A Preliminary Study Examining Women's Physical Health and Nonmedical Prescription Opioid Use in a Recovering Framework

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Abstract

Background: There is a growing need for research on women recovering from nonmedical prescription opioid use. A paradigm shift is to focus on wellness and factors that support, rather than hinder, recovering women. For example, although physical health is impacted by nonmedical prescription opioid use, improved health may be a strength-based factor among recovering women. The aim of this preliminary study was to examine physical health in a recovering framework as women begin recovering from nonmedical prescription opiate use.

Materials and Methods: This study conducted secondary data analysis using self-report data from Kentucky's Targeted Assessment Program (TAP). TAP assesses and provides pretreatment for problems impeding work or interfering with parental responsibilities. Data included 1247 adult women reporting a history of nonmedical prescription opioid use and receiving pretreatment. Bivariate and logistic regression analyses examined whether physical health and access to health services at baseline were associated with substance-related behavior change upon completion of pretreatment.

Results: Women reporting better physical health and fewer days with no activities due to health barriers were more likely to engage in pretreatment substance-related behavior change [$\chi^2_{(8)} = 34.6$, $p < 0.05$]. However, ~40% of women reported barriers in accessing healthcare.

Conclusion: Using a recovering framework, women's physical health, as expected, is associated with engagement in pretreatment substance-related behavior change. Ongoing service coordination with practitioners and medical providers should be incorporated into care to meet the need. Future research should continue to examine factors that support recovering women, using a recovering framework.

Keywords: prescription opioid, recovery, women, health

Introduction

THE NUMBER OF WOMEN in the United States entering treatment for a primary diagnosis of opioid use disorder has increased by 17% from 2010 to 2014.^{1,2} In states such as Kentucky, treatment admissions for women with nonmedical prescription opioid use outpace admissions for men.³ Woman-specific interventions are critical to meet the needs of the increasing number of treatment-seeking women with an illicit opioid use.⁴

Research strategies to improve outcomes for women with nonmedical prescription opioid use have generally focused on individuals who are actively using illicit opioids and their treatment barriers. For example, poor physical health predicts slower progress in substance use treatment.⁵ A group that has

received limited attention, but has the potential to directly inform intervention targets is recovering women. Recovering has been broadly defined by the Substance Abuse and Mental Health Services Administration (SAMHSA) as a process of change through which an individual achieves abstinence and improved health, wellness, and quality of life.⁶

To support women recovering and their treatment providers, SAMHSA adopted the recovery-oriented systems of care (ROSC) model—a systems of care model to identify and build upon the strengths and resilience of individuals to address substance use disorders.⁷ By studying recovering women using a recovering framework, the focus can be placed on factors that support recovering outcomes. For example, better psychological functioning and personal stability predict treatment retention among women.⁸

Physical health is one factor in recovering that has primarily been studied in women who are actively using non-medical prescription opioids rather than women who are recovering. As such, physical health has been examined as a barrier to recovering women rather than as a potential strength. Women are more likely to report poor health than men⁹ and to cite poor health and chronic pain as a reason for nonmedical prescription opioid use.^{10–13} Women are at greater risk for acquiring chronic pain conditions and more likely than men to initiate use through a physician than illicit routes.^{14–16} Moreover, physicians are more likely to prescribe prescription opioids to women and in higher doses than men.¹⁷ In addition to physical health, comorbid mood disorders, anxiety disorders, and serious psychological stress are stronger predictors of nonmedical prescription opioid use for women than men.^{13,14,18}

Compounding this increased need and access to prescription opioids, women experience more health problems as a result of prescription opioid use. Sustained or heavy non-medical prescription opioid use is associated with poor physical health, chronic medical conditions, and opioid-induced hyperalgesia.^{15,19–21} In addition, such physical health problems increase the difficulty of managing chronic medical conditions and health predicts slower progress in substance use treatment.^{5,22} Finally, access to healthcare services, particularly among low-income women with non-medical prescription opioid use disorder, is limited.²³

Although the relationship between poor physical health and nonmedical prescription opioid use is well established, physical health and access to healthcare among women recovering from nonmedical prescription opioid use, a hard-to-reach population, have not been examined using an ROSC recovering framework. The overall aim of this study was to examine physical health among women beginning recovering from nonmedical prescription opiate use. Engagement in substance-related behavior change was assessed using the stages of change model.²⁴ Substance-related behavior change was defined as a reduction in nonmedical prescription opioid use, accepting substance abuse treatment referrals, and attending substance abuse treatment services and included women in the action and maintenance stages of change.

This retrospective analysis used demographic, substance use, and health data from Kentucky's Targeted Assessment Program (TAP), a statewide initiative that provides pretreatment services to low-income women with nonmedical prescription opiate use disorders. It was hypothesized that women who engaged in substance-related behavior change following pretreatment services would report better physical health and access to health services at initiation of pretreatment services than women not engaged in substance-related behavior change. Understanding the strengths of women who engage in substance-related behavior change can be used in future research to design interventions that enhance or maximize physical health to support recovering.²⁵

Materials and Methods

Sample

This preliminary study used secondary data from women who reported a history of nonmedical prescription opioid use and completed TAP.²⁶ Supported by the state of Kentucky, TAP is delivered in 33 counties by 58 assessment specialists.

TAP provides assessments, pretreatment, service coordination, and referral to community treatment (*e.g.*, outpatient counseling, residential treatment) for problems, including substance use, which can impede transition from welfare to work and/or interfere with parental responsibilities. Women enrolled in TAP are Temporary Assistance to Needy Families (TANF)-eligible clients who are the custodian of a minor child and whose income cannot exceed 200% of the current federal poverty level.

This preliminary examination utilized a retrospective design to examine the association between physical health and access to health services at the initiation of TAP services (*i.e.*, baseline) and substance-related behavior change upon completion of TAP pretreatment services. Assessment data from which the sample was drawn included 1247 adult women who (1) were identified by TAP assessment specialists with substance use as a barrier to self-sufficiency, (2) reported a history of nonmedical prescription opioid use, (3) self-reported their use as a problem, and (4) completed TAP pretreatment services.

Procedure

TAP assessment specialists collected baseline and case closure assessments in face-to-face interviews between July 25, 2011, and June 30, 2015. Baseline assessments of service needs included demographics, physical health, mental health, and substance use history. Case closure assessments were conducted following completion of services and included an assessment of engagement in substance-related behavior change (described below). Data from assessments were entered into a secure website and were transmitted electronically to the University of Kentucky where the database is maintained. Data were collected, transmitted, and stored in compliance with the University of Kentucky IRB and Health Insurance Portability and Accountability Act (HIPAA) regulations, including the use of encrypted identification numbers. Data collection was approved by the University of Kentucky Institutional Review Board and the Kentucky Cabinet for Health and Family Services Review Board.

Measures

Demographics. Self-reported demographics at baseline included age, race (white vs. nonwhite), marital status (married vs. other), subsidized housing, number of biological children, high school diploma, and number of hours employed per week.

Substance use. Nonmedical prescription opioid use as well as other licit and illicit substance use was assessed using the Addiction Severity Index.²⁷ Nonmedical prescription opioid use included illicit use of OxyContin, methadone, morphine, buprenorphine, and other opioids (*e.g.*, codeine, Dilaudid). Other substance use included lifetime use of alcohol, marijuana, cocaine, amphetamines (*e.g.*, speed, diet pills), sedatives (*e.g.*, Valium, Xanax), methamphetamine, and heroin.

Physical health. Physical health was assessed through a structured interview using items from the Centers for Disease Control and Prevention Healthy Days Core Modules of the Health-Related Quality-of-Life Measure-14 (HRQOL-14).²⁸

Using a five-item Likert-type scale ranging from poor to excellent, women were asked to describe their general health. One question assessed whether a specific health impairment limited daily activity in any way. Two questions assessed the number of days in the past month during which physical health was not good and pain prevented doing usual activities. Specific health impairments or health problems limiting activities were assessed by asking women to select one item from the HRQOL-14 list.

Physical healthcare needs. A TAP assessment specialist determined whether physical health was a barrier to self-sufficiency. Assessment specialists subsequently rated need for medical care or treatment on a five-item Likert-type scale ranging from none to extreme.

Physical healthcare access. Healthcare access was assessed through self-reported access in the past 3 months to physicians as well as the participants' perceived difficulty obtaining medical treatment (five-item Likert-type scale ranging from none to extreme). Current medical coverage and receipt of Supplemental Security Income (SSI) or Social Security Disability Insurance (SSDI) were self-reported.

Psychological health. Current major depression and generalized anxiety were assessed using the M.I.N.I. International Neuropsychiatric Interview.²⁹

Substance-related behavior change. Substance-related behavior change was operationalized as a self-reported reduction in nonmedical prescription opioid use, acceptance of substance abuse treatment referrals, and attending substance abuse treatment services (*e.g.*, self-help [Alcoholics Anonymous/Narcotics Anonymous], outpatient counseling, opioid substitution therapy, Intensive Outpatient Program/day treatment) at case closure (*i.e.*, completion of TAP pretreatment services). Engagement in substance-related behavior change was assessed using the stages of change model.²⁴ TAP assessment specialists were provided with definitions and examples of the stages and were instructed to classify the participant's stage of change at case closure.^{24,30}

The behavior change group was comprised of women in the action and maintenance stages of change. Women in this group reduced nonmedical prescription opioid use, accepted substance abuse treatment referrals, and attended substance abuse treatment services. Women in the maintenance stage primarily differed from women in the action stage by having been engaged in substance-related behavior change for at least 6 months.

The no behavior change group was comprised of women in the contemplation and planning stages of change. Women in the contemplation stage identified substance use as a problem, but were not yet planning to take action. Women in the planning stage identified their use as a problem and were preparing to take action. However, women at these stages had not yet accepted substance abuse treatment referrals, attended substance abuse treatment services, or reduced their nonmedical prescription opioid use. The women who did not endorse opioid use as a barrier in their life (*i.e.*, precontemplation) were not included in the present analysis because there was insufficient information to determine whether substance use was a barrier to self-sufficiency, which was a criterion for study inclusion. Previous research using

the stages of change model has similarly dichotomized the stages of change as preaction and postaction.^{30,31}

Analytic strategy

Descriptive statistics were used to summarize sample characteristics. A series of bivariate analyses examined whether demographic variables, substance use, physical health, mental health, or access to healthcare services differed between women in the behavior change and no behavior change groups. Interval data were analyzed using independent samples *t*-tests, non-parametric data were analyzed using Mann-Whitney tests, and nominal data were analyzed using chi-square tests.

Logistic regression was used to examine the association between physical health and access to healthcare services at baseline and substance-related behavior change at case closure. Covariates were selected based on the results of bivariate comparisons with control for type 2 error. Variables in the model were further assessed for multicollinearity using bivariate correlations and tolerance and variance inflation factors (VIFs). Statistical significance was set at the 0.05 probability level. Analyses were conducted using SPSS, version 23.0.

Results

Bivariate analyses

Among the 1247 women with a history of nonmedical prescription opioid use, 693 women engaged in substance-related behavior change (behavior change group) and 554 women did not engage in substance-related behavior change (no behavior change group). At completion of TAP pretreatment services, over 99% women in the behavior change group received substance abuse treatment services compared with 77% of women in the no behavior change group [$\chi^2_{(1)}=151.2, p<0.05$]. TAP assessment specialists rated considerable or extreme progress in improving self-sufficiency by reducing substance use barriers for 85% of women in the behavior change group and 12% of women in the no behavior change group ($z=25.4, p<0.00$). The average duration of TAP services was 7.7 months ($SD=5.3$) and did not differ between groups.

Table 1 presents descriptive statistics for the behavior change and no behavior change groups. Women in the behavior change group were, on average, 1 year older than women in the no behavior change group and were less likely to report lifetime nonmedical sedative use. Groups did not differ on any other demographic variables. Groups did not differ on other substance use, including alcohol, marijuana, stimulant, or heroin use. Women in the behavior change group were less likely to endorse criteria for current major depression and generalized anxiety than women in the no behavior change group.

A larger percentage of women in the behavior change group reported very good or excellent general health and a smaller percentage reported poor or fair health. Likewise, fewer women reported having a health impairment that limited activity. Women in the behavior change group also reported, on average, one fewer day in the past 30 days that health was not good or pain was present. In contrast to general health barriers, groups did not differ in reporting specific health impairments or taking medication for specific health impairments. The most common specific health problems across both groups were associated with back/neck (26.0%), arthritis (6.6%), fracture/joints (6.0%), and lung (4.2%).

TABLE 1. DEMOGRAPHIC CHARACTERISTICS AT BASELINE

	Group [mean (SD) or %]		
	No behavior change (n=554)	Behavior change (n=693)	Test statistic
Demographics			
Age, years	28.6 (5.8)	29.6 (6.1)	$t_{(1)}=2.9^a$
Caucasian	96.2	95.7	$\chi^2_{(1)}=0.1$
High school diploma	65.3	81.9	$\chi^2_{(1)}=3.1$
Married	13.0	16.4	$\chi^2_{(1)}=2.7$
Number of biological children	2.3 (1.2)	2.3 (1.4)	$t_{(1)}=0.3$
Subsidized housing	13.4	10.0	$\chi^2_{(1)}=3.4$
Employed, hours/week	5.9 (12.8)	7.0 (13.7)	$t_{(1)}=1.4$
Lifetime substance use			
Alcohol	97.5	98.4	$\chi^2_{(1)}=1.9$
Amphetamines (e.g., speed, diet pills)	34.8	33.1	$\chi^2_{(1)}=0.4$
Cocaine	62.6	62.6	$\chi^2_{(1)}=0.0$
Heroin	34.1	29.8	$\chi^2_{(1)}=2.6$
Marijuana	95.3	93.8	$\chi^2_{(1)}=1.1$
Methamphetamine	41.3	39.2	$\chi^2_{(1)}=0.6$
Sedatives (e.g., Valium, Xanax)	73.5	66.9	$\chi^2_{(1)}=6.1^a$
Psychological health			
Depression	35.7	27.8	$\chi^2_{(1)}=8.9^a$
Generalized anxiety	42.4	32.8	$\chi^2_{(1)}=12.3^a$
Health			
General health			$z=4.4^a$
Poor	8.4	5.6	
Fair	29.9	23.4	
Good	40.6	39.2	
Very good	15.3	25.3	
Excellent	5.8	6.5	
Specific health impairment	27.1	26.2	$\chi^2_{(1)}=0.1$
Medication for specific impairment	40.4	40.4	$\chi^2_{(1)}=0.0$
Health limits activities	32.9	26.1	$\chi^2_{(1)}=5.6^a$
Health in past 30 days			
Days health not good	6.8 (9.3)	5.8 (8.6)	$t_{(1)}=2.0^a$
Pain days	6.7 (9.9)	5.5 (9.3)	$t_{(1)}=2.1^a$
Healthcare access			
Access to healthcare center	58.3	63.8	$\chi^2_{(1)}=4.0$
Difficulty getting medical care	23.6	19.8	$z=2.1^a$
Health insurance/ medical card	58.3	57.3	$\chi^2_{(1)}=0.1$
Disability benefits (SSI or SSDI)	11.0	7.4	$\chi^2_{(1)}=5.0^a$

χ^2 refers to chi-square for nominal dependent variables.

z refers to Mann-Whitney U test for nonparametric variables.

^aRefers to $p < 0.05$.

SD, standard deviation; SSDI, Social Security Disability Insurance; SSI, Supplemental Security Income.

Consistent with self-report, TAP assessment specialists classified fewer women in the behavior change group as having physical health as a barrier to self-sufficiency [26.8% vs. 32.9%, $\chi^2_{(1)}=5.5$, $p < 0.05$] or being in need of physical health services (16.2% vs. 19.9%, $z=2.8$, $p < 0.05$).

Access to a healthcare center and having health insurance did not differ between groups. However, women in the no

behavior change group reported more difficulty obtaining medical treatment than women in the behavior change group. Groups did not differ in where healthcare services were received in the past 3 months [$\chi^2_{(1)}=11.6$, $p > 0.05$]. Healthcare services were primarily obtained through a doctor's office (64.8% and 70.2% for the no behavior change and behavior change groups, respectively). Hospital emergency rooms (14.2% and 9.2%) and health departments (6.7% and 6.4%) were also utilized. Women in the no behavior change group were less likely to be receiving SSI or SSDI.

Logistic regression

As shown in Table 2, a logistic regression model was used to examine health and access to healthcare services as a predictor of substance-related behavior change. The following variables were entered into the logistic regression model. Age (years), lifetime sedative use (0=no, 1=yes), current depression (0=not present, 1=present), current generalized anxiety (0=not present, 1=present), number of substance abuse intervention services received during TAP (total), general health (0=poor, 4=excellent), physical health limiting activities (0=no, 1=yes), days health not good (days/month), days of pain (days/month), difficulty in obtaining medical care (0=none, 4=extreme), and SSI/SSDI (0=no, 1=yes). Multicollinearity of independent variables (VIF values < 1.7) was not detected for variables included in the model.

The overall model was statistically significant [$\chi^2_{(8)}=34.6$, $p < 0.05$] and the Nagelkerke R^2 value was 0.13. Adjusting for other predictors, odds ratios indicate that women with better general physical health at baseline were 20% more likely to engage in substance-related behavior change upon completion of TAP pretreatment services. Increasing age, not having a history of sedative use, increasing number of treatment services, better general physical health, being less likely to have a health impairment limiting activities, and receiving SSI/SSDI also increased the odds of being in the behavior change group.

Discussion

This retrospective analysis examined the association between women's physical health and access to healthcare services and substance-related behavior change. Consistent with the women's health literature, women with a history of nonmedical prescription opioid use reported poor physical health and limited access to healthcare services.^{22,32} Approximately one-third of all women rated their general health as poor or fair and that poor physical health kept them from carrying out their usual activities such as self-care, work, or recreation for nearly 1 week out of each month.

Despite health-related barriers, over 50% of women engaged in substance-related behavior change and were recovering from nonmedical prescription opioid use disorders upon completion of TAP. The ROSC model provided an exploratory recovering framework from which to examine health and healthcare access among recovering women. This study provides preliminary evidence of strength-based factors among women recovering from nonmedical prescription opioid use. Consistent with the study's hypothesis, women reporting better general health at baseline were 1.2 times more likely to engage in substance-related behavior change. Women who engaged in substance-related behavior change

TABLE 2. MULTIPLE LOGISTIC REGRESSION ANALYSIS IDENTIFYING CORRELATES OF ENGAGEMENT IN BEHAVIORAL CHANGE

Variable	b	S.E.	Wald chi-square	p	OR	95% CI
Age	0.03	0.01	9.41	0.00	1.03	1.01–1.06
Lifetime sedative use (y/n)	−0.30	0.13	5.06	0.02	0.74	0.57–0.96
Depression (y/n)	0.16	0.15	1.02	0.31	1.17	0.087–1.58
Generalized anxiety (y/n)	0.26	0.15	2.93	0.09	1.29	0.96–1.73
Substance abuse services received	0.49	0.06	67.89	0.00	1.63	1.45–1.83
General health	0.21	0.07	7.85	0.01	1.23	1.06–1.42
Health limits activities (y/n)	−0.34	0.17	4.10	0.04	0.71	0.51–0.99
Days health not good	0.00	0.01	0.03	0.87	1.00	0.98–1.02
Pain days	−0.01	0.01	0.74	0.39	0.99	0.98–1.01
Difficulty getting medical care	−0.06	0.04	1.98	0.16	0.94	0.87–1.02
Disability benefits (y/n)	0.53	0.22	5.82	0.02	1.69	1.10–2.59

CI, confidence interval; OR, odds ratio; S.E., standard error.

also reported ~1 fewer day in the past month in which their health was not good and one fewer day of experiencing pain. The variance in substance-related behavior change was primarily explained by subjective quality of life (*i.e.*, general health) rather than more objective past 30-day measures of health impairment. Quality of life is an important aspect of overall health and captures an individual's expectations and personal perspective on their health.³³ As observed in this study, subjective quality of life can be discrepant with objective measures of health.³⁴

Although the difference in physical health was relatively small in magnitude between groups, one fewer pain day per month can be meaningful. For example, an extra day of monthly job attendance could be the difference between employment and unemployment, which is associated with substance use.³⁵ Likewise, one additional day of treatment attendance could be associated with positive treatment outcomes. Improved outcomes in substance-abusing pregnant women have been observed with attendance in as few as two 90-minute, support group intervention sessions.³⁶ For recovering women, an extra day of maintaining childcare is particularly important because many women report that taking care of their children is a critical source of motivation.³⁷

In contrast to general subjective health, there was no difference in major health impairments or specific health problems (*e.g.*, back/neck injuries, arthritis) between groups. However, women in the behavior change group reported fewer days of pain in the past month. This outcome suggests that women who engage in substance-related behavior change may perceive their health problems to be less severe or disruptive to daily life than women who do not engage in substance-related behavior change, despite similarly elevated rates of specific health problems. This suggests that women in the behavior change group may be more resilient to physical health barriers. Resilience can be defined as an individual's ability to persist despite the experience of stress.³⁸ Resilience is a key strength-based factor in the ROSC model.²³

It should be noted that although groups did not differ on specific health impairments, the severity of specific health impairment was not assessed. It is possible that health problems were less severe for women in the behavior change group and this accounts for differences in ratings of general health. Future research should continue to examine strengths such as resilience within a recovering framework.

The present study also provides important information regarding access to health among low-income women with nonmedical prescription opioid use. Access to physical healthcare services was a significant barrier for many recovering women and did not differ between groups. Approximately 40% of women did not have health insurance or a medical card in the 3 months before beginning TAP, nor did they have access to a clinic, health center, or doctor. Health insurance is a critical treatment need for women nonmedical prescription opioid users. It is important to note that Kentucky's Health Benefit Exchange program (Kynect) was enacted in 2014 following the passage of the Patient Protection and Affordable Care Act. Consequently, additional research is needed to examine whether medical coverage and access to medical care changes.

Although rates of specific health impairments, as measured by the HRQOL-14, did not differ between groups, the odds of engaging in substance-related behavior change were increased nearly 70% if women were receiving SSI or SSDI. Increased access to health-related and other resources provided through SSI/SSDI may account for this result.

Factors indirectly related to health were also associated with substance-related behavior change. First, women in the behavior change group were, on average, 1 year older than women in the no behavior change group, which is consistent with previous studies finding that an increase in age by only 1–2 years³⁹ is associated with better treatment retention and outcomes.⁴⁰ Alternatively, it is possible that the onset of non-medical prescription opioid use and physical health burden was earlier in the no behavior change group; however, the temporal sequence of events cannot be determined in this study.

Approximately 30%–40% of women in both groups endorsed symptoms of depression and generalized anxiety disorder. This rate is comparable with previous studies of women who use nonmedical prescription opioids¹⁸ and substantially higher than the national average.^{41,42} Fewer women in the behavior change group endorsed symptoms consistent with current major depressive disorder and generalized anxiety disorder. However, the variance explained by health in the logistic regression model was not accounted for by depression or generalized anxiety. However, depression and generalized anxiety may explain the increased nonmedical sedative use in the no behavior change group. Other substance use such as marijuana, stimulants, or alcohol, however, did not differ between groups.

There are several limitations to the current study. First, a causal relationship between physical health and engagement in substance-related behavior change was not demonstrated due to the limitations of a retrospective analysis. A prospective longitudinal study, in which physical health is assessed in recovering women, is a possible next step in better understanding the causal role of physical health in a recovering framework. Second, determination of behavior change was assigned using the multidimensional stages of change model. Although individual components of behavior change were not independently assessed (*e.g.*, abstinence, treatment attendance), utilizing an aggregate assessment is consistent with a multidimensional recovering framework.

Third, data were primarily self-report. Biological verification of self-reported substance use or physiological measures of health would strengthen the study. However, physical well-being and pain are difficult to assess with objective measures⁴³ and women's health perception is an important construct to evaluate as it may be associated with resiliency.⁴⁴ Fourth, physical health and substance-related behavior change were only assessed at one time point. Physical health can improve or deteriorate across time. Likewise, recovering is not unidirectional and often includes lapses and relapses. The dynamic relationship between physical health and recovering from nonmedical prescription opioid abuse remains a focus for future research, including, for example, interventions to improve health and substance use outcomes with exercise (for review, see Refs.^{45,46}).

Fifth, the sample comprised predominately white women. Racial and ethnic disparities in physical health and health insurance are well documented.^{47,48} Physical health should therefore be examined for recovering women of other races and ethnicity. Furthermore, a recovering framework suggests an intersectional approach; a monolithic profile of recovering women's strengths should not be assumed.⁴⁹ Sixth, health is only one factor in a recovering framework. Future research should examine other factors such as women's relationship with children, interpersonal support, and legal history. Furthermore, these factors may also influence women's health. In addition, future studies should also examine recovering women's reproductive health and access to women's health services.

Finally, women in the present study were primarily in the early recovering stages. Further research should examine physical health among women recovering for a more sustained period of time.

Conclusions

Research efforts have primarily focused on physical health as a barrier to recovering. This study and others demonstrate that low-income mothers with nonmedical prescription opioid use disorders have barriers associated with physical health and access to healthcare. By studying recovering women and utilizing an exploratory recovering framework, the present findings provide preliminary evidence for strength-based factors such as increased resilience and improved perception of quality of life despite physical health barriers.

From a practitioner's perspective, physical examinations and continued monitoring of physical health should help women monitor and understand recovering and well-being. In addition, physical health awareness will help to target treatment and inform progress. Women's perception of

control over her health status is positively associated with treatment completion.⁵⁰ Access to ongoing service coordination with medical providers should be incorporated into care to meet the need, as indicated by the SAMHSA ROSC model.^{23,32,51} Consequently, physical health improvements should be acknowledged as a strength-based factor among recovering women.

From a public health perspective, deterrence has been the dominant approach (*e.g.*, physician education, abuse-deterrent formulations).⁵² However, public health policies can also support recovering women by ensuring access to medical care through affordable treatment and access to providers (see Ref.⁵³ for discussion of improving Medicaid incentive programs to increase healthy behavior). Furthermore, recovering women require continuing care to enhance their strengths and support their ongoing wellness and needs.⁵⁴ Future research should continue to identify and describe factors within the recovering women's framework.

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