Back to Basics:
An Example Application of a Biopsychosocial Assessment

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Abstract

A first step in treating women with substance use disorders during pregnancy is the completion of a comprehensive
psychosocial assessment, such as the Mega Interactive Model of Substance Use Among Women (MIMSUAW). This study
is guided by the MIMSUAW, a biopsychosocial framework (Pagliaro & Pagliaro, 1996, 2000). Findings from the
MIMSUAW indicate baseline functioning and can be applied to treatment planning. This study supports the use of
structured psychosocial assessment by social workers.

Key Words: biopsychosocial assessment, assessments, psychosocial characteristics substance use, substance use during
pregnancy

Introduction

Psychosocial assessments go beyond questions asked in a typical interview and allow the social worker
guidance to describe the demographic, personal characteristics, history, and current biopsychosocial status of
individuals seeking treatment (Comfort & Kaltenbach, 1995). These assessments inform all aspects of
treatment including eligibility, programming, and planning. Social workers use psychosocial assessments to

engage women in treatment and these assessments provide the opportunity to address psychosocial challenges concurrently with addiction treatment. Psychosocial assessments are often based on biopsychosocial theory.

Biopsychosocial Theory

The more severe, chronic, and widespread the presenting problem, the more unlikely that a uni-modal or restrictive approach will be effective (Sperry, 1988; 2001). To counter such restrictions, the biopsychosocial theory was first introduced in the late 1970's (Engel, 1977). This model objects to a linear relationship cause-effect model but rather suggests an integrative and systems perspective that accounts for an individual's intrapersonal functioning and the impact of the outside world (Sperry, 1988; 2001). The biopsychosocial theory asserts that a person can only be understood if all levels of his/her functioning are taken into consideration; these levels being biological, social, and psychological functioning. Biological functioning, also known as physical functioning (Sperry, 1988; 2001) refers to medical and central nervous system functioning.

Psychological refers to the inner self-conscious processes, representation of self, individual goals/needs/wants, and cognitive processes that govern behavior (Sperry, 1988). Social functioning involves the person's relationship to others including family, friends, authorities, institutions, and the community. Given the range of variables taken into consideration by this theory, it is often employed in social work practice.

Example Application

Women who use substances during pregnancy frequently have a myriad of psychosocial problems and addressing these problems at the start of treatment can impact treatment efficacy. Common psychosocial characteristics for pregnant women with substance use disorders have been well documented in the literature. This study seeks to apply a biopsychosocial assessment, based on the biopsychosocial characteristics found in previous literature, to a drug-using pregnant population. Table 1 represents a review of 18 studies detailing psychosocial characteristics associated with substance use during pregnancy. Main findings of the reviewed literature suggest that the life events most strongly associated with substance use in pregnancy are: emotional, physical, or sexual abuse; older maternal age, increased conflict with family of origin; lack of social support; partner substance abuse; greater psychiatric severity, including clinically significant depression; early age of drug initiation; chaotic lifestyles and stress; homelessness; family history of maternal and paternal substance abuse; number of previous children; limited educational attainment and IQ; lack of employment; and involvement in the criminal justice system, exposure to violence, intimate partner violence (see Table 1 for a review of authors).

Table 1

Findings of a literature review on psychosocial characteristics of pregnant substance using women

Authors & Year	Purpose	Sample	Study Design	Psychosocial Variables Identified
Burns, Conroy, Moore, Hutchinson, & Haber, 2011	Examination of psychosocial characteristics of pregnant women attending a substance use clinic	41 pregnant women with substance dependence; comparison group of 47 non-substance dependent pregnant women	Retrospective, cross-sectional study	Substance dependent women were more likely to have health concerns, have an unplanned pregnancy, & have poorer psychosocial functioning than the comparison group. Women in the substance-dependent group were more than 3 times more likely to have been a victim of violence.
Davie-Gray, Moor, Spencer, & Woodward, 2013	Examined health, psychosocial circumstances and psychological wellbeing of pregnant women enrolled in methadone maintenance treatment	81 methadone-maintained pregnant women and a comparison group of 107 non-substance using pregnant women	Prospective, longitudinal data	Women who were methadone maintained had more complex obstetric histories, had more social adversity, had less education, were less likely to have a stable partner during their pregnancy, and were more likely to be depressed,
Flynn & Chermack, 2008	Examine lifetime factors associated with prenatal alcohol use	185 pregnant women; 96 reported no perinatal alcohol use; 88 reported alcohol use	Cross-sectional	Partner violence and drug-use history were found to be risk factors for perinatal alcohol use; other findings suggest that childhood abuse, familial alcoholism, history of major depressive disorder was related to perinatal alcohol use
Flynn, Walton, Chermack, Cunningham, & Marcus, 2007	Examine rates of violence, partner violence, depression and alcohol use during pregnancy	1054 women waiting for a prenatal care appointment; 32% (n = 337) reported substance use	Cross-sectional	Women who had experienced violence in the past year, currently used cigarettes, and were depressed were related to substance use during pregnancy. One in three women were at found to be at risk.
Haller, Kniseley, Dawson, & Schnoll, 1993	Characterize the psychological and social characteristics of perinatal substance abusers	40 perinatal substance abusers	Participants given a clinical interview prior to treatment	Women who use substances during pregnancy were characterized by limitations with education, finances, emotional stability, and intellectual ability. Psychiatric co-morbidity was high specifically for depression and anxiety.
Harrison & Sidebottom, 2008	Examination of predictors to discontinue substance use during pregnancy	1,492 pregnant women	Cross-sectional	Women who continued using substances were older, smoked cigarettes, lacked transportation, had higher pre-pregnancy alcohol use, were depressed, and had a history of intimate partner violence and physical or sexual abuse by a non-intimate partner when compared to those who discontinued use.
Horrigan, Schroeder, & Schaffer, 2000	Identify behavioral traits and life events associated with substance abuse in pregnancy	271 women waiting for prenatal care at an obstetric clinic	Cross-sectional	Women who used substances during pregnancy were more likely to be diagnosed with depression and to have been the victim of physical or sexual abuse
Howell & Chasnoff, 1999	Identify psychosocial characteristics for women who use substances during pregnancy	88 pregnant women in substance abuse treatment participated in 33 focus groups	Focus groups	Identified psychosocial characteristics of women who use substances during pregnancy were: difficult childhoods, early substance initiation history, poor social support, difficult relationships with male partners, substance use status of male partner, custody status of previous children
Kelly, Zatrick, & Anders, 2001	Detection of psychiatric disorders among pregnant women	186 pregnant women receiving prenatal care in an obstetrics clinic	Cross-sectional	Pregnant women who had psychiatric disorders and substance use were more likely to have inadequate prenatal care and less education
Kissin, Svikis, Morgan, & Haug, 2001	Describe pregnant drug-dependent women	240 pregnant opioid or cocaine dependent women	Clinical Interviews and cross-	Major problematic psychosocial function areas were: psychiatric and medical comorbidity, poor social support network, homelessness,

Authors & Year	Purpose	Sample	Study Design	Psychosocial Variables Identified
			sectional design	lack of employability and education, legal (criminal) status, previous pregnancies, child custody status, drug use and support perception of the father. In terms of substance use: age of initiation and person who initiated were common characteristics for pregnant drug-dependent women
Kissin, Svikis, Moylan, Haug, & Stizer, 2004	Characteristics of pregnant drug-abusing women who leave treatment AMA	152 pregnant drug-abusing women enrolled in a substance abuse treatment program	Cross-sectional	Predictors of leaving treatment included not receiving methadone maintenance, being Caucasian, reporting more drug tx episodes, fewer medical problems, and more family, social and psychiatric problems
Maloney, Hutchinson, Burns, Mattick, & Black	Examined risk factors for alcohol use during pregnancy	Survey data from the 2007 National Drug Strategy Household Survey,	Cross-sectional	29% of women drank during pregnancy; Older age was a risk factor for alcohol consumption during pregnancy
Miles, Kulstad, & Haller, 2002	To determine if a perinatal substance abuser can be classified according to psychosocial functioning severity	108 perinatal substance abusers	Cross-sectional	Classified participants into three groups: high alcohol, drug, and psychiatric problem severity, high drug and psychiatric problem severity, and high drug severity only group.
Moylan, Jones, Haug, Kissin, & Svikis, 2001	Examined PTSD status and psychosocial functioning impact in a pregnant opiate and/or cocaine dependent population	123 pregnant opiate and/or cocaine dependent women.	Cross-sectional	Pregnant women with PTSD reported greater need for psychiatric treatment. Lifetime sexual abuse and higher problematic functioning were predictors of PTSD.
Tuten & Jones, 2003	To characterize the drug-using partners of	Pregnant women enrolled in	Cross-sectional	Drug-using partners had lower education and rates of employment, greater rates of

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	pregnant drug dependent women and to identify if the partner's drug using status impacts treatment	treatment; 85 = drug free partners, 82 = drug-using partners		incarceration, and had greater legal and medical needs; Women with drug-using male partners perceived their partners as less supportive, reported their partners gave them money for substances, had poorer treatment outcomes and were more likely to drop out of treatment
Tuten, Jones, & Svikis, 2003	Examine the association between housing status, treatment outcome, and psychosocial functioning for drug dependent women	Drug-dependent women; 117 reported homelessness, 118 reported being domiciled	Cross-sectional	Homeless pregnant women presented with greater drug use and medical problems, less income, and more family, social, and psychiatric problems than their domiciled counterparts. Treatment retention was also poorer for homeless women.
Tuten, Fitzsimons, Chisolm, Jones, Heil, & O'Grady, 2009	To determine if neonatal outcomes of pregnant methadone maintained women are different for those with and without a mood disorder	68 methadone-maintained pregnant patients; 38 with diagnosed mood disorders and 30 without a current mood disorder	Interview assessments, chart reviews	Poorer neonatal outcomes were found for women diagnosed with a mood disorder; infants of women with a current mood disorder stayed in the NICU 6 times longer than infants of women without a mood disorder diagnosis.
Velez et al., 2006	Examined the prevalence of exposure to violence among drug-dependent women	715 drug-dependent pregnant women attending a treatment program	Cross-sectional	Study confirmed high rates of abuse and violence, for lifetime and current exposure among drug-dependent pregnant women

Management of substance use disorders during pregnancy is directly related to discovery of the problem (Horrigan, Schroeder, & Schaffer, 2000). A psychosocial assessment has the ability to identify ongoing psychosocial challenges and to provide information that would be essential to treatment planning. In efforts to treat all relevant stressors, psychosocial assessments should be tailored to the population.

Role of Social Workers
Social workers are often the initial contact for pregnant women with substance use disorders, either as direct providers of substance abuse treatment or through the myriad of social service agencies with whom the pregnant woman has contact (e.g., Department of Social Services, Women, Infants, and Children, child welfare system, or schools.). As such, social workers are in an optimal position for assessing and intervening for pregnant women with substance use disorders. Social workers can play a number of roles, depending on the context, including broker, clinician, mediator, case manager, teacher, and advocate (Sun, 2004). Given these various roles, it is important for the social worker to understand the myriad of psychosocial challenges affecting pregnant women with substance use.

Conceptual Framework
This descriptive study is guided by the Mega Interactive Model of Substance Use Among Women (MIMSUAW) (Pagliaro & Pagliaro, 1996, 2000), a biopsychosocial framework. The MIMSUAW was developed to help clinical social workers treat and understand the complex multidimensional etiology of substance use disorders among women without enforcing a single theoretical focus (Pagliaro & Pagliaro, 1996, 2000). This model allows for an assessment of the multiple psychosocial challenges affecting this sample. Pagliaro and Pagliaro (1996) theorize that each substance abuser has a unique substance use milieu. The milieu consists of four interactive variable dimensions: woman, societal, substance, and time dimension. Each dimension consists of a subset of interacting variables that are referred to as unit coteries with each unit representing a phenomenon that impacts substance use (Pagliaro & Pagliaro, 1996, 2000).

Variable Dimensions
Together the woman, societal, substance, and time dimensions represent an aggregate view of psychosocial challenges that are thought to impact a woman's milieu. Each dimension is comprised of several unit coteries; this study will refer to unit coteries as variables. Each variable represents an essential component to a substance using pregnant woman's milieu (see Figure 1).
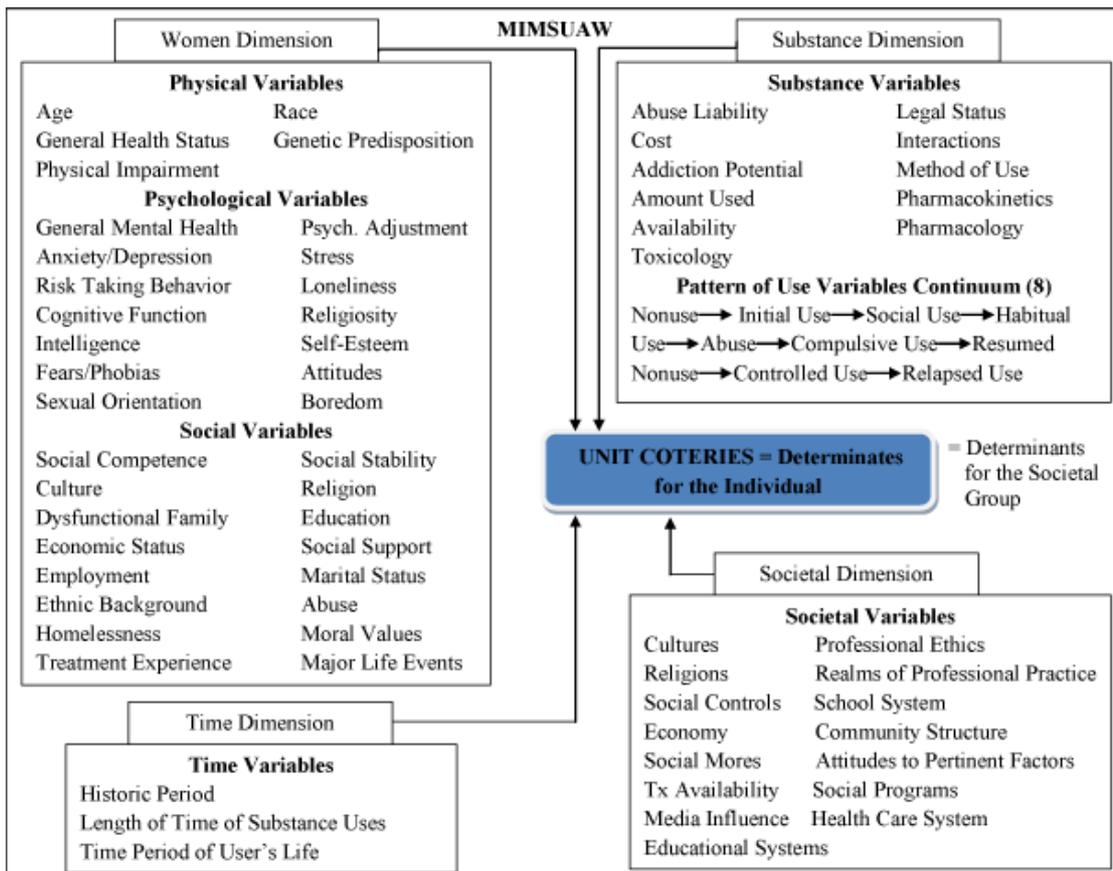
Figure 1 Illustration of Pagliaro and Pagliaro Mega Interactive Model of Substance Use among Women (2000) Reprinted with permission.

The woman dimension of MIMSUAW is comprised of physical, psychological, and societal variables. The physical variables describe general health status and the unique physiological experience and reaction a woman will have to substances. Psychological variables include components that are influential in shaping a woman's current outlook of her health, the health of her unborn child, and her potential to receive successful treatment. Social variables consist of elements related to one's community and relationship with others. Consideration of all the variables associated with the woman dimension primarily assists in differentiating the unique aspects of each woman's experience (Pagliaro & Pagliaro, 2000).

The societal dimension is comprised of pertinent communal experiences (e.g., social programs) and is seen as having a significant influence on prevention and treatment of substance using women (Pagliaro & Pagliaro, 2000). Societal variables are often more realistically and effectively addressed at local and national levels versus being experienced or addressed at the individual level (the Woman Dimension addresses these individual experiences). This study does not address variables from the Societal Dimension.

The time dimension of the MIMSUAW refers to the historic context of substance abuse or use and its relation to the other variable dimensions. Variables of the time dimension include the historic period (e.g., 1960s or 1990s), the length of substance use, and the time period of a user's life (e.g., middle adulthood. This current study does not address variables from the Time Dimension.

The fourth dimension, the substance dimension is comprised of two variables: substance and pattern of use (see Figure 1). The MIMSUAW model provides a pattern of use variable that details the progression of substance addiction and the events surrounding the progression of use. There are eight defined patterns of use

that represent a progressive continuum of substance use. The eight patterns are: initial use, social use, habitual use, abuse, compulsive use, resumed nonuse, controlled use, and relapsed use. Compulsive use, the fifth pattern of use variable will be assumed for all study participants. Pagliaro and Pagliaro (2000) describe compulsive use as "the women feel a lack of control over the use of the substance of abuse and continue to use it despite expected and predictable harmful effects (e.g., fetal alcohol syndrome)" (p. 23). Using despite known consequences to their health and the health of their unborn child(ren) is appropriately considered compulsive use.

Purpose of Study

The purpose of this study is to assess the feasibility of the MIMSUAW as an assessment tool for psychosocial characteristics for a pregnant drug using population. This study will answer the following: Based on what has been reported in previous literature, can the MIMSUAW accurately describe the biopsychosocial characteristics of a pregnant substance using sample? Can alcohol and drug use by pregnant women accurately be described by the MIMSUAW?

Method

This study is a secondary data analysis with a sub-sample drawn from a larger behavioral study of contingency management (see Tuten et al., 2009 for details). Study participants received treatment from the Center for Addiction and Pregnancy (CAP), located at Johns Hopkins Bayview Medical Center in Baltimore, Maryland. CAP is a specialized treatment program that provides comprehensive substance abuse and medical treatment to pregnant substance using women (see Jansson et al., 1996; 2002 for a description). Institutional Review Board approval was obtained from the Johns Hopkins University and the University of Maryland, Baltimore. The sample for this study included 111 participants who were part of interviews conducted from April 10, 2000 through April 19, 2001. Biopsychosocial characteristics were assessed through frequency and descriptive statistics through IBM PAWS 20.0.

Operationalization of Measures

The biopsychosocial characteristics that were identified through a review of the literature were operationalized through the variables in the MIMSUAW for the Woman and Substance Use Dimensions. Questions were asked of the participants during an intake interview.

Results

Research Question 1: Based on what had been reported in the literature, can the MIMSUAW accurately describe the biopsychosocial characteristics of a pregnant substance using sample?

The woman dimension physical variables were assessed through six questions (age, health status, ethnicity, and weeks pregnant at intake). These variables garnered demographic information; the sample is 76.6% African American (n = 85), 19.8% Caucasian (n = 22), and Other (2.6, n = 4). The average participant's pregnancy gestational age at intake was 16.4 weeks (SD = 6.6, range 4-28). The average age of participants was 30.4 (SD = 5.36, range 18-40). Over half the sample were age 30 or greater (n = 67, 60.4%). Chronic medical problems interfered in daily activities for 34.2% (n = 38) of sample participants and 19.8% (n = 22) were taking prescribed medications for a physical problem. The average number of days individuals experienced medical problems (out of the past 30) was 4.25 days (SD = 9.18).

The woman dimension psychological variables were assessed through five questions assessing mental health. Results indicate that depression was the most frequent mental health issue experienced both for the past 30 days (n = 49, 44.1%) and for lifetime (n = 68, 61.3%). Anxiety was the second most common indicated mental health issue for the past 30 days (n = 36, 32.4%) and for lifetime (n = 42, 37.8%). Over a third, 37.8% (n = 42)

of the sample experienced both depression and anxiety during their lifetime. Lifetime suicide attempts was indicated by 26.1% (n = 29) and 34.2% (n = 38) had been hospitalized for a psychiatric reason at some point in their lifetime. The average number of days (out of the past 30) the sample had experienced psychological or emotional problems was 14 (SD = 13.4). Only 34.2% (n = 38) reported they had not experienced any emotional problems over the past 30 days.

A series of nine questions were used to assess the social dimension. The average educational level completed was 11th grade (SD = 1.8). At the time of the study 10.8% (n = 12) indicated that they were currently homeless and 88.3% (n = 98) of the sample was currently unemployed. Among those who were employed, past 30 day earnings were, on average, $183.63.

The usual employment pattern for the past three years was indicated as unemployment by almost two-thirds of the sample (64.9%, n = 72) with the remainder of the participants indicating a full-time or part-time job (35.1%, n = 39) as their usual pattern. The average length of the last full-time job was 33.5 months (SD = 35.7). The most amount of money received/earned over the past 30 days was from illegal means ($1,207.64, SD = $3,010.49), followed by money received from mate, family, or friends ($925.90, SD = $1,081.58).

Half of the sample (51.4%, n = 57) had experienced physical abuse at some point in their lifetime. Physical abuse over the past 30 days was experienced by 7.2% (n = 8). Emotional abuse was the most frequent type of abuse indicated both for lifetime and past 30 days (65.8% and 22.5%, respectively). Lifetime sexual abuse was experienced by 31.5% (n = 35). A combination of lifetime physical, sexual, and emotional abuse were experienced by 24.3% (n = 27) of the sample.

 The MIMSUAW variable, dysfunctional family was assessed through a series of questions asking about the relationship with family members. One measure of family functioning asked if study participants had ever had significant periods in which they experienced serious problems with other individuals in their lifetime. Responses indicated the most frequent person study participants had difficulties with was their mother (51.4%, n = 57), followed by sexual partners/spouse (45.9%, n = 51), and brothers/sisters (30.6%, n = 34). The average number of days sample participants experienced conflicts with family (over the past 30) was 3.5 days (SD = 8 days).

The study sample indicated conflict with other individuals (excluding family). The average number of days the respondents had conflicts with other people was 3.9 days (SD = 8.7 days). Sample participants indicated that only 14.4% (n = 16) had periods of significant problems with close friends in their lifetime. However, 16.3% (n = 17) responded this question was not applicable to them, suggesting they did not have any close friends. Similarly, the average number of close friends was 1.35 (SD = 1.79) with 40.5% (n = 45) of the sample participants indicating they did not have any close friends. The majority of respondents spent their free time with family (56.8%, n = 63). Eighteen percent (n = 20) indicated they spent most of their free time alone and 25.2% (n = 28) indicated they spent their time with friends. The majority of respondents were never married (74.8%, n = 83) followed by 17.1% (n = 19) indicating they were divorced or separated, and 8.1% (n = 9) indicating they were married.

The substance dimension of the MIMSUAW assesses legal status. A majority of the respondents had been charged with some type of offense in their lifetime (85%, n = 94). The average months incarcerated was 6.5 (SD = 15.5 months). The most frequent type of arrest was drug charges (n = 51, 46%), followed by parole/probation violations (n = 33, 30%), assault (n = 33, 30%), shoplifting/vandalism (n = 31, 28%), and contempt of court arrests (n = 27, 24%). However, only 24.3% of the sample (n = 27) were on probation or parole at the time of the study. The substance dimension assessed money spent towards drugs/alcohol. Study participants spent an average of $2,231.83 (SD = $2,347.91) on drugs and $29.75 (SD = $117.03) on alcohol over the past 30 days. There are significant differences between the amount of money earned (through

employment) and the amount of money received (through mate or family) when compared to the amount of money spent on drugs/alcohol.

Tables 2 and 3 detail the substance consumption (amount and type) for this sample. Results indicate this sample of women enrolled in treatment for substance use disorder is primarily a poly-drug using sample (see Table 2). Excluding caffeine and nicotine, the drug most frequently used was heroin (89.5%, n = 96), followed by cocaine (73%, n = 81), and alcohol (47. %, n = 53). Method of drug use was collected only for heroin and cocaine use. Heroin use by snorting was indicated by 67.6% (n = 75) of users while cocaine use by snorting was indicated by 11.7% (n = 13).

Table 3

Type and Amount of Substances Used

Substance*	% of Users in the Past 30 Days	# of Days of Use Past 30	
		M	SD
Alcohol**	47.7% (*n* =53)	5.36	9.9
Alcohol to Intoxication**	20.7% (*n* = 23)	3.87	9.16
Heroin	89.5% (*n* = 96)	23.36	11.4
Methadone	12.6% (*n* = 14)	1.95	6.9
Cocaine	73.0% (*n* = 81)	10.6	11.4
Cannabis	24.3% (*n* = 27)	2.12	6.2
Caffeine	87.4% (*n* = 97)	21.1	4
Nicotine	87.4% (*n* = 97)	25.93	10.1
More than 1 drug***	83.8% (*n* = 93)	12.88	11.8

* = Barbiturates, Painkillers, Sedatives, and Hallucinogens are not included in the table due to low use (less than 10 participants reported use)
** = Alcohol has been measured by number of drinks (not quantity in ounces)
*** = Does not include caffeine or nicotine

Discussion

Findings from this study confirmed the psychosocial challenges that have been found in previous studies for a pregnant substance using population. A biopsychosocial assessment, as applied through the MIMSUAW variables supports findings found in previous literature. Findings from this study suggest that questions asked during an intake interview could be applied to the MIMSUAW, a structured psychosocial assessment. Findings highlight the challenges and impairments experienced by pregnant women with substance use disorders across several areas of functioning, especially those of employment, mental health, legal activity as well as family, social, and medical status. The MIMSUAW framework was able to provide essential psychosocial functioning that would be applied to treatment planning and inform social work practice.

This study was the first known attempt to apply the MIMSUAW to a sample of pregnant women enrolled in substance use disorder treatment. Despite that two of the four MIMSUAW dimensions (the Time and Societal dimension) could not be assessed in this study, the MIMSUAW still proved to be a useful conceptual framework for describing this study sample. The variables assessed through the MIMSUAW are arguably among the most concerning problems experienced by this sample (e.g., employment status, medical status, psychological problems, abuse, conflict with family and others). The MIMSUAW included variables that affect treatment. These variables include basic demographics, abuse experience (past and present), psychiatric

severity (past and present), substance consumption, legal status, conflict with family/friends, and basic social support; all variables that can be considered essential in understanding psychosocial functioning. A benefit to capturing these variables is that they demonstrate ongoing problematic life functioning and addiction recovery and potential. MIMSUAW variables can be compared during baseline assessment, through treatment (such as predetermined intervals), and after treatment is completed (Pagliaro & Pagliaro, 2000).

There are significant psychosocial variables the literature indicated were psychosocial concerns for a substance using pregnant population that were not explicitly included in the MIMSUAW. These variables include previous children, custody status of these previous children, partner substance use status, quantity of substance intake per substance use episode, and domestic violence. However, psychosocial assessment can be tailored to the population and it is recommended these specific variables be added to the MIMSUAW.

The application of a psychosocial assessment to social work practice provides a basis for sound social work practice. The psychosocial assessment is a starting point for treatment engagement and provides the social worker the first opportunity to let the client tell his/her own story. The MIMSUAW provided comprehensive coverage of a pregnant substance user's milieu. It can also provide an organizational tool to guide a social worker through initial treatment contact and treatment planning. The MIMSUAW requires further replication as a psychosocial assessment to ensure the feasibility and comprehensive coverage of other populations.

Conclusion

This study demonstrated that the MIMSUAW is a biopsychosocial conceptual framework that is a useful and practical psychosocial assessment for a substance using pregnant sample. Tailored psychosocial assessments are necessary to adequately identify and treat client challenges. The MIMSUAW provided information that would inform treatment components and planning as well as inform social work practice. The MIMSUAW gathered information that could be used as a starting point for treatment engagement for pregnant women with substance use.

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