnic Background		
Non-aboriginal	410	(67.8)
Aboriginal or Métis	90	(14.8)
Other	105	(17.4)
Parity		
Primipara	424	(70.0)
Multipara	181	(30.0)

Note: 15 subjects had missing values for income variable.

fifth of the respondents were neither married nor living common-law, 46% did not have postsecondary education, and 54% were in the three lowest income adequacy groups. The study group was ethnically heterogeneous, 15% identifying themselves as being of Aboriginal or Métis ancestry. Primiparous women constituted 70% of respondents.

Prevalence and level of risk behaviour

Table II shows total and age-specific prevalence rates for each risk behaviour during pregnancy. A substantial proportion of women reported engaging in each behaviour, except psychoactive drug use. The most commonly used substance was caffeine (87%); however, relatively fewer women (14%) consumed more than the equivalent of three cups of coffee per day. About 46% reported drinking alcohol, with almost three quarters of these having fewer than two drinks a week on average. Almost a third smoked, of whom 52% smoked fewer than 10 cigarettes daily. About 7% of women reported psychoac-

TABLE II
Prevalence of Each Risk Behaviour During First Trimester by Age, Saskatoon Pregnancy and Health Study, 1993-94

Age (years)	%Alcohol use*				%Cigarette smoking†			%Psychoactive drug use‡			%Caffeine use‡					
	None	Light (ADV 0.01-0.39)	Moderate (ADV 0.40-0.89)	Heavy (ADV 0.90+)	None	Light (1-9/day)	Moderate (10-19/day)	Heavy (20+ /day)	None	One	Two or more	None	Light (1-150 mg/day)	Moderate (151-299 mg/day)	Heavy (300+ mg/day‡)	No.
≤19	51.1	31.9	6.3	10.6	36.2	42.5	14.9	6.4	78.7	14.9	6.4	6.4	68.1	14.9	10.6	47
20-24	53.1	29.2	7.7	10.0	58.5	22.3	12.3	6.9	89.2	8.5	2.3	9.2	64.6	11.5	14.6	130
25-29	55.6	32.6	9.1	2.7	74.3	16.0	7.5	2.1	95.2	4.3	0.5	15.0	61.5	12.8	10.7	187
30-34	56.8	32.9	5.1	5.1	80.7	7.4	9.1	2.8	96.6	2.8	0.6	15.9	63.1	11.9	9.1	176
≥35	46.1	41.5	6.2	6.2	72.3	4.6	13.8	9.1	96.9	3.1	-	7.7	33.8	18.5	40.0	65
Overall %	54.0	32.9	7.1	6.0	69.6	15.7	10.2	4.5	93.2	5.5	1.3	12.6	60.2	13.0	14.2	100.0

* Average Daily Volume (ADV): 0.01-0.39, equivalent to ≤2 drinks per week; 0.40-0.89, 3-6 drinks per week; 0.90+, ≥7 drinks per week. A standard drink is defined as 12 ounce can of beer or 1 ounce glass of hard liquor, or 5 ounce glass of wine.
† Chi-square test, p<0.001
‡ 300 mg of caffeine is equivalent to approximately 3 cups of coffee, 5 to 6 glasses of soft drinks, or 7 to 8 cups of tea.

TABLE III
Significant Sociodemographic Predictors of Each Risk Behaviour During the First Trimester, Final Logistic Regression Models

	Alcohol Use (User vs Abstainer) OR (95% CI)	Smoking (Smoker vs Non-smoker) OR (95% CI)	Psychoactive Drugs (1 or more vs None) OR (95% CI)	Caffeine Use (Heavy vs other) OR (95% CI)
Age (years)				
15-19				1.00 Reference
20-24				1.79 (0.56, 5.70)
25-29				1.91 (0.57, 6.41)
30-34				2.26 (0.63, 8.14)
35 +				7.53 (2.10, 26.94)
Marital Status				
With partner		1.00 Reference		
Without partner		2.02 (1.21, 3.38)		
Education Level (years)				
Grade school (1-8)	1.46 (0.46, 4.63)	0.90 (0.26, 3.05)	9.16 (1.90, 44.17)	4.18 (1.14, 15.33)
High school (9-12)	1.78 (1.25, 2.53)	1.80 (1.19, 2.74)	4.73 (1.58, 14.15)	1.21 (0.67, 2.17)
Postsecondary (13+)	1.00 Reference	1.00 Reference	1.00 Reference	1.00 Reference
Income Adequacy*			0.47 (0.32, 0.69)	
Lowest		9.56 (2.47, 37.00)		11.85 (1.93, 71.30)
Lower middle	1.00 Reference	11.22 (2.98, 42.20)		8.57 (1.41, 52.08)
Middle		5.22 (1.40, 19.47)		5.67 (0.97, 33.12)
Upper middle	1.89 (1.32, 2.71)	5.87 (1.64, 21.14)		3.77 (0.7, 21.16)
Highest		1.00 Reference		1.00 Reference
Ethnic Background				
Non-aboriginal	1.00 Reference	1.00 Reference	1.00 Reference	
Aboriginal or Métis	1.75 (1.05, 2.92)	3.16 (1.81, 5.49)	2.26 (1.03, 4.95)	
Parity				
Primipara				1.00 Reference
Multipara				2.03 (1.11, 3.73)

OR=Odds ratio, CI=Confidence interval.

* Scaled as a dichotomous variable (upper middle/highest vs other) for alcohol use, and a continuous ordinal variable for psychoactive drug use.

tive drug use, and most of these used only one type of drug, usually marijuana.

The prevalence of each risk behaviour, except drinking, varied with age. Psychoactive drug use was more frequently reported by younger women. For smoking and caffeine use, the associations with age were more complex. Compared with older women, younger women were

more likely to smoke; however, smokers who were 35 years or older tended to smoke more heavily. Consumption of caffeinated beverages by age had a U-shaped distribution, being more likely among the youngest and oldest women. Women 35 years or older were also more likely to consume moderate to heavy amounts of caffeine.

Sociodemographic correlates of risk behaviour

Table III reports adjusted odds ratios and their 95% confidence intervals for the statistically significant sociodemographic variables included in each of the final risk behaviour models.

Education was an important predictor of all four behaviours. Those with a grade

school education were at significantly higher risk for using psychoactive drugs and caffeine than those with postsecondary education. Income adequacy was generally inversely related to use of tobacco, drugs, and caffeine, but positively associated with alcohol use.

Individuals of Aboriginal or Métis ancestry were more likely to report alcohol use, smoking, and drug use than others. Women not living with a partner were twice as likely to smoke as others. Heavy caffeine use was associated with having had one or more previous births and being older.

Multiple risk behaviours

Table IV shows the percentages of women engaging in each possible combination of behaviours. Overall, 36% reported two risk behaviours, the most common combinations being drinking and caffeine use (24%) and smoking and caffeine use (11%). About 16% of respondents engaged in three risk behaviours, which were in almost all cases drinking, smoking, and caffeine consumption. Finally, 4% of women reported engaging in all four risk behaviours.

Sociodemographic correlates of multiple risk behaviours

As Table V shows, the factors associated with engaging in multiple risk behaviours (≥ 2 vs. 1 or 0) were having a high school rather than postsecondary education, being of Aboriginal or Métis background, and, in particular, having a lower income. Women in the two lowest income categories were over six times as likely as women with the highest income to engage in two or more risk behaviours; women of Aboriginal/Métis ancestry were over two and one half times as likely to report multiple risk behaviours as others.

DISCUSSION

This study found health risk behaviours to be fairly common among women during the first trimester of pregnancy. Of particular concern are the large numbers of women continuing to smoke (30%) and drink (46%) during early pregnancy. Even more disturbing is the fact that slightly

	No.	(%)
One Risk Behaviour Only (n=210; 34.7%)		
Alcohol use	11	(1.8)
Smoking	2	(0.3)
Psychoactive drugs	0	
Caffeine use	197	(32.5)
Two Risk Behaviours (n=219; 36.2%)		
Alcohol use & smoking	4	(0.7)
Alcohol use & psychoactive drugs	2	(0.3)
Alcohol use & caffeine use	147	(24.4)
Smoking & psychoactive drugs	0	
Smoking & caffeine use	63	(10.5)
Psychoactive drugs & caffeine use	3	(0.4)
Three Risk Behaviours (n=95; 15.7%)		
Alcohol use, smoking & psychoactive drugs	1	(0.2)
Alcohol use, smoking & caffeine use	83	(13.7)
Alcohol use, psychoactive drugs & caffeine use	6	(1.0)
Smoking, psychoactive drugs & caffeine use	5	(0.9)
All Four Risk Behaviours		
Alcohol use, smoking, psychoactive drugs & caffeine use	24	(3.9)
Abstainer from All Four Risk Behaviours	57	(9.4)

	Two or More Risk Behaviours vs One or None OR (95% CI)	
Education Level		
Grade school (1-8 years)	1.12	(0.34, 3.70)
High school (9-12 years)	1.79	(1.16, 2.75)
Postsecondary (13+ years)	1.00	Reference
Income Adequacy		
Lowest	6.57	(2.14, 20.14)
Lower middle	6.34	(2.10, 19.19)
Middle	2.86	(0.94, 8.72)
Upper middle	3.00	(1.03, 8.71)
Highest	1.00	Reference
Ethnic Background		
Non-aboriginal	1.00	Reference
Aboriginal or Métis	2.65	(1.55, 4.55)

OR=Odds ratio, CI=Confidence interval.

over one half of participants engaged in two or more risk behaviours, and one fifth engaged in three or four.

Although prenatal caffeine consumption—the most common behaviour noted here—appears less harmful than the other three risk behaviours studied, little is known about its possible interactions with other substances. Moreover, risk behaviours in general were especially prevalent among women with lower education and income levels, Aboriginal or Métis background, and in some cases, those not living with a partner, or those with previous births. Women in these circumstances are

likely to face additional threats to their well-being and have more limited resources with which to respond. The combined impact of multiple risk behaviours and stressful socioenvironmental conditions on birth outcomes has not been established; this is one of several areas that future analysis of the longitudinal data from the SPHS will address.

Our sample was not completely representative of all women giving birth in Saskatoon, but it was heterogeneous in terms of demographic characteristics as well as risk behaviours. As such, our sample is likely to be similar to many other

pregnant populations in Canadian cities, making our findings relevant to other settings.

Comparing risk behaviour prevalence rates across studies is complicated by the fact that these behaviours are embedded in the ethnocultural and socioeconomic context of each study setting. Nevertheless, it is interesting to note the similarities between our findings and those of other recent Canadian studies. For example, a population-based survey in the Ottawa-Carleton region¹⁸ found that 19% of women smoked after the first trimester, and a large population-based study of a perinatal database in Nova Scotia¹⁹ reported that 32% of women smoked at some time during pregnancy (vs. 30% in the first trimester here). Rates of psychoactive drug and caffeine use in this study were also generally in close agreement with other Canadian research.^{20,21}

In terms of the predictors of behaviour, a Canadian study²⁰ found mean caffeine consumption to increase with maternal age, but to be related negatively to education and family income—findings corroborated by our study. Correlates of prenatal drug use reported in other studies²¹⁻²³ are also consistent with our results, namely that drug use is more common among younger, unmarried, less educated women. With regard to ethnic background, U.S. studies have found prenatal drug use to be more prevalent among African-Americans,^{22,23} whereas Canadian studies of prenatal risk behaviour have examined largely Caucasian samples.^{10,18,20,21} In our study, Aboriginal and Métis ancestry were consistently associated with each of the risk behaviours examined.

Our findings indicate a continuing need for interventions to help women reduce

their use of potentially harmful substances during pregnancy. These interventions should take into account the socioeconomic and ethnocultural correlates of risk behaviour observed here, which suggest the need for multiple strategies addressing the factors underlying substance use, in order to assist women in making lasting change.

ACKNOWLEDGEMENTS

The authors gratefully acknowledge the assistance of the staff of the Saskatoon Public Health Services, project interviewers, and Michelle Cholowsky, study coordinator, at various stages of this project, and the editorial assistance of Kathryn Green in the preparation of this manuscript.

REFERENCES

1. Kline J, Stein ZA, Susser M, et al. Smoking: A risk factor for spontaneous abortions. *N Engl J Med* 1977;297:793-96.
2. Shiono PH, Klebanoff MA, Rhoads GG. Smoking and drinking during pregnancy: Their effects of preterm birth. *JAMA* 1986;255:82-84.
3. Kleinman JC, Madans JH. The effects of maternal smoking, physical stature, and educational attainment on the incidence of low birth weight. *Am J Epidemiol* 1985;121:843-55.
4. Hebel JR, Fox NL, Sexon M. Dose-response of birth weight to various measures of maternal smoking during pregnancy. *J Clin Epidemiol* 1988;41:483-89.
5. Cnattingius S, Haglund B, Meirik O. Cigarette smoking as risk factor for late fetal and early neonatal death. *BMJ* 1988;297:258-61.
6. Wilcox A. Birth weight and perinatal mortality: The effects of maternal smoking. *Am J Epidemiol* 1993;137:1098-1104.
7. Kelsey JL, Dwyer T, Holford TR, et al. Maternal smoking habits and congenital malformations: An epidemiological study. *J Epidemiol Community Health* 1978;32:102-7.
8. Hingson R, Alpert JJ, Day N, et al. Effects of maternal drinking and marijuana use on fetal growth and development. *Pediatrics* 1982;70:539-46.
9. Day N, Jasperse D, Richardson G, et al. Prenatal exposure to alcohol: Effects on infant growth and morphologic characteristics. *Pediatrics* 1989;84:536-41.
10. Fried PA, O'Connell CM. A comparison of the effects of prenatal exposure to tobacco, alcohol, cannabis and caffeine on birth size and subsequent growth. *Neurotoxicol Teratol* 1987;9:79-85.
11. Coles CD, Platzman KA, Smith IE, et al. Effects of cocaine and alcohol use in pregnancy on neonatal growth and neurobehavioural status. *Neurotoxicol Teratol* 1992;14:23-33.
12. Bell Woodard G, Edouard L. Reaching out: A community initiative for disadvantaged pregnant women. *Can J Public Health* 1992;83:188-95.
13. Lwanga SK, Lemeshow S. *Sample Size Determination in Health Studies. A Practical Manual*. Geneva: World Health Organization, 1991.
14. Wicks J, de Almeida J. MaCati 2. *CAPIDMS versions. Macintosh Assisted Personal Interviewing and Disk-by-Mail Survey System*. Bowling Green, OH: Senecio Software Inc., 1993.
15. Day NL, Robles N. Methodological issues in the measurement of substance use. *Ann NY Acad Sci* 1989;562:8-13.
16. Stephens T, Fowler Graham D. Overview. In: Health and Welfare Canada, Stephens T, Fowler Graham D (Eds.), *Canada's Health Promotion Survey 1990: Technical Report*. Ottawa: Minister of Supply and Services, 1993;4-7.
17. Hosmer DW, Lemeshow S. *Applied Logistic Regression*. New York, NY: John Wiley & Sons, 1989.
18. Stewart PJ, Potter J, Dulberg C, et al. Change in smoking prevalence among pregnant women 1982-95. *Can J Public Health* 1995;86:37-41.
19. Dodds L. Prevalence of smoking among pregnant women in Nova Scotia from 1988 to 1992. *Can Med Assoc J* 1995;152:185-90.
20. Fortier I, Marcoux S, Beaulac-Baillargeon L. Relation of caffeine intake during pregnancy to intrauterine growth retardation and preterm birth. *Am J Epidemiol* 1993;137:931-40.
21. Fried PA, Watkinson B, Grant A, et al. Changing patterns of soft drug use prior to and during pregnancy: A prospective study. *Drug Alcohol Depend* 1980;6:323-43.
22. Day NL, Sambamoorthi U, Taylor P, et al. Prenatal marijuana use and neonatal outcome. *Neurotoxicol Teratol* 1991;13:329-34.
23. Zuckerman B, Frank DA, Hingson R, et al. Effects of maternal marijuana and cocaine use on fetal growth. *N Engl J Med* 1989;320:762-68.

Received: June 27, 1996

Accepted: May 17, 1997