Published in final edited form as:

Deviant Behav. 2020 ; 41(6): 750–764. doi:10.1080/01639625.2019.1595372.

Strain and Depression following Release from Prison: The Moderating Role of Social Support Mechanisms on Substance Use

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Abstract

Research on prison reentry shows that individuals with depression turn to substances to cope with the stress of reintegration. While social support drawn from families, peers, and institutions may help returning individuals avoid substance use, it is unclear how social support might condition the link between depression and substance use. Using longitudinal panel data from the Serious and Violent and Offender Reentry Initiative, results from mixed-models demonstrate that depression is significantly associated with increased substance use. Family support, but not peer support, is tied to lower use, and institutional support relates to decreased alcohol use but increased illicit drug use.

Introduction

In 2015, approximately 641,100 individuals across the United States were released from prison (Carson and Anderson 2016) and faced the challenges associated with returning to society. Given the high rate of incarceration in the United States – more than any other country in the world – this has continued a trend that has held relatively steady for a number of years (Carson and Anderson 2016). Yet, the vast majority of individuals who become incarcerated will eventually return back to society. The time of transition marking release from prison and reintegration back into society is referred to as reentry (Visher and Travis 2003). Reentry often poses challenges to individuals as they work to transition back into old roles and create new post-incarcerated identities (Travis 2005). As a result, understanding

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factors that relate to reentry success and failure has become increasingly important for academics, practitioners, and policy-makers to understand.

Existing research exploring factors that can help ease the reentry process provides a strong foundation for understanding the pivotal roles of family (Bahr et al. 2010; Berg and Huebner 2011; Ekland-Olson et al. 1983; Hairston, Rollin, and Jo 2004; Martinez 2008; Mowen and Visser 2015; Shapiro and Schwartz 2001; Uggen, Wakefield, and Western 2005), peers (Boman and Mowen 2017; Breese, Ra'el, and Grant 2000; Martinez and Abrams 2013; Visser and Travis 2003, 2011; Winnick and Bodkin 2008), and treatment programs (Begun, Early, and Hodge 2016; Butzin, Martin, and Inciardi 2005; Lipton 1995; Severson et al. 2012) during reentry. Additionally, a growing body of scholarship has sought to explore the effect of depression on reentry outcomes (Baillargeon et al. 2009; Diamond et al. 2001; Fazel and Danesh 2002; Steadman Henry et al. 2009). This growing area of research is particularly important as the incarcerated population tends to have much higher rates of mental health issues than the general population. In fact, rates of mental health issues among the correctional population are so disproportionately high that some scholars have referred to prisons and jails as the "new mental hospital" in the United States (see Fuller 1995). Despite this, mental illness is often not well understood nor effectively treated in prison (Young 2003), resulting in individuals frequently facing the challenges of reentry with pre-existing and untreated mental health issues like depression. In sum, research examining the link between depression and reentry outcomes suggests that individuals with depression are at a higher risk for substance use (Kessler et al. 1996; Mallik-Kane and Visser 2008), criminal offending (Richard, Weinberger, and Gross 2004), and re-incarceration (Jacques et al. 2010).

Drawing from the perspective of general strain theory (GST; Agnew 1992), the challenges associated with reentry can induce or exacerbate feelings of depression which may contribute to substance use. Or, to place this study more squarely within a GST framework, the stressful life events associated with reentry can contribute to conditions of negative affect (i.e., depression) which can lead to anti-social coping strategies (i.e., substance use). Though useful in understanding the link between depression and substance use, scholars have argued that GST does not adequately recognize the role of social support within this process (Colvin 2000). To help address this theoretical gap and to move our understanding of these processes forward, we draw from a theory that expands upon GST: differential coercion and social support (DCSS; Colvin et al. 2002). Within this framework, our emphasis lies in the social support aspect, which suggests that mechanisms of social support – like peers, families, and formal institutions – should help protect against substance use during the reentry process. Although some research has examined the role of family support on mental health during reentry (e.g., Wallace et al. 2016), research examining how mechanisms of social support influence the link between depression and substance use is minimal, thereby making the current issue a particularly important one.

Overall, the limited amount of research regarding the role of depression on substance use during the reentry process that does exist demonstrates that depression is a serious contributor to the use of substances as a coping strategy during reentry (Grant et al. 2004; Hasin and Grant 2002). Yet, research that combines perspectives of general strain and social support theory in reentry research is minimal, meaning sociologists have only a rudimentary

understanding of how sources of social support may help mitigate the effects of depression on negative coping strategies like substance use. To address this important gap in the literature, we use four waves of data from the Serious and Violent Offender Reentry Initiative (SVORI) to examine the effect of depression on substance use. We begin by discussing the joint theoretical framework of GST and DCSS theory and then move to a review of the literature, findings from which suggest that the effect of depression on substance use during reentry may be moderated by mechanisms of support from family members, peers, and institutions.

Strain and support during reentry

To understand the relationship between depression and substance use and how supportive mechanisms may play a moderating role in this process, we root our theoretical perspective in Agnew's (1992, 2006) general strain theory. GST suggests that negative and stressful experiences, or the anticipation of such experiences, creates or exacerbates existing negative affective states such as anger or depression. GST then posits that negative affective states, such as depression, produce coping strategies that often take the form of criminal behavior and/or substance use. Though not often applied to reentry, research applying general strain theory to understand the use of substances as a method of coping has proven fruitful in a variety of contexts (see Burton and Cullen 1992 for a meta-analysis). Specifically, GST has been successfully applied to explaining non-prescription drug abuse among college students (Ford and Schroeder 2008), alcohol use among police officers (Swatt, Gibson, and Piquero 2007), and drug use due to victimization (Carson et al. 2009). However, the theory is not applied as frequently as it perhaps should be, leading Burton and Cullen (1992: 1) to assert, "we encourage criminologists to broaden their research agenda to explore the potentially [criminogenic] effects of a wide range of strainful life circumstances." As such, we draw not only on the advice of Burton and Cullen, but also expand on general strain theory by drawing from a highly related framework: differential coercion and social support theory.

Cullen's social support theory (1994) and Colvin, Cullen and Vander Ven's (2002) differential coercion and social support (DCSS) theory build upon GST by placing a central focus on how mechanisms of social support can mitigate the relationship between strains and coping strategies. While GST posits that individuals use behavioral, cognitive, or emotional mechanisms to negatively cope with strains, DCSS focuses on how positive coping strategies can be produced by receiving social support. Taken together, GST and DCSS suggest that while depression (as a negative affective state) should lead to substance use (as a negative coping strategy), having people and institutions who provide support can simultaneously protect from substance use (see, for example, Egbert. and Kurtz 2016). Collectively, although depression should lead to substance use from the perspective of GST, DCSS's contribution leads us to expect that supportive mechanisms should 1) independently reduce substance use, and 2) simultaneously reduce the harmful effect of depression on substance use.

The interplay on how mechanisms of strain and social support can coexist is well illustrated in a study by Swatt, Gibson, and Piquero (2007). In examining the link between strain and alcohol use among police officers, Swatt, Gibson, and Piquero (2007) find that officers

experience anxiety/depression as a negative affective state due to strain presented due to the stress of police work. As a result of this negative affective state, some officers turn to alcohol as a coping mechanism. However, Swatt, Gibson, and Piquero (2007) also find that officers with social support report lower levels of alcohol consumption. Thus, results suggest that social support mechanisms directly reduce alcohol consumption while further suggesting that social support mechanisms moderate the link between negative affective states (depression) and negative coping strategies (alcohol use). Given the strains associated with reentry, it is possible that the link between depression and substance use is moderated by various forms of social support. To that end, we turn to existing literature on depression and social support within the context of reentry.

Depression and social support in reentry

Depression

Individuals undergoing reentry face a host of obstacles including securing housing, reuniting with family members, finding employment, and developing a new post-incarcerated lifestyle (Travis 2005). This time of transition is difficult, and depression has been shown to contribute to increased turmoil during reentry (Mallik-Kane and Visser 2008). Additionally, individuals undergoing reentry are often not formally diagnosed with depression even though they may experience depressive symptoms. For example, Mallik-Kane and Visser (2008) found that although about 15 percent of men are diagnosed with depression during incarceration, about double report experiencing depressive symptoms during the reentry process.

The prevalence of depression and depressive symptoms among returning individuals is alarming for a number of reasons. First, given that only about half of all individuals who experience depressive symptoms are formally diagnosed (Mallik-Kane and Visser 2008), it is likely that many individuals are not receiving the mental health care they need due to a lack of formal diagnosis. Second, broader research on mental health and reentry demonstrates that depression is strongly related to recidivism and reincarceration. Highlighting this, Baillargeon et al. (2009) examined 79,211 individuals in the Texas Department of Criminal Justice prison system and found that individuals with major depressive disorder were far more likely to be incarcerated multiple times than those without major depressive disorder. Within a broader context, James and Glaze (2006) find that individuals with mental health issues tend to recidivate at a rate of about 47 percent, and about 25 percent of all individuals reentering society across the U.S. with mental health issues will be incarcerated at least three times. Third, and finally, depression has also been shown to shape other aspects of the reentry process as it is linked to having lower quality ties with family members (Mowen and Visser 2016), decreased odds of employment, and lower life satisfaction (Mallik-Kane and Visser 2008). Placed with the context of general strain theory, these findings clearly demonstrate that depression can lead to negative coping strategies including recidivism and substance use. Yet, from the standpoint of social support theory – and drawing from prior research – mechanisms of social support stemming from family, peers, and formal institutions, can aid in the reentry process.

Social support

Concerning the role of family within the reentry process, many studies demonstrate a strong link between family support and reentry success (Ekland-Olson et al. 1983; Hairston, Rollin, and Jo 2004; Martinez 2008; Mowen and Visser 2015; Shapiro and Schwartz 2001). Indeed, individuals who can rely on their families for both emotional and material support tend to report lower levels of substance use and crime after release from prison (Skeem et al. 2009). Studies also consistently demonstrate that many returning individuals tend to immediately rely on family members for housing (Western et al. 2015), help finding employment (Berg and Huebner 2011), and – perhaps most importantly – providing emotional support during reentry (Naser and La Vigne 2006). Although not specifically focused on desistance and recidivism, Wallace et al. (2016) demonstrate that family support is significantly related to positive mental health outcomes during reentry. Overall, families are a key source of social support for returning individuals. Drawing from the theoretical orientation of general strain (e.g., Agnew 2006) and social support theories (e.g., Colvin et al. 2002), it seems quite possible that support from family members will mitigate the negative effect of depression on substance use.

In addition to families, an emerging body of research has begun to examine the role of peer support on reentry (e.g., Boman and Mowen 2017; Grieb et al. 2014; Western et al. 2015). Although fewer in number, the findings of these studies allude to peer support as an important predictor of reentry success (Visser and Travis 2003). For example, Western et al. (2015) find that many returning individuals rely on their friends for transportation and a place to live after release. Additionally, Grieb and colleagues' (2014) work concludes that peers and friends of returning persons frequently try to provide support to their returning friends (see also Martinez and Abrams 2013). In a similar fashion to family support, the perspectives of GST (Agnew 1992) and DCSS (Colvin et al. 2002) suggest that peer support might condition the relationship between depression and substance use. Accordingly, individuals who can rely on their friends as sources of support during reentry may have an increased capability to resist substance use that would otherwise be induced by depressive symptoms.

From the perspective of DCSS theory, any mechanism of support could potentially help a reentering person stay away from coping with stress through substance use. As substance use is often a key factor in re-incarceration (Butzin, Martin, and Inciardi 2005; Petersilia 2001; Travis and Petersilia 2001), increased attention has been devoted to providing substance abuse treatment programming after people are released from prison. Although research on the effectiveness of substance abuse treatment during reentry shows mixed support for the notion that treatment protects from substance use recidivism (see Belenko 2006), some research does demonstrate that substance abuse treatment – a form of institutional support – is linked to decreased substance use rates (Bahr, Masters, and Taylor 2012; Binswanger et al. 2012; Scott, Dennis, and Foss 2005; Seiter and Kadela 2003). To this end, it is possible that institutional support might condition the relationship between depression and substance use in a similar manner as family and peer support.

Current study

The goal of the current study is to explore the relationship between depression and substance use during the reentry process with specific attention given to understanding the potential moderating roles of family, peer, and institutional support. As alcohol is a legal substance, we examine these dynamics on alcohol use and illicit drug use separately. Guided by general strain theory (Agnew 1992) and differential coercion and social support theory (Colvin et al. 2002) and following prior research on the role of depression, coping, and social supports, we make two hypotheses. Following the literature reviewed above, we expect depression to contribute to increased odds of substance use during reentry while also anticipating that family, peer, and institutional supports will relate to decreased odds of substance use during reentry (Hypothesis One). Although not often applied to the context of reentry, prior research (e.g. Swatt, Gibson, and Piquero 2007) suggests social support mechanisms may reduce the criminogenic influence of negative affective states on substance use. Thus, we expect that family, peer, and institutional sources of support will help mitigate the relationship between depression and both alcohol and illicit substance use (Hypothesis Two).

Methods

Data for this project come from the Serious and Violent Offender Reentry Initiative (SVORI) and encompass a total of 1,697 men across 14 different states in the United States (Lattimore and Steffey 2010). Data were collected between 2005 and 2007 with the overall goal to examine whether enhanced reentry services related to reentry outcomes. As a result, SVORI researchers asked respondents a host of questions concerning family and peer relationships, substance use, dimensions of mental health, as well as questions about particular programs in which they may have participated, including substance abuse treatment.

Data were collected in four waves. The first wave was collected from respondents about 30 days prior to their scheduled release date. The second wave of data was collected from respondents about 3 months post-release. Wave three data was collected about 9 months post-release, and wave four data about 15 months post-release. Data were gathered through in-person interviews at each wave. In the current study, we concentrate primarily on waves two, three, and four as the outcomes measures (substance use) could only occur in post-release waves, though we draw a number of measures from wave one as well. To this end, time variant measures are drawn from the post-release waves while time invariant measures are drawn from wave one. Descriptives for all measures can be found in Table 1, below.

Dependent variables

We use two dependent variables in the current analysis. The first measure is alcohol use. Respondents were asked if they had used alcohol since the previous wave and could answer 'yes' or 'no.' We coded all 'yes' responses as 1 and 'no' responses as 0. Overall, about 62.8 percent of all individuals in the sample reported using alcohol. Although alcohol is not an illegal substance, it has been strongly linked to reentry failure (e.g., Shinkfield and Graffam 2009). As a time variant measure, alcohol use varies both between individuals (standard deviation = .422) as well as within individuals over time (standard deviation = .261).

The second dependent variable encompasses illicit drug use. Respondents were asked if they had used marijuana, tranquilizers, stimulants, steroids, cocaine, heroin, hallucinogens, methamphetamine, inhalants, sedatives, amphetamines, or prescription pain relievers in any manner not directed by a physician since the prior interview. Respondents could answer 'yes' or 'no' to each substance. To create a binary outcome, we coded 'yes' to the use of any of these substances as 1 and 'no' as 0. Overall, about 38.9 percent of individuals reported using illicit substances. This measure varies both between individuals (standard deviation = .425) as well as within individuals over time (standard deviation = .274).

Independent variables

The independent variables encompass negative affect (depression) as well as mechanisms of social support (family, peer, and institutional support). To capture *depression*, we use a five-item depression scale included in the SVORI dataset that was collected at waves two, three, and four. Respondents were asked along a Likert scale (1 = not at all, 2 = a little bit, 3 = moderately, 4 = quite a bit, 5 = extremely) how often they felt lonely, blue, like they had no interest in things, hopeless, or worthless. Responses were summed to create a depression scale with higher values indicating higher levels of depression. This measure is positively skewed. To account for the skewness, we took the natural logarithm of the measure.¹ The natural log of the depression measure has a mean of 2.086, a standard deviation of .352, and a range of 1.790 to 2.259. This measure varies both between people (standard deviation = .328) as well as within individuals over time (standard deviation = .176). An averaged alpha across all three waves indicated high levels of reliability (alpha = .870; see Cronbach 1951).

The first mechanism of social support is family support. This measure was created by drawing data from three measures asking the respondent how much they agreed (0 = strongly disagree, 1 = disagree, 2 = agree, 3 = strong agree) with the following statements: "I feel close to my family," "I want my family involved in my life," and "I consider myself a source of support for my family." Each question was summed to create a measure of family support with higher values indicating more family support. This measure has an overall mean of 7.049 with a standard deviation of 1.680, and ranges from 0 (very low family support) to 9 (very high family support). This measure varies both between individuals (standard deviation = 1.533) as well as within individuals over time (standard deviation = .864). The average Cronbach's alpha across all waves of data is .758, indicating a satisfactory level of inter-item reliability (Cronbach 1951).

The second mechanism of social support is peer support. Respondents were asked (1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree) if they had a close friend who could help them find a job, provide positive substance abuse support, help the respondent find a place to live, provide transportation, or help the respondent with financial assistance. This measure has an overall mean of 14.616 and an overall standard deviation of 3.742, and ranges from 5 (very low peer support) to 20 (very high peer support). The between-

¹We tested the untransformed measure of depression within each model. Although results were substantively identical, using the natural log transformation improved the model fit and, therefore, we used the transformed measure in each model.

individual standard deviation is 3.371, and the within-individual standard deviation is 1.978. The averaged alpha across each wave is .829 (Cronbach 1951).

The third mechanism of social support is institutional support. To capture institutional support, we use data indicating whether or not the individual was participating in a substance or drug abuse treatment program during the reentry time period. Respondents could indicate 'yes' or 'no.' Persons who responded 'yes' were coded as 1, and 'no' coded as 0. This measure has an overall mean of .222 and a standard deviation of .416. This measure varies across time as individuals could report being in a substance abuse treatment program in one wave and not another. The between individual standard deviation is .361, and the within-individual standard deviation is .242.

Control variables

We control for a number of dimensions that may relate to substance use during reentry. First, prior literature has shown that reentry experiences can vary by race (Piquero et al. 2015; Wehrman 2010). To account for this, we include a variable indicating that the individual is black (51.5% of the sample) or other race (12.4% of the sample) in contrast to white (36.1% of the sample). In addition to race, we also control for the age of the respondents (see Piquero et al. 2015). Overall, the mean age of respondents in the sample is 29.461 with a standard deviation of 7.328, and a range of 18 to 69.

Marital status has been shown to effect reentry outcomes, as individuals who are married can leverage connections with their partners to aid in reentry (Travis 2005). To account for this, individuals who reported being married immediately prior to release were coded as 1 in contrast to individuals who were not married. Overall, about 10.5% of all respondents reported being married. Prior work has also highlighted the importance of employment during reentry (Visher, Debus-Sherrill and Jennifer Yahner 2011). Specifically, individuals who secure employment tend to experience better outcomes than those without, or without stable, employment. To account for this, we use a dummy variable indicating that the respondent was employed (1 = yes). Overall, 66.6% of individuals reported being employed, though this measure does vary across time as well (standard deviation = 2.738).

Individuals with a history of criminality may be more likely to persist in offending. To account for some of this influence, we include a variable indicating how many prior convictions the individual received. This measure has a mean of 5.810 and a standard deviation of 7.865, and ranges from 1 to 90. Additionally, we control for length of incarceration (see Travis 2005). This measure has a mean of 946 days with a range of 44 to 9,386 days. Finally, as the goal of SVORI was to examine how enhanced reentry services related to reentry outcomes, we include a dummy variable to account for this influence (1 = SVORI participant).

Missing data

As with all longitudinal data sets (and especially reentry data), missing data are present in the SVORI sample. Of the original 1,697 individuals at wave one, we use data from a total of 1,229, or about 72 percent of the original sample. Although this attrition is considerable, SVORI analysts have demonstrated that the rate of attrition was at random and that

respondents at wave one were not significantly different than respondents at wave four (Lattimore and Steffey 2010). To confirm this, we performed a sensitivity analysis (Brame and Paternoster 2003) by dichotomizing each measure and comparing values across non-missing and missing cases. Results of this analysis demonstrated no significant differences in rates of attrition across the measures used in our analysis, thus confirming prior work using the SVORI data (Lattimore and Visser 2009; Stansfield et al. 2017; Wallace et al. 2016).

Analytic strategy

In the case of both the SVORI data and panel data in general, violations of the assumption of independence are common as individuals tend to be like themselves over time. Failure to account for a lack of independence results in biased estimates because of correlated error terms (see Raudenbush and Bryk 2002). To account for this, researchers turn to various forms of fixed- and mixed-effects models. These methods of analyzing longitudinal data introduce a random intercept and error term to allow individuals to vary across time, thus accounting for a lack of independence. Although there are other forms of longitudinal models, a mixed-effects model is beneficial to this analysis as it nests time within the individual as a means to estimate both time invariant between-individual differences as well as time variant within-individual changes across time (Rabe-Hesketh and Skrondal 2012). As our outcome measures are binary, we use a generalized linear model (see Mowen and Culhane 2017 for an overview of generalized mixed-effects models used in reentry research).

To address hypothesis one, we first examine the main effects of the key independent variables – depression and social support mechanisms – on substance use. Then, to examine our second hypothesis, we introduce interaction terms between depression and each measure of social support to examine whether or not social support reduces the criminogenic influence of depression on substance use. To create each interaction term, we grand-mean centered each variable and then multiplied them together (see Hoffman and Gavin 1998).

Prior to model estimation, we acknowledge that one of the assumptions of a mixed-effects model is that the effect of the between-individual component is approximately equal to the effect of the within-individual component. To provide an example, the model assumes that the effect of employment between-individuals is approximately the same as the effect of employment within-people over time. To test this assumption, we ran each model as a fixed- and random-effects model. Doing so allowed us to invoke the Hausman test (see Rabe-Hesketh and Skrondal 2012), which compares the estimate of the fixed component to the random component. In each model, results indicated this assumption was satisfied as the test was not statistically significant. Accordingly, we conclude that the assumption of equality is met within each model.

Results

Results of the mixed-effects regression models assessing alcohol use are shown in Table 2. The first model demonstrates that for every one unit increase in the logged depression scale, the log odds of illicit drug use increase by .623. On the other hand, increases in the family

support scale correspond to a .014 decrease in the log odds of illicit drug use. Finally, institutional support is associated with a .740 decrease in the log odds of alcohol use. Turning to the control variables, black respondents, compared to white respondents, report significantly higher log odds of illicit drug use by .452. On the other hand, age is negatively associated with the log odds of alcohol use by .051; with each one year increase in age, the log odds of alcohol use decrease by .051. The number of prior convictions an individual reports is significantly associated with increased log odds of alcohol use, while the length of incarceration is significantly associated with decreased log odds of alcohol use.

Next, we step in an interaction term encompassing the interdependent effects of family support and depression on alcohol use, the results of which are shown in model 2. This interaction fails to reach significance, suggesting that the mechanism of family support does not reduce the influence of depression on alcohol.

In model 3, we introduce an interaction capturing the joint influences of peer support and depression on alcohol use. This interaction also fails to reach significance, suggesting that peer support and depression influence alcohol independently but not interdependently. Finally, in model four, we introduce an interaction capturing the moderating effect of institutional support on depression and substance use. Like the prior two models, this interaction does not reach statistical significance, suggesting that institutional support fails to reduce the effect of depression on alcohol use. Next, we turn to examining the effect of depression and social supports on illicit substance use, the results of which are shown in Table 3.

Model 1 of Table 3 demonstrates that the log of depression is significantly associated with the odds of illicit drug use post-release. With every increase in the logged depression scale, the log odds of illicit drug use increase by 2.084. On the other hand, family support is associated with decreased odds of illicit drug use, such that each increase in family support relates to a .163 reduction in the log odds of illicit drug use. Finally, and in an opposite direction from the model assessing alcohol use, institutional support is related to an increased odds of illicit drug use. That is, individuals receiving institutional support compared to those not receiving institutional support report a .536 unit increase in the log odds of illicit substance use. The results of the control variables are similar, albeit not identical, to the prior models. Like the model examining alcohol use, age is significantly associated with lower odds of illicit substance use by .042. Similarly, length of incarceration is associated with a lower log odds of illicit drug use. However, and unlike the prior model, we observe no difference between black and white respondents. Additionally, individuals who are employed report a .410 reduction in the log odds of illicit drug use compared to those who are not employed. On the other hand, respondents who participated in SVORI enhanced reentry programming report .357 lower odds of illicit drug use than individuals who did not participate in SVORI enhanced reentry programming.

Model 2 introduces an interaction term capturing the moderating influence of family support on depression and substance use. This interaction is significant and positive, suggesting that family support helps mitigate the effect of depression on illicit drug use. The substantive

meaning of this interaction is discussed in greater detail in the discussion section. Effects of the control variables remain substantively identical to the prior model.

In Model 3, we introduce an interaction term capturing peer support and depression. Like the model examining alcohol use, this interaction fails to reach significance, suggesting that peer support fails to condition the relationship between depression and illicit drug use. Model 4 then introduces an interaction term capturing institutional support and depression. This interaction term also fails to reach statistical significance, suggesting that institutional support fails to condition the relationship between depression and substance use.

Discussion and conclusion

Drawing on the perspective of general strain (e.g., Agnew 2006) and differential coercion and social support (Colvin et al. 2002) theories, the goal of this study was to investigate the extent to which depression, as a negative affective state, related to substance use during reentry and the degree to which mechanisms of social support influenced this relationship. Hypothesis one, that depression would relate to increased odds of substance use and social support mechanisms would relate to decreased odds of substance use, is partially supported. Results of mixed models demonstrated that depression was significantly associated with both increased alcohol and illicit drug use. Although peer support did not significantly relate to either alcohol or illicit drug use, higher levels of family support related to significantly lower odds of alcohol and illicit drug use. Complicating the support findings, however, results also demonstrated that while institutional support related to decreased alcohol use, it also related to significantly increased odds of illicit drug use. We discuss this opposite direction effect in subsequent paragraphs. Hypothesis two, that social support mechanisms would decrease the effect of depression on alcohol use, is unsupported overall, as only one of the six interactions between depression and social support was significant.

Focused specifically on Agnew's (1992, 2006) general strain theory, we find strong support that strain impacts behavior during the process of reentry. Our results contribute to this body of literature by suggesting that negative affective states – like depression – held by returning persons result in higher amounts of substance use. Despite the strong support yielded to general strain theory, there are also other factors that impact both alcohol and illicit drug use during reentry. DCSS theory's (Colvin et al. 2002) mechanisms of social support clearly play a role within this process. Although peer support did not significantly affect substance use, the presence of family support significantly reduced the odds of both alcohol and illicit drug use. This finding supports prior work demonstrating the often pivotal role family members play in the reentry process (e.g., Martinez 2008; Shapiro and Schwartz 2001). Additionally, institutional support protected from alcohol use, but increased the odds of illicit drug use, thus leading to a very mixed portrait on how social supports impact substance use during reentry. However, with the exception of one statistically significant interaction, the results suggest that social supports do not moderate the relationship between depression and substance use. Overall, then, while GST theory is clearly supported, DCSS theory received mixed support as social support mechanisms generally failed to reduce the relationship between depression and substance use.

Though results suggest that social supports fail to condition the relationship between depression and substance use, we do observe one situation where a mechanism of social support moderates the relationship between depression and substance use. This interaction, which reached statistical significance for the illicit drug use outcome only, indicates that family support significantly reduces the effect of depression on illicit drug use. This significant interaction represents a potential way through which the use of more serious intoxicants might be reduced for those during the reentry process. Due to the difficulty that practitioners and policymakers have had in reducing the use of illegal substances among returning persons, this interaction, in conjunction with the main effect of family support, suggests that attempting to build high levels of family support for individuals reentering society may help diminish the criminogenic effects of depression on substance use during reentry.

Results of this study offer additional notable findings. Although having institutional support in the form of substance abuse treatment was significant and negatively related to alcohol use as expected, institutional support was significant and positively related to illicit drug use. In other words, attending substance abuse treatment programming significantly increases the likelihood that someone will use illegal drugs after release from prison. As alcohol is the most commonly abused substance in the United States, these findings are – in one way – positive. Receiving institutional support in the form of substance use treatment reduces the likelihood that a person will turn to America's 'intoxicant of choice' during reentry. However, illicit substances represent a much different and more serious class of drugs in terms of dependency risk, user effects, overdose potential, and long-term consequences (Mosher and Akins 2014). Further, illicit substances carry the potential of forming 'subcultures' that may escalate both substance use and criminal offending (Cohen 1955). Accordingly, exploring whether substance abuse treatment actually 'treats' or 'harms' persons during reentry should be a top priority to researchers exploring the process of returning home. Such an analysis is important as our results indicate that substance abuse treatment programming – a form of institutional support – may actually promote illicit drug use.

Findings of this study are relevant to policies and practices for persons undergoing reentry for several reasons. Perhaps the most obvious implication is our results indicate that practitioners and policymakers should begin concentrating on trying to find ways to help returning individuals cope with negative affect in positive ways. Based on our results, negative affective states (i.e., depression) lead to negative coping strategies. Mechanisms of social support (i.e., peer, family, and institutional) do not condition away this harmful effect. In lieu of the types of social support mechanisms examined in this study, our results indicate that treatment for depression could considerably benefit returning persons.

Supporting this observation, supplemental analyses demonstrate that only 10 percent of people in the SVORI data are receiving treatment for mental health issues during the time they are incarcerated. Given the prevalence of mental health issues among the incarcerated population in the United States (Diamond et al. 2001; Mallik-Kane and Visser 2008), this number is alarmingly low. However, what is more worrisome is the number of individuals receiving mental health treatment drops to 1.8 percent once they are released from prison.

Although we are unable to determine the specific reason for the decline in mental health care post-release, we posit that clinical care is either not accessible, affordable, feasible, and/or perceived as necessary by returning persons *despite* the fact that there is a detectable and substantive need for treatment for depression for many persons in this data. It could be that returning persons tend to believe that the post-release social support received from family, peers, and treatment programs are 'enough' for them to be successful during reentry. Yet, family, peer, and institutional supports do not make up for the clear need for clinical treatment for depression among persons in our sample. As such, policymakers and practitioners should stress that clinical care is necessary for certain persons who are returning home.

Despite the contributions of this project, there are some notable limitations. First, although the SVORI data are similar in composition to the broader incarcerated and correctional population (Carson and Anderson 2016), the data includes only serious and violent offenders and may not be representative of the broader incarcerated population. Future work should investigate the role of social support mechanisms on depression and substance use in other correctional populations. In addition, this sample contains only males and, therefore, may not be generalizable to females. Although research on women during reentry is limited, existing studies suggest that support mechanisms function differently for females and males (Johnson and Zlotnick 2012), meaning that future research should explore how support may operate differently between men and women during reentry.

In addition, we are limited in how the dependent variables were collected. Unfortunately, SVORI did not collect data on the frequency of use of any substance. There are likely differences in an individual who uses marijuana once or twice, and an individual that uses substances more frequently. Unfortunately, we are limited due to a lack of frequency measure within the data. Finally, we are limited in exploring the role of depression and social support within the first 15 months of the reentry process. Although there is no clear 'end' to the process of reintegration, it is possible that depression and social support mechanisms have longer term effects on reentry outcomes than we are able to examine currently. Beyond limitations to the data, this study offers only a partial test of general strain theory. Although the vast majority of returning individuals experience strain (see Travis 2005; Visher and Travis 2003), it is likely that different types of strain that are experienced during reentry vary considerably across individuals. Variation in the types of strain experienced may contribute to variations in negative affect and potential coping mechanisms. Because our findings suggest that general strain theory is a useful theoretical orientation in understanding the reentry process, future research should offer a more comprehensive test of GST.

Outside of the limitations, this study nonetheless contributes to the existing scholarship in a variety of ways. First, from a theoretical standpoint, general strain theory is rarely applied to processes which contribute to desistance during reentry. Furthermore – to the best of our knowledge – DCSS theory has never been applied in this context. Based on our results, both GST and DCSS theory offer meaningful contributions to the explanation of substance use after reentry. Additionally, although our findings support the broader literature on the important role of family within the reentry process, they also suggest that family support

fails to mitigate the damaging effects of depression on substance use. Accordingly, sociologists should look elsewhere to identify other mechanisms that may interrupt the criminogenic process between depression and substance use.

From a policy standpoint, results challenge the applicability of substance abuse treatment programs for those who have a proclivity towards the use of ‘harder’ drugs. While alcohol use is decreased during reentry by institutional substance abuse treatment, the use of more serious intoxicants is worsened by such treatment. Collectively, this implies that a ‘one size fits all’ approach to substance abuse treatment is inadequate for persons undergoing the reentry process. Instead, our results insinuate that separate substance abuse treatment programs should be given to those who use alcohol and those who prefer harder drugs. This practice, however, is already used extensively (e.g., Alcoholics Anonymous vs. Narcotics Anonymous). As such, researchers must try to better understand this finding since having substance abuse treatment programming that increases rather than decreases substance use during reentry is harmful to individuals and the criminal justice institution alike. In a system where there is a scarcity in funding, our findings speak to the harm of putting resources towards programs and policies that promote deleterious outcomes, as doing so fundamentally subverts any portion of the correctional mission which seeks to rehabilitate.

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Table 1.SVORI sample descriptive statistics ($n = 1,229$).

Variable	Mean	Std. Dev.	Range
Dependent Variables			
Alcohol Use ^{TV}	0.628	0.483	0, 1
Illicit Drug Use ^{TV}	0.391	0.488	0, 1
Independent Variables			
Depression (Natural Log) ^{TV}	2.086	0.353	1.791–3.258
Family Support ^{TV}	7.049	1.681	0–9
Peer Support ^{TV}	14.616	3.742	5–20
Institutional Support ^{TV}	0.222	0.416	0, 1
Control Variables			
Race ^{TI}			
<i>Black</i>	0.515	0.500	0, 1
<i>Other</i>	0.124	0.330	0, 1
Age ^{TI}	29.461	7.238	18–69
Married ^{TI}	0.105	0.307	0, 1
Employed ^{TV}	0.666	0.772	0, 1
Prior Convictions ^{TI}	5.81	7.865	1–90
Length of Incarceration ^{TI}	936.191	934.635	44–9,486
SVORI Participant ^{TI}	0.539	0.499	0, 1

NOTES: SVORI = Serious and Violent Offender Reentry Initiative, TV = time variant, TI = time invariant.

Table 2.Mixed-effects regression assessing alcohol use post-release ($n = 1,229$).

Variable	MODEL 1		MODEL 2		MODEL 3		MODEL 4	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
Independent Variables								
Depression (Natural Log)	0.623	0.223**	0.621	0.224**	0.621	0.226**	0.697	0.251**
Family Support	-0.090	0.045*	-0.090	0.046*	-0.090	0.046*	-0.091	0.046*
Peer Support	0.014	0.020	0.014	0.020	0.014	0.020	0.014	0.020
Institutional Support	-0.740	0.173***	-0.740	0.173***	-0.740	0.173***	-0.738	0.173***
Interactions								
Family Support $\times$ Depression	–	–	-0.010	0.114	–	–	–	–
Peer Support $\times$ Depression	–	–	–	–	-0.003	0.051	–	–
Institutional Support $\times$ Depression	–	–	–	–	–	–	-0.294	0.457
Control Variables								
Race								
<i>Black</i>	0.452	0.206*	0.452	0.206*	0.452	0.206*	0.456	0.206*
<i>Other</i>	0.288	0.303	0.287	0.303	0.288	0.304	0.286	0.303
Age	-0.051	0.013***	-0.051	0.013***	-0.051	0.013***	-0.051	0.013***
Married	-0.411	0.305	-0.411	0.305	-0.411	0.305	-0.412	0.305
Employed	0.103	0.155	0.103	0.155	0.103	0.155	0.106	0.155
Prior Convictions	0.037	0.013**	0.037	0.013**	0.037	0.013**	0.037	0.013**
Length of Incarceration	-0.001	0.001**	-0.001	0.001**	-0.001	0.001**	-0.001	0.001**
SVORI Participant	-0.348	0.186	-0.348	0.186	-0.348	0.186	-0.349	0.186
Constant	1.743	0.806*	1.746	0.807*	1.748	0.810*	1.585	0.842
X ²	68.82***		68.79***		68.28***		69.22***	
ICC	0.622	0.033	0.622	0.033	0.622	0.030	0.621	0.031

 $p < .001$ **
 $p < .01$ *
 $p < .05$

Table 3.Mixed-Effects Regression Assessing Illicit Drug Use Post-Release ($n = 1,229$).

Variable	MODEL 1		MODEL 2		MODEL 3		MODEL 4	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
Independent Variables								
Depression (Natural Log)	2.084	0.209 ***	2.149	0.211 ***	2.103	0.212 ***	2.093	0.221 ***
Family Support	-0.163	0.041 ***	-0.171	0.042 ***	-0.163	0.042 ***	-0.163	0.042 ***
Peer Support	-0.001	0.019	-0.001	0.019	-0.001	0.019	-0.001	0.019
Institutional Support	0.536	0.154 ***	0.537	0.154 ***	0.535	0.154 ***	0.536	0.154 ***
Interactions								
Family Support $\times$ Depression	–	–	-0.245	0.102 *	–	–	–	–
Peer Support $\times$ Depression	–	–	–	–	0.026	0.047	–	–
Institutional Support $\times$ Depression	–	–	–	–	–	–	-0.042	0.428
Control Variables								
Race								
<i>Black</i>	-0.133	0.174	-0.129	0.174	-0.136	0.174	-0.132	0.174
<i>Other</i>	-0.385	0.259	-0.366	0.259	-0.393	0.260	-0.385	0.259
Age	-0.042	0.011 ***	-0.042	0.011 ***	-0.042	0.011 ***	-0.042	0.011 ***
Married	-0.279	0.264	-0.289	0.265	-0.281	0.264	-0.279	0.264
Employed	-0.410	0.139 ***	-0.412	0.139 ***	-0.408	0.139 ***	-0.410	0.140 ***
Prior Convictions	0.048	0.010 ***	0.047	0.010 ***	0.048	0.010 ***	0.048	0.010 ***
Length of Incarceration	-0.001	0.001 ***	-0.001	0.001 ***	-0.001	0.001 ***	-0.001	0.001 ***
SVORI Participant	-0.357	0.158 *	-0.364	0.157 *	-0.357	0.158 *	-0.357	0.158 *
Constant	-2.133	0.700 ***	-2.203	0.701 ***	-2.169	0.712 **	-2.153	0.739 *
X ²	190.72 ***		195.31 ***		191.08 ***		190.77 ***	
ICC	0.499	0.038	0.498	0.038	0.499	0.038	0.499	0.038

 $p < .001$ **
 $p < .01$ *
 $p < .05$