Final Report

Substance Abuse and Treatment Needs of Pregnant Women in Wisconsin

August 1998

Wisconsin Survey Research Laboratory
University of Wisconsin - Extension
Madison, Wisconsin

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Submitted to:

Wisconsin Department of Health and Family Services

By:

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Wisconsin Survey Research Laboratory

Madison, Wisconsin

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We also wish to thank the participating perinatal clinics and respondents without whom this project could not have been completed.

EXECUTIVE SUMMARY

- A wide range of problems are associated with the use of alcohol and other drugs by women during pregnancy. The potential problems include inadequate prenatal care, preterm labor, placental abruption, premature delivery, low birth weight infants, decreased fetal growth, fetal malformations, child development problems, stillbirth, neonatal mortality, sudden infant death, and other adverse pregnancy outcomes. Wisconsin's caution to pregnant women is any use of alcohol or mood-altering drugs can increase the risk of fetal and developmental defects.

- This study is funded under a federal Substance Abuse and Mental Health Services Administration (SAMHSA) needs assessment contract (270-95-0011).

- To conduct the study, the State Department of Health and Family Services entered into a subcontract with the Wisconsin Survey Research Laboratory to complete interviews and urine screens on a sample of Wisconsin pregnant women (primarily adults) receiving prenatal services (n=493). In addition, 74 pregnant women interviewed as part of a larger household telephone survey were also included in the analysis. The study is designed to accurately determine the prevalence of substance abuse and dependency and corresponding treatment needs among pregnant women.

- The interview instruments used were the Substance Dependence Needs Assessment Questionnaire version 6.2 and the Diagnostic Interview Schedule for Children-2 (see Appendix E). Question topics included demographic information, alcohol and drug use behaviors, and experiences with treatment.

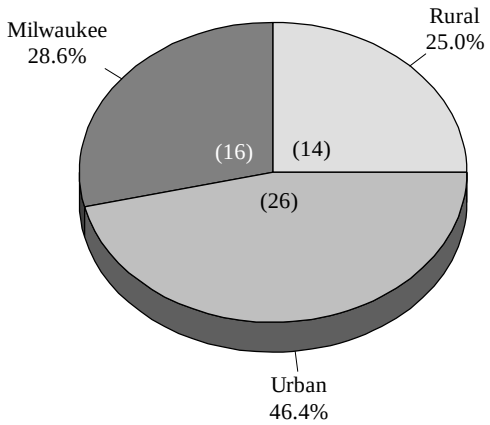
- Estimated response rates based upon records kept by personal interviewers in collaboration with individual clinics were as follows: Ashland County, 58 percent; Dane County, 39 percent; Jefferson County, 58 percent; Manitowoc County, 68 percent; Milwaukee County, 65 percent and Racine County, 61 percent.

- Using perinatal clinics to survey pregnant women was a fairly good initial sample design strategy, since Wisconsin surveys indicate that 99 percent of pregnant women seek and receive prenatal care. However, when considering the household income, rates of arrest, education and marital status of our survey respondents in comparison with the known population, there is some reason to believe that the sample is slightly biased. This means that the survey data is slightly more representative of pregnant women without serious social problems, and therefore, our estimates of the prevalence of substance use and abuse should be considered “low end” or slightly lower

than is actually occurring because of sample design, participation rates and underreporting of substance use.

The pregnant women study in Wisconsin has produced the following key findings:

- Alcohol (26 percent), cigarettes (29 percent) and marijuana (two percent) were the most frequently reported drugs used during pregnancy.
- Ten percent of pregnant women respondents were given a "diagnosis" of current alcohol abuse or dependence as a result of questions asked during the interview.
- The next most frequent substance abuse or dependence "diagnoses" were cocaine, marijuana and multi-drug (two percent).
- Eighty-seven percent reported having used alcohol in the last 18 months; four percent felt they had "a problem" with alcohol.
- A total of 12 tests or 3 percent had positive urine screens.
- Nine screens were positive for marijuana.
- Percent of Respondents with Current Alcohol Abuse/Dependence by Population Strata



- All counted, 11 percent had a current diagnosis of abuse or dependence.

- When the pregnant women respondents were asked by the interviewer if their medical practitioner had questioned them about their use of alcohol and other drugs, 78 percent of respondents replied "yes."

- Partial hospitalization (15 percent) and intensive inpatient (2 percent) were the two most frequently recommended treatment intensities for respondents with "diagnoses."

- ASAM-Based Referral to Treatment Intensity (Adult In-Person and Telephone)

Level of Care	Number/ Percent
Outpatient (Level I)	2 (<1%)
Partial Hospitalization/Intensive Outpatient (Level II)	82 (14.5%)
Medically Monitored Inpatient (Level III)	9(1.6%)
Medically Managed Inpatient (Level IV)	2 (<1%)

- Respondents having the most treatment experiences resided in both small and large urban areas.

- The most frequently reported types of substance abuse treatment used were outpatient, private counseling and AA attendance.

- Treatment Experience and Needs by Population Strata (n=567)

	Total	Rural	Urban	Milwaukee
Ever received treatment	21 (4%)	5 (23.8%)	12 (57.1%)	4 (19%)
Need treatment according to DSM diagnosis	63 (11%)	14 (22.2%)	29 (46%)	20 (31.7%)
Received current treatment	2 (<1%)		1 (50%)	1 (50%)
Unmet demanded treatment	1 (<1%)		1 (100%)	

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BACKGROUND

Each year in Wisconsin there are about 68,000 live births, 15,000 induced abortions, 500 fetal deaths and about 25,000 miscarriages. This results in about 108,500 pregnancies in Wisconsin each year. A wide range of problems are associated with the use of alcohol and other drugs by women during pregnancy. The potential problems include inadequate prenatal care, preterm labor, placental abruption, premature delivery, low birth weight infants, decreased fetal growth, fetal malformations, child development problems, stillbirth, neonatal mortality, sudden infant death, and other adverse pregnancy outcomes. Wisconsin's caution to pregnant women is any use of alcohol or mood-altering drugs can increase the risk of fetal and developmental defects.

Clinicians, educators and policy-makers need objective data on the prevalence of substance abuse by pregnant women to provide more effective prevention, intervention, treatment, and other services for women and their infants. Despite the attention given to issues of substance abuse and pregnancy, little data on the prevalence of substance abuse among pregnant women in Wisconsin currently exists.

About six years ago, Congress passed a law (P.L. 102-321 Sec. 1929) requiring the Department of Health and Human Services to obtain needs assessment data from states in exchange for the allocation of Block Grant funds. Wisconsin receives over $20 million from this fund. This study is funded under a federal Substance Abuse and Mental Health Services Administration (SAMHSA) needs assessment contract (270-95-0011). The study closely followed the guidelines and protocols developed by SAMHSA and the National Technical Center at Harvard University. This report fulfills one of the goals of the needs assessment contract, which was to provide substance abuse prevalence and treatment need data to state planners and policy makers. In addition to this study, the federally funded project includes four other studies: (1) a treatment capacity study; (2) a statewide household substance abuse telephone survey; (3) a composite indicators study; and (4) an arrestee study.

To conduct the study, the State Department of Health and Family Services entered into a subcontract with the Wisconsin Survey Research Laboratory to complete interviews and urine screens on a sample of Wisconsin pregnant women (primarily adults) receiving prenatal services (n=493). In addition, 74 pregnant women interviewed as part of a larger household telephone survey were also included in the analysis. The study is designed to accurately determine the prevalence of substance abuse and dependency and corresponding treatment needs among pregnant women. The reader

may wish to peruse the Literature Review (Appendix B) to learn more about previous research on this topic.

METHOD

Selection of Counties

A representative sample of five Wisconsin counties was selected for the survey using the strategy described below.

The seventy-two Wisconsin counties were divided into five groups. One group had only one county and that was Milwaukee County. One county was selected from each of the other four groups with the probability proportional to the number of births recorded for the county in 1994. This produced a probability sample of Wisconsin counties capable of representing the state's population.

The initial county selection was made as part of the original proposal. After the contract was awarded, it was decided that greater weight was to be placed on geographic distribution. To obtain a better geographic distribution, Lafayette County was randomly eliminated from the sample counties, and Jefferson County was retained. The counties in two strata were rearranged to correspond to the new criteria, and Ashland County was selected to replace Lafayette County. As a result of relatively low response rates, Dane County was added to the sample near the end of the data collection effort.

The final sample counties were Ashland, Dane, Jefferson, Manitowoc, Milwaukee and Racine. Urban areas were more heavily sampled because of their higher prevalence of illicit drug use. Table 1 summarizes their population characteristics.

Table 1 Population Characteristics of Personal Interview Sample Counties

Characteristic	Ashland	Dane	Jefferson	Manitowoc	Milwaukee	Racine	Wisconsin
1990 Population	16,307	367,085	67,783	80,421	959,275	175,034	4,891,769
Population Density per Square Mile	Small Rural 16	Large Urban 305	Large Rural 122	Small Urban 136	Metropolitan 3971	Large Urban 525	90
% of Population Residing in Cities Over 10,000 Population	0%	60%	15%	55%	97%	73%	
% Non-White	9.9%	7.1%	2.7%	2.6%	27.1%	15.6%	8.7%
Geographic Location in State	North Western	South Central	South Central	Eastern	South Eastern	South Eastern	
Estimated No. of Pregnant Women/Year	365	7,780	1,395	1,470	23,110	4,050	108,500

Selection of Perinatal Clinics

Prenatal Clinics in each of the counties were identified through city yellow pages listings and listings in The Official American Board of Medical Specialties (ABMS) Directory of Board Certified Medical Specialists.

Beginning March 1996, identified clinics were contacted by phone to set up a meeting date and time. Explanation of the study and request for participation was done in person. Clinics were offered a $100 cash incentive to participate and gift incentives for each patient who agreed to participate were described. Since only a small number of clinics existed in Ashland, Jefferson, Manitowoc and Racine counties, every identified clinic was solicited, and some agreed to participate.

In some cases, clinics agreed to participate but never actively recruited any patients. Three clinics in Ashland County agreed, yet two were active; five clinics in Jefferson County agreed, yet four were active; four clinics in Manitowoc County agreed, yet two were active; two clinics in Racine County agreed, yet one was active. In Milwaukee County, 57 clinics were identified and ten were randomly selected and asked to

participate. Nine Milwaukee County clinics agreed to participate, yet eight were active.

By August 1996, face-to-face interview pretests were being conducted in some of the counties. Throughout the data collection period which ran until September 1997, interviewers faced several hurdles such as low numbers of pregnant patients in the participating clinics, patients changing appointments or not showing up for scheduled appointments, misunderstandings about what the study was measuring and why, concerns about maintaining confidentiality and some complaints about interfering with normal clinic routines. In many cases it was difficult to establish a comfortable rhythm of recruiting and interviewing patients in the clinic.

In April 1997, the decision was made to end data collection in Ashland, Jefferson, Manitowoc and Racine counties partially in response to the difficulties encountered in recruiting patients and partially because a representative sample had already been interviewed in those counties. The cost-effectiveness of adding Dane County because of proximity to the Survey Laboratory became a priority. Two multi-clinic agencies were solicited. One multi-clinic agency agreed to participate. In Dane County five satellite clinics agreed to participate yet one was active.

Selection of Respondents

In the original recruitment plan, subjects were to be recruited according to a time slot plan. Rough measures of the number of pregnant women per hour were to be assigned to each collection site agreeing to participate. Then, a frame consisting of all the possible four-hour selection time slots in one year for each collection site in the county was to be constructed based upon clinic hours running from 8:30 am to 5:30 p.m. A sample of time slots was to have been selected from this frame using probability proportional to size and with replacement. For each selection, one pregnant woman was to have been interviewed. Interviewers were to be instructed to go to the collection site at the sampled time and recruit/interview the first pregnant woman arriving during that slot who agreed to give an interview. Patients were offered a small gift incentive worth approximately $10 for participating which included a packet of information about healthy habits during pregnancy.

When clinic recruitment began, it became clear that this respondent selection plan would not be possible. Most if not all of the clinics expressed emphatic concern for the confidentiality of their patients as well as concern that the patients not be overly inconvenienced when visiting for a prenatal exam. They stated that the patients' schedules were hectic and the daily routines for doctors, nurses and support staff were

too complicated to accommodate the interviewers in this way. Moreover, many participating clinics had too few pregnant patients to make this protocol possible.

As a result, the protocol for recruitment of respondents catered to the convenience of each of the separate clinics. In some clinics, personal interviewers visited the clinic(s) at designated times when pregnant patients were scheduled and approached patients regarding participation. In other clinics, personal interviewers were given names of patients to phone to ask for their participation after the clinic obtained the patient's permission to release her name and phone number. In all cases, the personal interview was conducted at the convenience of the patient and data collected were completely confidential. Patients were informed by the interviewers that they could refuse to answer questions throughout the interview and could also refuse to give a urine sample.

DATA SOURCES

Procedures

Data collection procedures were approved by the University of Wisconsin Center for Health Sciences Human Subjects Committee (HSC) and approval was renewed for the second year. The project was issued a Federal Confidentiality Certificate by the Department of Health and Human Services authorizing the "withholding of names and other identifying characteristics from all persons not connected with the conduct of the research." Patients agreeing to participate were interviewed in a private room at the clinic, in their home or in another place convenient to them such as their office or another private place of their choosing.

They were informed that only a unique ID number would be used to identify them and the urine specimen. The ID number would be the only link between respondent and urine specimen. At the beginning of each interview, interviewers assured respondents that information provided in the interview would be confidential, and no identifying information would be revealed as a result of their participation in the study. Respondents were able to refuse to answer any question(s) and to refuse to give a urine specimen.

Interviewers were trained in standardized personal interviewing techniques and given pertinent information specific to the topic of substance use during pregnancy. At intervals during the study, interviewers were given feedback about their performance. Regular meetings were scheduled to discuss concerns and updates with interviewers.

Interviewers and the study coordinator were in frequent telephone and email contact to tract the progress of clinic recruitment and data collection.

Interview Instruments

The interview instruments used were the Substance Dependence Needs Assessment Questionnaire version 6.2 and the Diagnostic Interview Schedule for Children-2 (see Appendix E). Question topics included demographic information, alcohol and drug use behaviors, and experiences with treatment. These instruments were adapted for use with a Computer Assisted Personal Interview (CAPI) System.

DATA HANDLING

Data Entry/Editing

Each personal interviewer entered data at the time of interview into an IBM-compatible laptop computer using the CAPI (Computer Assisted Personal Interview) system with CASS (Computer Assisted Survey System) software. Data were saved on disc, and discs were mailed into the lab by the interviewers. Data were also saved in the interviewer's computer as an additional back up. Each interview was assigned a sample number at the beginning of the survey and an anonymous ID number when completed. The CASS software edited standard errors in the data at the time of entry, and surveys were edited using different edit algorithms at the lab after interviews were completed.

Urine Specimens

When the respondent agreed to provide a urine specimen for analysis, the interviewer collected the specimen directly from the patient or gained permission from the respondent and the clinic to use a sample given at the clinic during the prenatal visit. The specimens were packaged and picked up by the medical laboratory for screening/analysis using EMIT (enzyme multiplied immunoassay technology) with confirmation. The laboratory completed a ten-panel screen of all urine specimens, and results were sent to the Wisconsin Survey Research Lab. The ten-panel screen included amphetamines, barbiturates, benzodiazepines, cannabinoids, cocaine, opiates, methadone, methaqualone, propoxyphene and phencyclidine. Interviewers reassured respondents that the results of the urine specimen analysis would be entirely confidential, and there would be no link between the specimen and their name.

PARTICIPATION RATES

By County

"Estimated response rates" or participation rates were calculated for each county by comparing the estimated number of patients approached to the final number of interviews completed in each county. It was not possible to determine an exact number of patients contacted since a significant number of clinics in all six counties insisted upon being in charge of asking patients to participate. In all of those clinics, staff were not willing to keep an exact list of the numbers of patients they approached. The recruitment procedure for the study was not standardized or controlled in any way. Interviews were gathered in a manner that catered to the wishes of the clinics. Estimated response rates based upon records kept by personal interviewers in collaboration with individual clinics were as follows: Ashland County, 58 percent; Dane County, 39 percent; Jefferson County, 58 percent; Manitowoc County, 68 percent; Milwaukee County, 65 percent and Racine County, 61 percent.

Ways to Improve Participation Rates in Personal Interviews

The study design proved awkward in several ways. In the initial phase of the study, recruiting clinics to participate was difficult. Many contacted clinics simply refused to be a part of the study. Some cited too few pregnant patients or just too busy to bother. Others just said "no." Later, staff members at clinics that originally agreed to participate were often uncooperative with the interviewer in providing information about patients to find them. If the interviewer did gain access to potential respondents, she often needed to very actively pursue them both in person and on the phone to request their participation. In one case, for example, a patient refused to participate stating that her doctor said he was not in favor of the study (even though the clinic was participating). Another patient stated her husband would not allow her to participate. Another stated the information was a "private matter" and refused. Also, there were many "no-shows" after appointments were made for an interview. Finally, some clinics insisted upon doing their own patient recruitment. In these cases, interviewers often got the feeling that the study was not being presented as enthusiastically as they would have done it themselves. They felt potential respondents were lost as a result.

Early in the study, interviewers reported that patients were assuming they needed to have an alcohol or drug problem to participate. Interviewers emphasized that all pregnant women were eligible. Plexiglas displays describing the study were placed on the clinic registration counter in clinics that allowed them. This made it possible for patients to read about the study whenever they had appointments.

In-depth personal interviewing requires a commitment of time and energy and can be especially difficult with sensitive subject matter. A simpler study design might have increased response rates but also limited the scope of information collected. Hiring coordinators for each participating clinic might have improved response rates and efficiency but would have been costly.

The clinics contacted for participation might be more encouraged to agree if an organization or individual held in high regard by medical personnel were sponsoring the research. Letters from the Wisconsin Medical Society chairperson as well as the executive director of the Association of Wisconsin HMOs were included in the recruitment protocol, but were not necessarily enough to be motivators. Finally, it might prove helpful to conduct focus groups within the medical community prior to any interviewing to gain suggestions from them about convenient and profitable methods of conducting interviews in medical settings.

Use of Data on Pregnant Women from the Household Telephone Survey and County Birth Statistics

The sample of pregnant females from the household telephone survey study (n=74) is a true probability sample, and the clinic personal interview sample (n=493) is considered a purposive sample of pregnant females. For each approach the goal was to arrive at a Arepresentative@ sample of Wisconsin's pregnant female population. The probability sample design (telephone survey) has built in measures of accuracy and precision, i.e. coverage rate, response rate, and sample error estimates. The personal interview sample (i.e. purposive sample) has no built in measures of quality. It is important, therefore, to compare the two samples' estimates of population characteristics in order to gain some appreciation of the success of the purposive sample selection procedure. While this is a good evaluation device, it provides no guarantee of accuracy for the sample estimates.

Four population characteristics are used for the comparison, namely, age, race, education, and marital status. For completeness the results are shown separately for the household telephone sample and for the combined samples. When examining these results the reader should remember that the household telephone sample is quite small (74 completed interviews with pregnant women from 27 counties). About six percent of the female adult population is pregnant at any given time. The household telephone survey "captured" pregnant women at a rate of about two percent.

Tables 1-9, Appendix A compare the number of in-person (personal) and telephone (household) respondents with state birth statistics by county for 1996 as well as other

demographics i.e., age, education, unmarried status, and race/ethnicity. Tables 10-14, Appendix A, compare percentages of telephone and in-person respondents by age, education, race/ethnicity and unmarried status with county birth statistics.

The resulting sample analysis is generally reassuring, since both the in-person and telephone survey estimates are reasonably close to the known values. The two exceptions are in the education and marital status distributions. In the education variable, the "some college" and "college graduate" categories have estimates that are somewhat higher than the actual known percentages. Self -reporting of education tends to be a little unstable and could simply be a result of reporting error. The proportion of unmarried women (age 25-44) in the survey samples is about half that of the known population. Including sufficient persons of color, persons of lower socioeconomic status and persons at risk for serious social problems in surveys continues to be a challenge to researchers in both sample designs and response rates.

Using perinatal clinics to survey pregnant women was a fairly good initial sample design strategy, since Wisconsin surveys indicate that 99 percent of pregnant women seek and receive prenatal care. However, when considering the household income, rates of arrest, education and marital status of our survey respondents in comparison with the known population, there is some reason to believe that the sample is slightly biased. This means that the survey data is slightly more representative of pregnant women without serious social problems, and therefore, our estimates of the prevalence of substance use and abuse should be considered "low end" or slightly lower than is actually occurring because of sample design, participation rates and underreporting of substance use.

FINDINGS: DESCRIPTION OF VARIABLES

Respondent Characteristics

Respondents to the personal interview were required to be a) in any stage of pregnancy and b) receiving prenatal care in Ashland, Dane, Jefferson, Manitowoc, Milwaukee or Racine County. Interviewers completed a total of 493 personal interviews in those counties. Eleven of those respondents were adolescents. A separate youth version of the interview was used for adolescents, and the results of the 11 completed interviews are generally not shown due to the small sample. A total of 74 pregnant women were interviewed by telephone as part of the larger household telephone study. Analysis on both personal and telephone interview data sets revealed no significant differences between the two. Data from both surveys were merged where possible. The total

number of respondents for personal and telephone interviews is 567. Table 2 shows the distribution of stages of pregnancy for adult personal interview respondents; stage of pregnancy was not asked of telephone respondents. Gestation is approximately 36 weeks. Most (85 percent) respondents were at least three months pregnant.

Table 2 Week of Pregnancy of Adult Personal Interview Respondents

Week of Pregnancy	Number of Respondents	% of Sample
1-4	5	1%
5-8	22	5%
9-12	46	10%
13-16	55	11%
17-20	53	11%
21-24	47	10%
25-28	58	12%
29-32	62	13%
33-36	71	15%
37-40	56	12%
Over 40	7	1%

Table 3 describes combined personal interview and telephone respondents in terms of age, education, marital status, ethnicity and number of dependent children. Most of the women (69 percent) were between the ages of 25 and 44, were married (76 percent) and had either none or one dependent child(ren). It should be noted that most women refused to answer how many dependent children they had primary responsibility for in the last 12 months. The majority of pregnant women interviewed were white (85 percent). Most had a high school diploma or equivalent and some college (53 percent).

Table 3 Age, Education, Marital Status, Ethnicity and Number of Dependent Children of Adult Personal Interview and Telephone Respondents

Age		
	Number	Percent
12-14	0	0
15-17	11	2
18-24	163	29
25-44	393	69
Over 44	0	0
Total	567	100
Education		
Some Elementary	7	1
Some High School	44	8
High School Grad	174	31
Some College	124	22
2-year Associate Degree	52	9
College Graduate	125	23
Advanced Degree	29	5
Missing / Refused	12	
Total	567	100

Marital Status		
Divorced	10	2
Separated	5	1
Married	421	76
Never Married	79	14
Member Unmarried Couple	39	7
Widowed	2	1
Missing / Refused	11	
Total	567	100
Race/Ethnicity		
White	470	85
African American	51	9
Asian or Pacific Islander	8	1
American Indian	8	1
Aleutian	1	<1
Hispanic	10	2
White and African American	1	<1
White and American Indian	2	<1
Other	3	<1
Missing / Refused	13	
Total	567	100

Dependent Children		
None	106	45
One	79	33
Two	39	16
Three	10	4
Four	3	1
Five	1	<1
Missing/Refused	329	
Total	567	100

Figure 1 shows the employment categories for the personal interview and telephone respondents. Respondents could answer "yes" to all that applied. Most respondents were employed for wages and/or homemakers. None of the respondents were retired or in regular, active military duty.

Figure 1 Occupation of Respondents

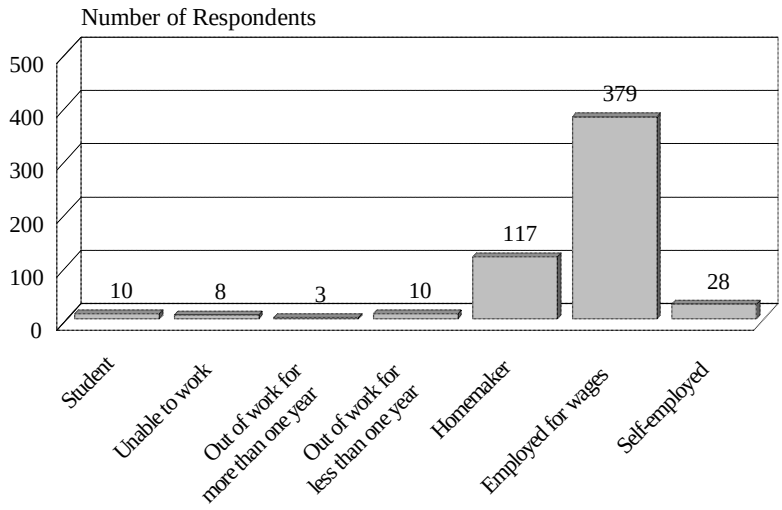


Table 4 describes the annual household income for respondents participating in the personal and telephone interview. Most respondents were fairly evenly distributed among incomes ranging from $10,000 to $60,000 with a slightly higher percentage (19 percent) falling in the $30,000 to $40,000 income range. Eighteen respondents (three percent) reported they did not know their annual household income. The household income of Wisconsin residents in general is slightly lower (8 percent) than our survey respondents.

Table 4 Annual Household Income of Adult Personal and Telephone Interview Respondents

Annual Household Income	Number	Percent
0-<$10,000	31	6%
10-<$20,000	61	11%
20-<$30,000	79	14%
30-<$40,000	105	19%
40-<$50,000	88	16%
50-<$60,000	76	14%
$60,000 or more	92	17%
Don't Know	18	3%
Missing	11	
Refused	6	

Most respondents had not been arrested in the last 12 months as shown in Table 5. For comparison purposes, about 3 percent of adult women in Wisconsin are arrested each year.

Table 5 Arrests in the Last 12 Months for Adult Personal and Telephone Respondents

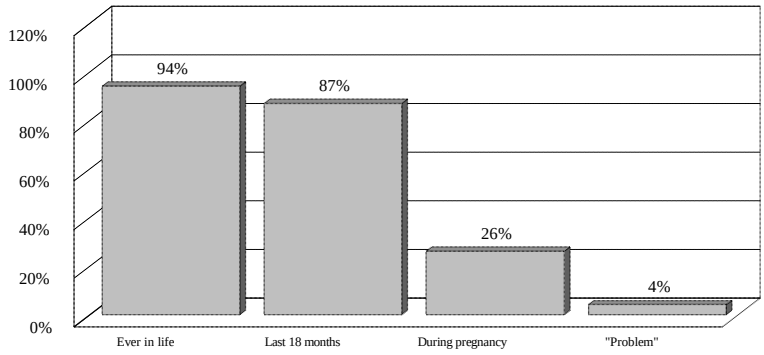
Arrests	Number	Percent
No	544	98%
Yes	12	2%

USE OF ALCOHOL AND OTHER DRUGS

Previous and Current Use of Alcohol

Figure 2 shows respondents' answers to questions about their alcohol use during the last 18 months, during pregnancy, and if they believed they had a problem with alcohol use. Eighty-seven percent of respondents admitted to using alcohol at least once in the last 18 months, 26 percent admitted to using alcohol during pregnancy, one person stated she had never used alcohol even once in her life, and four percent believed they had a problem with alcohol use.

Figure 2 Previous and Current Use of Alcohol



Previous and Current Use of Other Drugs

Table 6 shows adult in-person and telephone respondents' answers to questions about their drug use ever in their lives, during pregnancy, and if they ever felt addicted or believed they had a problem with family or others because of use. It includes self-report of hospitalizations for drug-related reasons. Also reported is information about their use of tobacco during pregnancy. When asked about use ever in their lives, 56 percent reported using marijuana, 15 percent reported using stimulants, 10 percent reported using cocaine, 9 percent reported using hallucinogens, 5 percent reported using inhalants, 4 percent reported using sedatives, 2 percent reported using analgesics or opiates other than heroin, and less than 1 percent reported using heroin. When asked about their use of these substances during pregnancy, most denied use of any except two percent reported using marijuana and less than one percent reported using cocaine; two percent reported the use of any illicit drug during pregnancy.

Table 6 Previous and current use of drugs (adult in-person and telephone)

Factor	Marijuana	Hallucinogins	Cocaine	Heroin	Analgesics / Opiates	Sedatives	Stimulants	Inhalants	Cigarettes
Ever in life	317 (56%)	49 (9%)	59 (10%)	1 (<1%)	9 (2%)	25 (4%)	83 (15%)	29 (5%)	Not asked
Ever felt addicted	11 (2%)	2 (<1%)	9 (2%)	0	0	1 (<1%)	1 (<1%)	0	Not asked
Had problems	7 (1%)	2 (<1%)	8 (1%)	0	0	1 (<1%)	1 (<1%)	0	Not asked
Use in pregnancy	9 (2%)	0	1 (<1%)	0	0	0	0	0	24 (29%)
Hospitalized	0	1 (<1%)	1 (<1%)	0	0	1 (<1%)	0	0	Not asked
Injected	0	0	2 (<1%)	1 (<1%)	1 (<1%)	0	0	0	Not asked
Increased use in pregnancy	Not asked	Not asked	Not asked	Not asked	Not asked	Not asked	Not asked	Not asked	17 (13%)
Reduced (stopped) use in pregnancy	Not asked	Not asked	Not asked	Not asked	Not asked	Not asked	Not asked	Not asked	126 (93%)
Increased use after reduced (stopped) use in pregnancy	Not asked	Not asked	Not asked	Not asked	Not asked	Not asked	Not asked	Not asked	24 (19%)

Honesty factor

When asked how truthful adult in-person and telephone respondents felt they could be in the interview about their alcohol use, 99 percent felt they could be "entirely" truthful; four respondents felt they could be "somewhat" truthful and three respondents felt they could "not at all" be truthful. One respondent felt she could be "somewhat" truthful about her use of heroin; one respondent felt she could be "not at all" truthful

about her use of heroin. One respondent refused to answer how truthful she could be about her use of heroin. Twelve respondents answered "yes" when asked if they would like the local drug and alcohol information number. Two respondents refused to answer that question.

Comparison: Self-Report To Drug Screen Results

Drug screen results were compromised by several complicating factors. In some cases, the respondent refused to provide urine or was unable to pass urine at the time of the interview. Very frequently, the interviewer had arranged to use the same urine that had been collected by clinic staff. However, the staff member forgot and discarded the urine before the interviewer went to retrieve it, and the respondent had already left the clinic. In a few cases, the urine leaked in transit to the laboratory and no test could be done. Then, the laboratory mistakenly performed an incorrect test on some urine samples. This meant specific drug testing was not included in the panel for those samples. The drugs eliminated in some of the panels were methadone, propoxyphene, and methaqualone.

A total of 384 urine samples were tested. This represents 78 percent of the in-person interview respondents. Most of these were 10-panel screens except for the few cases noted above for which the lab used the wrong test. Twenty-two percent of the urine data was missing. A total of 12 tests or 3 percent had positive urine screens, and for each of those only one drug was positive. Three screens were positive for morphine; one of these was positive for morphine and codeine, which was most likely a result of a prescribed pain medication such as Tylenol 3. Levels in the second test positive for morphine were in a range that indicated ingesting food with poppy seeds. The third test positive for morphine was a higher number, and the lab indicated it could also have been the result of a prescribed pain medication. The other nine screens were positive for marijuana. Marijuana can stay in the urine for up to six weeks. All other drugs can remain in the urine for some period of time under three days.

Of the nine positive marijuana screens, five of these respondents replied "yes" that they had used marijuana for non-medical reasons in the last 18 months, two stated they had not used marijuana for non-medical reasons in the last 18 months and two refused to answer. One question later, eight of these respondents refused to answer when asked if they had ever in their life used marijuana for non-medical reasons, and one respondent stated she had. When asked if they had ever used marijuana during pregnancy, five respondents replied "yes" and tested positive, three refused to answer and tested positive. One respondent stated she had not used marijuana while pregnant, yet tested positive.

Of the three positive morphine screens, all three respondents stated they had not used opiates or analgesics for non-medical purposes (excluding heroin) during the last 18 months. They stated that they had never in their lives used opiates or analgesics (excluding heroin) for non-medical purposes. When asked if they ever used opiates or analgesics (excluding heroin) for non-medical purposes during pregnancy, all 3 respondents refused to answer. There were no urine screens positive for heroin.

Do Perinatal Medical Practitioners Ask Pregnant Patients about Their Substance Use?

When the pregnant women respondents were asked by the interviewer if their medical practitioner had questioned them about their use of alcohol and other drugs, 78 percent of respondents replied "yes" and five percent replied that they were not sure or did not know. Seventeen percent said "no."

DSM-III-R Abuse and Dependence Criteria

Analysis was conducted on questionnaire items referring to past year drug and alcohol use that assigned adult respondents to one of four diagnoses and subsequently to one of four appropriate "levels of care" or treatment intensities using the DSM-III-R diagnosis criteria. The software used to conduct the analysis was designed by the American Society of Addiction Medicine (ASAM), and they caution that using it will provide a "conservative estimate of needs" for treatment services."

ASAM-Based Current or Ever Diagnoses

Table 7 describes the results of the analysis for the adult in-person and telephone respondents (n=567) based upon their answers to questions about their alcohol and drug use and effects they had or were having on their lives. Seven percent had a lifetime diagnosis of alcohol abuse and eight percent had a lifetime diagnosis of alcohol dependence. Two percent of respondents had a lifetime diagnosis of marijuana dependence and two percent of cocaine dependence.

Five percent of respondents had a current diagnosis of alcohol abuse and five percent current alcohol dependence. Current abuse or dependence diagnoses were also found in cocaine, marijuana and stimulants. All counted, 11 percent had a current diagnosis of abuse or dependence.

Table 7 ASAM-Based DSM-III-R Ever and Current Diagnosis (Adult In-Person and Telephone)

Type of Drug	Abuse Ever	Abuse Current	Dependence Ever	Dependence Current	Total
Alcohol	38 (7%)	26 (5%)	45 (8%)	30 (5%)	139 (24%)
Cocaine	0	0	10 (2%)	3(<1%)	13 (2%)
Hallucinogen	0	0	2 (<1%)	0	2 (<1%)
Opiate	0	0	0	0	0
Marijuana	1 (<1%)	1 (<1%)	9 (2%)	6 (1%)	17 (2%)
Sedatives	0	0	0	0	0
Stimulants	0	0	3 (<1%)	1 (<1%)	4(<1%)
Inhalants	0	0	0	0	0
Analgesics	0	0	0	0	0
Multidrug	0	0	9(2%)	2(<1%)	11 (2%)

ASAM-Based Diagnosis by Population Strata

Table 8 describes the population density for combined in-person and telephone respondents categorized according to the original stratification plan of rural, urban and Milwaukee.

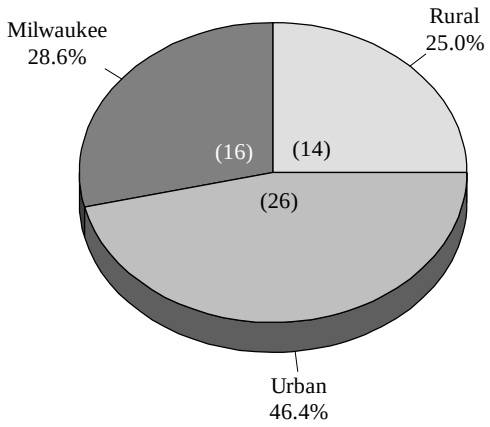
Table 8 County Population Density for Respondents

Population Density	Counties in Sample	Number of Respondents	Percent of Respondents
130 or less persons/ square mile	Ashland*, Bayfield*, Calumet, Columbia, Dodge, Douglas, Grant, Green, Iron, Jackson, Jefferson*, Monroe, Portage, Shawano, Waupaca, Wood	51	9%
131-600 persons/ square mile	Brown, Dane*, Eau Claire, Fond du Lac, Kenosha, LaCrosse, Manitowoc*, Outagamie, Ozaukee, Racine*, Rock, Sheboygan, Walworth, Washington, Waukesha, Winnebago	335	59%
Over 600 persons/ square mile	Milwaukee*	181	32%

*Personal Interview Counties

Figure 3 presents the percentage and numbers of respondents having a current alcohol abuse / dependence "diagnosis" as a result of answers to personal interview questions.

Figure 3 Percent of Respondents with Current Alcohol Abuse / Dependence by Population Strata



MET AND UNMET DEMAND FOR TREATMENT

Respondents' answers to questions about their use of alcohol and other drugs ever were used to assess them for abuse or dependency ever as well as assign them to a level of care based upon that assessment. This level of care or treatment intensity referral based upon the ASAM diagnoses of abuse or dependence ever is shown in Table 9. Seventeen percent of respondents qualified for referral to one of four treatment levels in their lives.

Eleven percent of respondents currently qualified for referral to one of four treatment levels.

Table 9 ASAM-Based Referral to Treatment Intensity (Adult In-Person and Telephone)

Level of Care	Number/Percent
Outpatient (Level I)	2 (<1%)
Partial Hospitalization/Intensive Outpatient (Level II)	82(14.5%)
Medically Monitored Inpatient (Level III)	9(1.6%)
Medically Managed Inpatient (Level IV)	2 (<1%)

Treatment History

Respondents were able to answer positively to all treatment questions, and some may have experienced several types. Twenty-one respondents or four percent of the total sample reported ever having any treatment in their lives, and fourteen respondents reported ever attending AA. Two respondents reported having treatment in the last twelve months; five respondents reported attending AA in the last twelve months. Thirteen respondents reported attending counseling for alcohol/drug problems outside of a formal program; two of them had done so in the last twelve months. Ten respondents reported ever talking about the extent of their drinking or drug use to a person in the ministry; three had done so in the last twelve months. No respondents had ever had outpatient methadone maintenance. Respondents who had recent treatment experiences received funding from pre-paid health insurance plans. Table 10 describes respondents' treatment experiences.

Table 10 History of Adult Respondents' Treatment Experiences

Type of treatment	Number	Last 12 months
Detox hospital	5	No
Detox non-hospital	1	No
Detox outpatient	1	No
Residential inpatient	9	No
Residential in hospital	7	No
Residential $\geq$30 days	4	No
Residential $\leq$30 days	3	No
Halfway house	1	No
Outpatient	14	No
Intensive outpatient	7	1
Less intensive outpatient	12	1
AA attendance	14	5
Talk to clergy	10	3
Counseling	13	2

Treatment experiences compared to interview-discovered "need" for treatment based upon population strata as reported by respondents are shown in Table 11. Respondents could answer "yes" to all types of treatment modalities including AA attendance.

Respondents having the most treatment resided in urban settings (57%). The next largest treatment experiences occurred in rural settings (24%). Milwaukee area residents had 19% of the total treatment experiences.

Table 11 Treatment Experience and Needs by Population Strata (n=567)

	Total	Rural	Urban	Milwaukee
Ever received treatment	21 (4%)	5 (23.8%)	12 (57.1)	4 (19%)
Need treatment "currently" according to DSM diagnosis	63 (11%)	14 (22.2%)	29 (46%)	20 (31.7%)
Received current treatment	2 (<1%)		1 (50%)	1 (50%)
Unmet demanded treatment	0		0	

Barriers to Treatment / Unmet Demand for Treatment

Twenty-one adults were eligible to be asked questions regarding their inability to get the amount, quality or style of treatment they preferred. No one answered that they experienced obstacles or barriers to treatment or not having the type or amount of treatment they felt they needed.

LIMITATIONS/SOURCES OF ERROR AND PROPOSED CORRECTIONS OR ADJUSTMENTS

The personal interview sample is not a probability sample but a purposive sample. As such, the sources of potential bias lie in whatever errors in judgement have occurred in the selection of the sample. Based upon resources available to conduct the study, every effort was made to select counties and sites that were representative of Wisconsin. As described earlier, there were no significant differences between the in-person sample and the telephone sample (which is considered to be a probability sample). The results can be projected to the entire population of Wisconsin by multiplying the sample counts by the ratio:

$$\frac{\text{Number of Females Giving Birth in Wisconsin in the Year}}{\text{Number of Females in the Combined Telephone and Personal Sample}}$$

Projections using the population strata described earlier (rural, urban, and Milwaukee) are possible, however, due to the sample size and possible sampling error, it is recommended that the total sample percentages be used to project the findings to any

particular county. Any further stratification (age; ethnicity) are not likely to improve the accuracy of these projections since the differences are so small.

COMPARISONS WITH OTHER STUDIES

Prevalence Findings

In a 1995 study of women of childbearing age, New Mexico found that 27.6 percent of women reported using alcohol during pregnancy, 38 percent reported using tobacco, 13.2 percent reported using marijuana and 4.2 percent reported using "other" drugs. Most of these figures compare to ours however, our study found only 2 percent of pregnant women reporting use of marijuana during pregnancy.

In a substance abuse survey done in 1991, South Carolina found that 1.9 percent of women used alcohol near the time of delivery based upon urine testing, which they felt was a clear underestimate. They found that 8.3 percent of delivering women used marijuana, 5.8 percent used cocaine, 9.8 percent used barbiturates and 6.7 percent used opiates.

In a 1991 survey of postpartum women, Texas found that 19 percent of mothers reported having used alcohol or illicit substances during their pregnancy. Specifically, 14 percent reported using alcohol, 7 percent reported using any illicit drug and 28 percent reported using "any harmful" substance (alcohol, tobacco, inhalants or illicit drugs). The Wisconsin study found a higher number of pregnant women reporting use of alcohol during pregnancy than the Texas study: 35 percent compared to 14 percent.

The following table presents comparative rates of alcohol and drug use during pregnancy from a number of similar studies conducted around the United States. Wisconsin and Oregon birth certificates underreport alcohol use during pregnancy.

Table 12 Substance Use Prevalence During Pregnancy Rates from Recent Studies

Study	Alcohol	Illicit Drugs
Wisconsin , 1997	26%	2%
New Mexico, 1995	27.6	13.2+
South Carolina, 1991	NA	9.8+
Texas, 1991	14	7
Rhode Island, 1989	NA	8
Oregon	21	11
National Pregnancy and Health Survey, 1992	18.8	5
Centers for Disease Control, 1991	12.4	NA
Sinai Samaritan Medical Center, Milwaukee, 1990	NA	15
National Household Survey on Drug Abuse, 1995	21	2.3
Wisconsin Birth Certificates, 1995	3.1	NA
Oregon Birth Certificates	2.7	1

CONCLUSIONS AND RECOMMENDATIONS

Earlier in this report, the authors concluded that the findings from this study of alcohol and drug abuse and treatment needs among pregnant women in Wisconsin were to be considered "low-end" estimates. Using the results from this study and state birth statistics, each year 27 percent of births are at risk for deleterious substance effects and 11 percent of pregnant women are in need of treatment. The scientific literature has concluded that substance use (alcohol or other drug use) at any time during pregnancy and in any

amount increases the risk of birth and developmental abnormalities, miscarriage, and infant mortality. Rates of fetal alcohol syndrome range from .2 - 1.0 per 1000 births.

At the same time, studies (State of Washington; State of Delaware) have shown that the average medical care costs for pregnant women abusing substances and their infants are higher than their non-using counterparts. When treatment is provided, these costs decline dramatically.

We are all responsible for preventing the infliction of serious harm to infants. For pregnant women, this includes refraining from the ingestion of harmful substances when trying to become pregnant and during pregnancy. For pregnant women who are addicted to substances, help must be sought. For spouses, family members and close friends of the pregnant women, it means providing a supportive environment for her drug-free lifestyle.

Health care, human service, and W-2 professionals have the call to intervene when their client or the client's fetus might be at risk for health problems. It was gratifying to learn that in 87 percent of pregnancies, perinatal health care professionals are asking the patient about their use of alcohol and other drugs. A substance use screening tool is being used by the Wisconsin Perinatal Care Coordination Project. Furthermore, the health insurance industry must institute policies that promote effective rehabilitation of pregnant women with substance abuse problems.

Employers too can intervene through employee assistance programs. Schools and health information agencies must ensure that their students and target groups receive regular, up-to-date information about the effects of alcohol and drugs during pregnancy.

Treatment providers must reach out to pregnant women and provide effective treatment that pregnant women can access and trust. This study demonstrated that only 11 percent of pregnant women in need of addictions treatment seek and receive it. There is a need for a sustained commitment from treatment administrators and payers to fund residential treatment centers for pregnant women and women with young children where needed.

Public policy makers have the responsibility to develop humane and effective approaches to prevention and rehabilitation that promote the health of women and minimize "punishment" and infringement on constitutional rights. District attorneys and the courts should not prosecute pregnant women when there are other means for getting them into treatment.

Lastly, it is recommended that a series of public hearings or focus groups be held around the state to obtain the views of pregnant women, their families, health care

professionals, health insurance industry, law enforcement, district attorneys, the courts, treatment providers, school personnel, and various cultural groups.