



Predictors of Post-release Drug Use Recovery Among Previously Incarcerated Women: the Mediating Effect of Social Services

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Abstract

Although social services are recognized as being critical for the successful recovery from drug use among previously incarcerated women, empirical knowledge about the actual role that social services play in the recovery process is limited. This study addresses this gap in knowledge by assessing the effect of social service and individual-level factors on post-release drug use recovery for a sample of 166 women previously incarcerated in Taiwan for drug-related offenses. This is a quantitative study employing a 180-item survey questionnaire comprised of scales on personal-level factors, formal social support, and satisfaction with services. Path analysis was used to assess the direct and mediating effects of social services and respondents' satisfaction with those services on drug use recovery. Personal-level factors, including informal social support, coping mechanisms, psychological health, and addressed life needs, were found to have direct effects on respondents' drug use recovery. Formal social support and satisfaction with services were found to mediate the effect of informal social support and coping mechanisms on women's drug use recovery. The study suggests that services that are responsive to the individualized needs of post-release women who often have limited resources will increase their levels of satisfaction with their support and, in turn, significantly impact recovery outcomes.

Keywords Social services · Social support · Drug use recovery · Community reentry · Quality of life

As of June 2021, more than half (65.9%) of women inmates in Taiwan were incarcerated for illicit drug use and/or drug manufacturing, dealing, and trafficking (hereafter drug-related offenses), a much higher rate than for their male counterparts who have been imprisoned at a 46.1% rate for the same reason (Ministry of Justice, 2021a). Furthermore, a recent nationwide empirical study on women incarcerated for using prohibited drugs showed a high recidivism rate of 83% (Chen et al., 2017). Given the prevalence

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and severity of drug problems among women involved in the criminal justice system in Taiwan, developing effective services for the women released from prison in drug use recovery has continuously been a core concern for the Taiwanese government in its social policies. From 2017 to 2021, the Taiwanese Executive Yuan increased the national budget for preventing illicit drug use and promoting drug use recovery by 50% (Executive Yuan, 2021). A significant proportion of the budget was used to implement various social service intervention programs for people in drug use recovery in the community, representing a shift in illegal drug prevention policies from a punitive focus to a more harm-reductionist or therapeutic approach (Lin et al., 2016; Tsai et al., 2018; Yang et al., 2019). Notwithstanding these policy efforts, however, as of January 2021, only 30% of released individuals incarcerated for drug-related offenses were evaluated for their needs and referred for related social services upon discharge (Ministry of Justice, 2021b). This suggests that the current services being provided may not be meeting the needs of this population.

Incarceration and Post-release Drug Use Recovery Among Taiwanese Women

As seen in most developed countries, the use of narcotic drugs is viewed as threatening the well-being of individual citizens and the overall safety of the public and, as a result, has been highly regulated by law enforcement in Taiwan (Investigation Bureau, 2019). Nonetheless, usage of these drugs continues. Taiwanese women who use prohibited drugs have reported their first drug use generally occurring between 18 and 20 years of age (Ministry of Health & Welfare, 2021). Common reasons for using prohibited drugs given by women have included curiosity, fun, coping with stress, and refreshing themselves; most of them acquire their drugs from relatives at home, friends, or classmates on campus—or in clubs (Ministry of Health & Welfare, 2021). Recognizing the nature of narcotic drug use as being a treatable “disease,” the Taiwanese government has amended drug laws in the past decade to authorize prosecutors and judges to require people who use prohibited drugs to complete diversionary type addiction or psychological treatment programs in the community *in lieu of* incarceration (Narcotics Hazard Prevention Act, 2020). Given the policy contexts, women who eventually are imprisoned for drug-related offenses tend to be the most serious or repetitive users of hard drugs (e.g., heroin); they are also the least likely to successfully recover from drug use or complete diversionary programs. Compared to other inmates, these women are more disadvantaged in terms of relational issues, reporting lower social support and weaker attachment with their biological family members—with more than one-fifth having grown up with grandparents or a single parent and more than 60% being single without a supporting partner (Chen et al., 2017). For those married, more than half reported a spouse who was incarcerated and had/has a drug addiction (Chen et al., 2017). According to a recent qualitative study on previously incarcerated women in drug recovery in Taiwan, this population has been stigmatized, even by service providers, and as a result, often report an overwhelming fear of rejection and discrimination from the community. Many of these women are socially isolated after release, hesitant to seek help from the service system, and choose to face the challenges and endure the pain on their own as they attempt to achieve abstinence and recovery (Yang et al., 2021).

Predictors of Drug Use Recovery Among Previously Incarcerated Women

Recovery from drug use is a dynamic, long-term process that is difficult for many post-incarcerations who have used drugs to navigate. The Substance Abuse and Mental Health Services Administration (2012) has defined recovery from mental disorders and substance use disorders as “a process of change through which individuals improve their health and wellness, live a self-directed life, and strive to reach their full potential” (p.3) This broader conceptualization implied that recovery is not just an issue of cessation but also constitutes a quality of life (QoL) concern. Empirical studies related to drug use often posit that changes in drug use (e.g., cessation of drug use) are associated with quality-of-life improvements (e.g., Kelly et al., 2017; Tait et al., 2012; Tran et al., 2012). This study employs such a theoretical perspective, moving beyond the simplistic focus on the symptomology and cessation of drug use to the provision of a full theoretical framework for better understanding the phenomenon of recidivism and how social services can improve the recovery process.

Psychological Health

When compared to men, previously incarcerated women in drug use recovery face unique challenges in the recovery process related to mental health risks, economic security, and relational issues. Studies indicate that women who use drugs experience a high prevalence of psychological issues, including depression, dysthymia, lower self-esteem, a sense of helplessness, suicide attempts, and post-traumatic stress disorders due to physical and sexual trauma in earlier life (Dishon-Brown et al., 2017; Hemsing et al., 2016). As a result of the failure to receive adequate mental health intervention in prison, coupled with the impact of traumatic events often experienced while in prison, incarceration can result in pronounced deterioration of women’s psychological health (Carter & Marcum, 2019; Dudeck et al., 2011; Guastaferrero & Lutgen, 2017; Holsinger, 2014; Mignon, 2016). Despite the prevalence of these experiences, however, there is only limited research relating to the impact of mental health and trauma on women who either use drugs or who are involved in the criminal justice system—even more so, when examining the phenomenon within the context of Eastern culture.

Coping Mechanisms

Coping mechanisms or coping strategies refer to action-oriented and cognitive, behavioral, and emotional strategies that ease the tension created by external distress, threats, and internal conflict (Lazarus & Folkman, 1984; Valtonen et al., 2006). In the face of stressful life events and negative health consequences of past trauma, women tend to use external sources (e.g., religion, emotional support from others) rather than problem-solving approaches to cope (Fullerton-Hall, 2009). They are also more likely than men to develop internalized symptoms such as self-harm, eating disorders, and drug addiction (López-Castro et al., 2017; Miller & Najavits, 2012). For some individuals, drug use can be a way to self-medicate or cope with the discomfort due to past traumas and accompanying mental disorders, distract them from stress, and provide them a sense of control over their lives (Hemsing et al., 2016; Sweeney et al., 2018). With the advancement of trauma studies, researchers have come to view coping and resilience as protective factors mitigating the

influence of traumatic events on psychological symptomatology and functioning, adaptation, and general quality of life (Goodman, 2017). In other words, coping mechanisms strengthen one's abilities to tolerate stress, which then, in turn, fosters better regulation of emotions and reduces one's need to self-medicate with drugs.

Support from Families and Friends

Support from families, intimate partners, and friends is critical for women in drug recovery. For example, studies have shown that in-prison family contact and post-release family support reduce long-term recidivism among women (Barrick et al., 2014). Released women with a committed partner are less likely than those without a committed partner to smoke crack cocaine and use injection drugs (Hearn et al., 2015). Also, a growing number of implementation programs for formerly incarcerated women and women in drug recovery have recognized the importance of integrating *peer support* as an important component of the recovery process (Heidemann et al., 2014; Tracy & Wallace, 2016). In a qualitative study, Yang and colleagues (2021) found that released women in drug recovery in Taiwan usually need to create a “safe and clean enclave” (p.2) (i.e., a new, supportive, drug-free social circle) that could provide them with referrals to get a stable job. That said, due to the inherent stigmatization and labeling that goes along with drug use and imprisonment, women often experience more rejection from families when released, which then, in turn, tends to put them at a higher risk of recidivism and relapse (Miller, 2012).

Subsistence Conditions

Finally, subsistence conditions such as financial stability, housing, food security, and meaningful social life are critical to successful drug use recovery for previously incarcerated women. For example, post-release women with stable incomes and social relationships report better overall functioning and are more likely to engage in community activities (Spjeldnes et al., 2014). However, empirical studies have shown that 40% or more of women inmates tend not to have jobs *before* incarceration (Chen et al., 2017; Spjeldnes et al., 2014), with their lack of employment history making it even more difficult to attain a stable income post-release. And this is often compounded by their existing criminal record, making it more likely they will be rejected by potential employers after release (van Olphen et al., 2009)—or to earn professional licenses due to their felony records (Tiburcio, 2008). In addition, community supervision requirements post-release can entail a substantial time commitment on the part of a woman, thus impeding her ability to find and keep a job (Colbert et al., 2016). And finally, the lack of a stable income impacts this subpopulation of women, who often face a myriad of obstacles to treatment, such as inadequate health insurance or transportation, making it difficult for them to afford treatment and/or take off work for services (Covington et al., 2008).

The Role of Social Service Factors

Researchers have posited that a dynamic post-release drug recovery process that accommodates the impact of individual-level factors and social services factors would greatly improve the chances for a successful recovery. According to Visher and Travis's (2003) and Shinkfield and Graffam's (2009) models on community reentry, the success

rate for post-incarceration reentry is contingent not only upon the individual characteristics (e.g., personal health), subsistence conditions (e.g., housing and employment), and family relationships, but also upon community contextual factors and state policies. Studies on health-related QoL have also emphasized the critical need for access to healthcare services (e.g., Rizzo & Kintner, 2013). Empirical studies also have supported the effect of social service factors on drug recovery outcomes for justice system-involved women. For example, studies have shown that emotional support (care and empathetic messages), informational support (referrals, suggestions, and advice), and esteem support (compliment, validation, and relief of blame) from probation and parole officers are all beneficial to women's community reentry outcomes, including behavioral and psychological effects (Hall et al., 2013; Holmstrom et al., 2017). Positive relationships with professional workers predict higher levels of engagement, retention, and early improvement or success in drug treatments programs (Brekke et al., 2018; Colbert et al., 2016; Gallagher & Nordberg, 2017; Hall et al., 2013; Holmstrom et al., 2017; van Olphen et al., 2009).

Some studies have found that the potential relationships between individual-level and social service-related factors bolster drug recovery among women. For example, Stalans and Lurigio (2015) discovered that previously incarcerated women who experience the support of conforming intimate partners are less likely to miss treatments or probation appointments. In contrast, individuals with co-occurring substance use disorders and trauma tend to respond less favorably to treatment (e.g., act vigilant and suspicious during treatment) and are less likely to remain in continuing care or drug treatment programs (Brown et al., 2013; Claus & Kindleberger, 2011). Attending treatment can be particularly overwhelming for women facing the combined burdens of work, home care, childcare, and other family responsibilities (National Institute on Drug Abuse, 2020). These are important findings; however, to our knowledge, most studies have tended to only examine the effects of individual-level and social service factors in isolation—often ignoring the potentially *mediating* impact that the provision of services might have.

Given this gap in the literature, the objective of this study was to serve as the first known research effort to assess the mediating role of social service provisions on the journey of previously incarcerated women through post-release drug recovery. Existing studies on Asian or Chinese women who use drugs have focused primarily on the cause and consequences of drug use (e.g., Chen et al., 2017; Iwamoto et al., 2011) *rather than* the effects of service provision on the recovery of these women as they reenter their communities. As such, this study will also be the first quantitative Eastern study of the recovery process for women post-release from prison. Based on the literature and theories discussed above, the authors sought to answer the following research question: *How do individual-level and social service factors affect drug use recovery among previously incarcerated women?* This study tested the following hypotheses:

Hypothesis 1: Individual-level factors, including support from families and friends, coping mechanisms, psychological health, and satisfied life needs, have positive effects on drug recovery for previously incarcerated women.

Hypothesis 2: Social service factors, including support from professional workers and satisfaction with services, have positive effects on drug recovery for previously incarcerated women.

Hypothesis 3: Social service factors mediate the effects of individual-level factors on drug recovery for previously incarcerated women.

Methodology

Sampling

The authors recruited a purposive sample of women previously incarcerated for drug offenses and now receiving post-release social services in Taiwan. Recruitment was done by distributing invitation letters at major service systems serving this population, including city/county parole/probation offices, Narcotics Hazard Control Centers, and rehabilitation protection associations, from May 2018 through January 2019. Eligibility criteria used for sample recruitment stated the respondent must be (a) an adult woman; (b) with a history of incarceration for a drug-related offense; (c) currently living in the community; and (d) abstinent from drug use for 3 months or more based on urine testing record from probation officers.

To achieve a statistical power of 0.80, a minimum sample size of 103 participants was desired (using G*Power 3.1.5). Considering the potential impact of missing data, the authors approached a total of 200 eligible participants and invited them to complete the survey questionnaire. Of the 200 women that were approached, 166 provided written informed consent and completed the questionnaire, resulting in an 83% response rate. Respondents understood that their answers were confidential, and their participation was voluntary. They were informed that their data would be viewed exclusively by the researchers and reported only in aggregate form. The study protocol was approved by the Kaohsiung Municipal Hospital institutional review board.

Data Collection

The questionnaire was in Chinese and administered to 166 women participants on-site by a trained research team from the authors' institution. The questionnaire contained 180 items, including a sociodemographic section and scales on recovery outcomes and predictors, and required 40–50 min to complete. Upon completion of data collection, the authors inserted the hand-written responses into a data analysis software and conducted descriptive analyses to understand the sociodemographic characteristics of the sample.

Data Procedures

Descriptive analysis was used to examine the sociodemographic characteristics of the sample. Pearson correlations were used to examine correlations between all independent variables and the dependent variable. Finally, a multivariate path analysis was done to test the hypothesized model. Path analysis is an extension of multiple regression where path coefficients are partial regression coefficients that measure the effect of one predictor on a dependent variable, controlling for the other variables. A total of eleven hypothetical mediational pathways, including six direct pathways and five indirect pathways, were tested. All statistical operations used *R* software (R Core Team, 2020) with the *lavaan* package (Rosseel, 2012). A *p* value of <0.05 was considered significant.

Measurements

Dependent Variable

Drug use recovery was operationalized through a Chinese version of the World Health Organization Quality of Life-BREF (WHOQOL-BREF) (World Health Organization, 1996; Yao et al.,

2002). QoL is a concept that is holistic and incorporates a broad range of contextual factors—such as the presence or absence of social capital and family connectedness (Corless et al., 2001). The 26-item WHOQOL-BREF scale, as a shorter version of the original 100-item global QoL scale, covers dimensions including self-reported general health, psychological well-being, social relationships, and environmental factors—all of which in their composite form are viewed as an indicator of drug recovery (Harper & Power, 1999; Rapaport et al., 2005). The Chinese version included 24 of the original WHOQOL-BREF items and measured each item using a seven-point Likert scale. A higher total *quality of life score* indicates better drug use recovery. The scale had satisfying internal consistency coefficients for the four domains (i.e., physical health, psychological health, social relationships, and environment) ranging from 0.70 to .77.

Independent Variables

Satisfaction with Social Services Participants' satisfaction with social services was measured using the Satisfaction with Services Scale (SS) (Greenley et al., 1997). The SS scale comprises three subscales: satisfaction with attitude and staff approach, satisfaction with staff technical competence, and appropriateness/effectiveness of services. There are a total of thirteen statements. Each statement was measured using a seven-point scale (ranging from 1 = very satisfied to 7 = very unsatisfied). Scores for each statement were reverse coded so that higher total scores of SS indicate higher satisfaction with services. The SS scale had a sound internal consistency coefficient (0.96) (Greenley et al., 1997).

Life Needs A 16-item Life Needs Scale was used to operationalize the extent to which the women's life needs are being addressed after release. The scale covers four domains of life needs, including work and financial, family life, social life, and life in the community. It utilizes a question format, e.g., "I can have a stable job after reentry" and "I maintain good relationships with families after reentry" (Zhang & Guo, 2009). One item in the original scale, "I did not receive help from the detoxication treatment institution," was deleted because it does not apply to our population receiving mainly social services instead of detoxication treatments. All statements were evaluated by the extent to which the respondent agreed with the statement. Higher total scores indicate better-addressed life needs. The scale had good internal reliability for our sample (0.81), suggesting a satisfying internal consistency.

Social Support A modified Social Support Behavior Scale (SSB) (Vaux et al., 1987) was used to measure the participants' perceived support from families, friends, and professional workers. The scale assesses five domains of social support—emotional support, socializing, practical assistance, financial assistance, and advice/guidance—and consists of 25 items. Each item was measured by two separate five-point Likert scales (ranging from 1 = Never to 5 = Always), referring to support from families and friends (i.e., informal social support) and support from professional workers (i.e., formal social support), respectively. Higher total scores indicate higher perceived support. Total scores for support from families and friends versus support from professional workers were calculated separately to represent two variables. The scale has been modified to suit Taiwanese participants' culture and characteristics. The modified SSB showed construct validity and internal consistency, with a Cronbach alpha of 0.95 for a sample of Taiwanese people with serious psychiatric disabilities (Wu, 2006).

Coping Mechanisms The Chinese version of the Brief Coping Scale (BCS) (Carver, 1997) was used to capture women's coping mechanisms. BCS is a 28-item scale covering 14 coping domains: self-distraction, active coping, denial, substance use, emotional support, instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion, and self-blame. Each item is measured by a five-point Likert scale (1 = *strongly agree* to 5 = *strongly disagree*). Scores were reverse coded for this analysis so that higher BCS total scores indicate better coping mechanisms. The Cronbach alpha of the BCS ranges from 0.50 to 0.90 (Carver, 1997). The Cronbach alpha of the Chinese version in this study was 0.85, indicating satisfying internal reliability.

Psychological Health The authors used the Taiwanese version five-item Brief Symptom Rating Scale (BSRS-5) to assess the participants' current psychological health status. It consists of five items regarding specific psychological symptoms commonly used for screening psychological distress. Higher BSRS-5 total scores indicate more severe psychological distress, whereas lower BSRS-5 total scores indicate better psychological health. The Taiwanese version of BSRS-5 has reported satisfying reliability on Taiwanese samples (Cronbach alpha between 0.77 and 0.90) (Lee et al., 2003).

Results

Sociodemographic Characteristics

The mean age of the participants was 43.5 (SD=1.2). Around half of the women had a high school diploma. At the time of the survey, 68.7% of the women had a job, and 72.9% had not moved after release, indicating high housing stability. Approximately 31.3% of women were single and never married; 26.5% were married, remarried, or cohabitated; and 41% were divorced. More than half (66.3%) had at least one child, and around half (51.5%) lived with one parent. Thirty-eight percent of the women had three or more drug-related offenses, and 34.8% had a moderate to high-level drug craving (see Table 1).

Pairwise Correlation Between Variables

Correlation analysis showed that the participants' drug use recovery was significantly associated with their satisfaction with social service ($r=0.35$, $p<0.01$), coping mechanisms ($r=0.44$, $p<0.01$), informal social support ($r=0.35$, $p<0.01$), formal social support ($r=0.33$, $p<0.01$), life needs ($r=0.34$, $p<0.01$), and psychological health ($r=-0.36$, $p<0.01$). We observed no collinearity between the predicting variables. Overall, the predictors showed a moderate to low level of correlation with the outcome variable (see Table 2).

Multivariate Path Analysis

The chi-square value of the hypothesized model was 3.41, with the degrees of freedom equal to 4, indicating an excellent model data fit ($p=0.49$). Among the eleven pre-specified pathways, eight were significant, revealing several direct and indirect effects of the predictors on drug use recovery. Concerning the direct effects, informal social support

Table 1 Sociodemographic characteristics ($N=166$)

Variable	n	%
Education level		
Elementary school or lower	10	6.0
Junior high/incomplete	72	43.4
Senior high/incomplete	76	45.8
Some college or higher	7	4.2
Missing	1	.6
Marital status		
Single and never married	52	31.3
Married/remarried/cohabitated	44	26.5
Divorced	68	41.0
Missing	2	1.2
Number of drug-related arrests		
Once	71	42.7
Twice	29	17.5
Three times or above	63	38.0
Missing	3	1.8
Number of children		
None	46	27.7
One	52	31.3
Two	28	16.9
Three or above	30	18.1
Missing	10	6.0
Moved after release		
Never	121	72.9
Once	36	21.7
Two times or more	7	4.2
Missing	2	1.2
Employment		
Jobless	41	24.7
Work	114	68.7
Missing	11	6.6

Table 2 Pairwise correlations among variables under investigation ($N=166$)

	M	SD	1	2	3	4	5	6	7
1. Drug use recovery	5.14	.77	1	.35**	.44**	.35**	.33**	.34**	-.36**
2. Satisfaction with services	3.99	.89		1	.12	.20*	.38**	.19*	-.15
3. Coping mechanisms	3.56	.46			1	.08	.49**	.21*	-.16
4. Informal social support	4.09	.92				1	.35**	.36**	-.18*
5. Formal social support	3.06	.96					1	.24*	-.23*
6. Life needs	4.03	.45						1	-.19*
7. Psychological health	0.61	.74							1

** Correlation is significant at the .01 level (2-tailed)

* Correlation is significant at the .05 level (2-tailed)

($\beta=0.19$, $p<0.05$), better coping mechanisms ($\beta=0.26$, $p<0.001$), psychological health ($\beta=-0.22$, $p<0.01$), better-addressed life needs ($\beta=0.14$, $p<0.05$), and satisfaction with social services ($\beta=0.18$, $p<0.01$) significantly predicted recovery; informal social support ($\beta=0.25$, $p<0.001$) and coping mechanisms ($\beta=0.41$, $p<0.001$) significantly predicted formal social support. Satisfaction with services was significantly predicted by formal social support ($\beta=0.35$, $p<0.001$). As for indirect effects, better recovery outcomes were significantly predicted by more informal social support ($\beta=0.02$, $p<0.05$) and positive coping mechanisms ($\beta=0.03$, $p<0.05$) via formal social support and satisfaction with the services (see Fig. 1 and Table 3).

Overall, the results supported the first hypothesis that individual-level factors have positive effects on drug recovery for previously incarcerated women, partially supported the second hypothesis that social service factors (formal social support and satisfaction with services) have positive effects on drug recovery for previously incarcerated women, and partially supported the third hypothesis that social service factors mediate the effects of individual-level factors on drug recovery for previously incarcerated women.

Discussion

This quantitative study examined the effect of individual-level factors and social service factors on drug use recovery among previously incarcerated women in Taiwan. Compared to a recent study on women incarcerated for drug-related offenses in a women's prison in Taiwan ($N=561$), in which 40.3% were jobless (Chen et al., 2017), participants in our study represented a group of women in drug recovery that enjoyed more stable employment status. Given our participants were recruited exclusively in the social service systems, the result could have implied that women with a stable job are more likely to participate in the social service system as compared to those who need to struggle for basic life needs immediately after release. The finding resonates with NIDA's (2020) statement, suggesting that women facing combined burdens in life may be less likely to attend treatment programs and that immediate and more interventionist services should be provided to this population to encourage their participation in the service system.

Regarding the individual-level predictors, the results showed that support from friends and families, coping mechanisms, psychological health, and better-addressed basic life needs all have a direct, positive effect on recovery, which is consistent with extant literature on justice system- and drug-involved women from the West (Dishon-Brown et al., 2017; Guastaferrero & Lutgen, 2017; Holsinger, 2014). Our findings expanded the literature by confirming the effect of these factors among a non-Western sample, a group of Asian women. Currently, the focus of research and practice on women in drug recovery in Taiwan has been primarily on the impact of one's social needs (e.g., assisting women in re-establishing family relationships, intimate partner relationships, and promoting parenting skills), scarcely addressing the women's psychological needs such as the impact of trauma (Hu et al., 2020). Our findings suggest that it should be equally important to address the women's intrapersonal needs for better coping skills and mental health.

Among the individual-level factors examined, informal social support and coping mechanisms not only directly contributed to but also yielded indirect effects on drug recovery among the participants. To be more specific, results tend to support that friends and

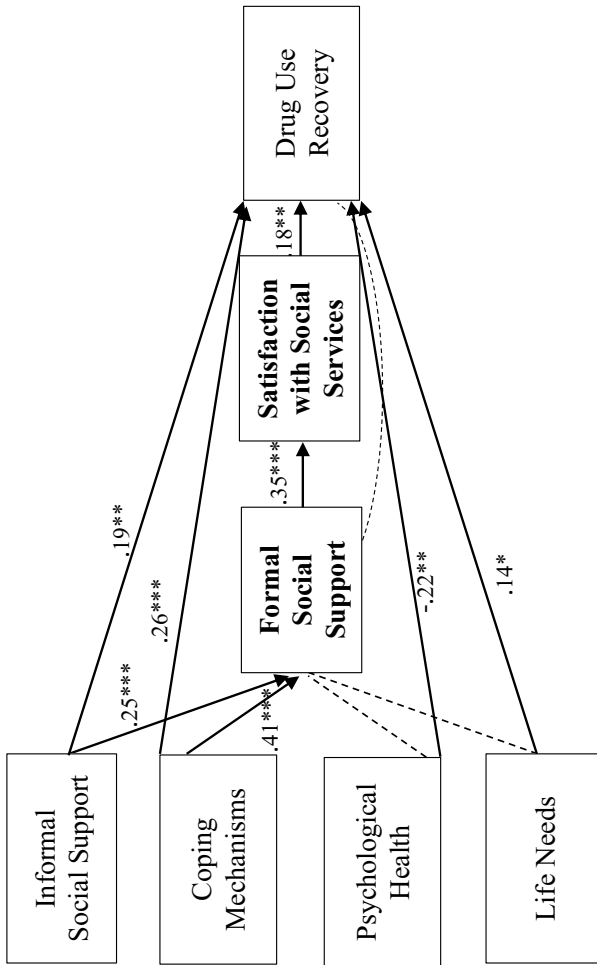


Fig. 1 Multivariate path model depicting the role of social service factors in post-release drug use recovery (N = 166)

Table 3 Direct and indirect effects of the predictors on drug use recovery ($N = 166$)

DV	IV	Estimate	SE	<i>p</i> value	Std. Est	
Direct effects						
Drug use recovery	Informal social support	0.163	0.059	0.006	0.194	
	Coping mechanisms	0.430	0.121	0.000	0.255	
	Psychological health	−0.232	0.068	0.001	−0.224	
	Life needs	0.241	0.119	0.043	0.139	
	Formal social support	0.027	0.063	0.667	0.034	
Satisfaction with services	Satisfaction with services	0.160	0.058	0.006	0.184	
	Formal social support	Informal social support	0.265	0.073	0.000	0.253
		Coping mechanisms	0.854	0.141	0.000	0.406
		Psychological health	−0.130	0.087	0.134	−0.101
Life needs		0.099	0.154	0.521	0.046	
Satisfaction with services	Formal social support	0.325	0.067	0.000	0.352	
Indirect effects						
Drug use recovery	Informal social support	0.014	0.007	0.047	0.016	
	Coping mechanisms	0.044	0.020	0.027	0.026	
	Psychological health	−0.007	0.005	0.205	−0.007	
	Life needs	0.005	0.008	0.535	0.003	
	Formal social support	0.052	0.022	0.017	0.065	

families and coping mechanisms significantly increase the women's perceived level of formal social support, which then leads to more satisfaction with the service system—and which in turn can lead to a more positive recovery outcome. The results extend the existing knowledge that fear of rejection from the community can affect women's willingness to seek professional help (Yang et al., 2021), indicating that more support from family and friends may provide the women with more faith and willingness to build genuine therapeutic relationships with professional workers that further enhance recovery. Encouragement and positive feedback from significant others can serve as important incentives for women to participate and progress in programs. In the meantime, the finding extends the literature by adding an explanation of how coping mechanisms contribute to drug recovery among women, suggesting that women with better coping mechanisms may be more welcoming of assistance and advice from service providers and more likely to proactively seek help and engage in service programs in the face of stress and difficulties. In contrast, women with limited coping mechanisms may be less likely to open their minds to service providers or allocate their time and energy to engage in intervention programs. In summary, the findings show that personal resources such as informal social support and coping mechanisms could be the critical factors that enable the positive effect of social services to happen, suggesting more attention needs to be paid by the service system to those women with low functioning levels due to poor coping mechanisms and limited support from families and friends.

Finally, the result shows that the women's perceived level of support from professional workers contributes to their satisfaction with the service system, and in turn, to positive recovery outcomes. This is consistent with existing studies (e.g., Hall et al., 2013; Holmstrom et al., 2017). Through engaging in social service programs, the data supports the belief that women need to receive the resources and support in order to improve the likelihood of a successful recovery upon reentry to their communities. The mediating

relationship—i.e., satisfaction with social services mediates the effect of support from professional workers on drug use recovery—indicates that support from professional workers plays a critical role in raising the satisfaction level of women post-release with the whole service system.

Limitations

This study has some limitations. First, the use of a non-random, convenient sample has largely limited the generalizability of the study findings. As all participants are previously incarcerated women involved in the Taiwanese social service system, the results may not apply to women in drug recovery in other policy contexts (i.e., not following the pathway of incarceration, release, and reentry). For example, women who did not participate in the social service system after release might have had less stable employment and financial conditions, which were found in our results. They may also have experienced drug recovery trajectories that are very different from the women participants in the study. Second, self-selection bias may have affected the results. Lacking data from the non-respondents limited us from drawing more in-depth conclusions about the specific group of women that agreed to participate in our study. And finally, our data relied solely on participant perceptions and self-reporting, and some survey questions required participants to recall previous experiences. This could have introduced some level of participant bias or recall bias. Future research should include previously incarcerated women that are not in the service system or collect observable behavioral data in order to validate the results.

Conclusion and Implications

Overall, this study highlighted the equal importance of individual-level factors and social service factors to drug recovery among previously incarcerated women reentering their home communities. It also revealed a pathway to drug recovery among this population where their coping mechanisms and informal social support strengthen their experiences in the service system and ultimately contribute to better drug use recovery. Based on the results, we suggest that policymakers design service programs that feature responsive and satisfying services and are more favorable for those with limited individual resources. Practitioners in the criminal justice and social service system should conduct a holistic evaluation of a woman's available informal social support, coping mechanisms, mental health conditions, and life needs, and tailor intervention plans that address individual needs. Additionally, practitioners should help previously incarcerated women in drug use recovery develop positive coping strategies, obtain and foster more supportive relationships, and find the care they need for their psychological health and for maintaining a stable life.

Author Contribution All authors whose names appear on the submission made substantial contributions to the study, approved the manuscript to be published, and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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Declarations

Ethics Approval All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000 (5). The study was approved by the institutional review board of Kaohsiung Municipal Hospital. Informed consent was obtained from all participants included in the study.

Consent to Participate and Consent to Publish Informed consent for participating in the study and publication of the findings was obtained from all participants included in the study.

Competing Interests The authors declare no competing interests.

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