INMATE MENTAL HEALTH: IMPORTATION, DEPRIVATION, AND INTEGRATED PERSPECTIVES

by

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(Under the Direction of Jody Clay-Warner)

ABSTRACT:

Much of the previous research on the mental health outcomes of inmates has been implicitly organized by either an importation or deprivation theoretical approach. These approaches attribute the mental health outcomes of inmates to either life-experience factors imported into the prison (importation model) or to factors present within the prison environment (deprivation model). Contemporary research has called for an integrated theoretical approach that uses both models. However, much of the research conducted using an integrated approach has only focused on single institutions. To address the gap in the literature, this thesis uses national data on state inmates in conjunction with national data on 232 state prisons to examine how both individual experiences and the conditions of the prison impact mental health outcomes. Results indicate that both inmate characteristics and prison characteristics affect inmate mental health. Thus, research that only makes use of one theoretical model may yield incomplete empirical results. Theoretical and practical implications of these findings are discussed. Suggestions for future research on the topic of inmate mental health are proposed.

Key Words: Prison, Importation, Deprivation, Mental Health, Prison Conditions, *Survey of Inmates in State Correctional Facilities, Census of State and Federal Correctional Facilities*, Structural Equation Models, Confirmatory Factor Analysis

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TABLE OF CONTENTS

LIST OF TABLES

Page

LIST OF FIGURES

Page

Introduction

The poor mental health of the inmate population is a serious problem that plagues the modern prison institution system. Data available from the Bureau of Justice Statistics shows that 56.2% of state inmates report having a mental problem, with 73.1% of female state inmates reporting a mental health problem compared to 55% of male state inmates (James and Glaze 2006). In a nationwide survey of state and federal inmates, Wilper et al. (2009) found that 69% of federal inmates and 68.6% of state inmates were on a psychiatric medication after admission. These elevated levels of negative mental health conditions among the prison population may lead, in part, to negative behaviors such as suicide and suicide attempts. Indeed, the rates of suicide in prison typically exceed those in the general population (Mumola 2005).

While there have been many studies of mental health in prison (Brockway 1969), few studies have analyzed the underlying mechanisms that result in worsened mental health states in prison (Liebling 1992; Tartaro and Lester 2009). Like much of the prison research on inmate behavior, prison mental health research has been implicitly organized by either an importation or deprivation theoretical approach (Tartaro and Lester 2009). These approaches represent a larger debate in the prison literature concerning how inmates adjust to prison. The importation approach focuses on the characteristics specific to the individual inmate, while the deprivation approach focuses on the characteristics specific to the prison itself. Thus, these approaches attribute behavior by inmates to life-experience factors imported into the prison by individual inmates (importation model) or to factors present within the prison environment (deprivation model).

While these models have been useful in investigating the reasons behind inmate behavior, both the importation model and deprivation model have critical limitations. Namely, importation cannot adequately assess the effect of prison context on inmate behavior, while deprivation cannot adequately assess why inmates in the same depriving environment display different behaviors. Given the limitations of both models in explaining inmate behavior, recent prison research has emphasized the utilization of an integrated model that focuses on the ways in which individual life experiences interact with depriving prison conditions to explain inmate behavior. While an integrated approach is promising, more empirical support for the model needs to be established. Importantly, there has yet to be a study that investigates how deprivation indicators moderate the impact of imported characteristics on behavior and health conditions.

Using this integrated theoretical framework, my thesis will address 3 research questions: (1) How do individual characteristics influence mental health? (2) How do the conditions of prison influence inmate mental health? (3) How do conditions of the prison moderate the impact of imported characteristics on individual mental health? In the following pages, I first present a review of the prison mental health research highlighting the contributions and limitations of the importation, deprivation, and integrated models respectively. This will provide more detailed information about the literature in which my research questions are embedded. Next, I provide the specific hypotheses that I will test in my thesis. Finally, I detail the specific methods that I use in my thesis including information about data sources, variables to be included in my models, and my analytic strategy.

Literature Review

Importation Model

The importation model focuses on the ways in which individual life-experience factors affect prisoner behavior and experience while in prison. These individual characteristics that exist prior to being incarcerated are said to explain things such as violent behavior, prison misconduct, and inmate mental health. Studies implementing the importation model generally point to negative life-experiences that serve as risk factors for various negative mental health states. These risk factors include physical, sexual, or emotional victimization, prior suicide attempts, substance abuse problems, self-mutilation, and demographic characteristics such as age, sex, and race. Finally, the importation model often claims that the deprivation model assumes a "closed system-orientation" (Thomas and Foster 2005) as it does not adequately consider characteristic factors of individual inmates external to the immediate prison environment. In the following pages, I present findings from importation research regarding inmate mental health. After presenting this literature, I discuss the limitations of importation research.

Traumatic Life Experiences

Past and current traumatic life experiences are associated with depressive outcomes (Arboleda-Florez & Wade 2001; Johnson et al. 2002). Much of the prison literature on traumatic events has focused on early life and current experiences with personal victimization (both physical and sexual); dysfunctional family experiences; previous history of self-mutilation; and previous history of suicide attempts. Further, much of this literature focuses on behavioral

manifestations of negative mental health states such as suicide. In a study of 66 suicides among Canadian federal inmates across four years, Laishes (1997) found that 97% of persons who had committed suicide had previously reported highly dysfunctional backgrounds including parental substance abuse, physical abuse, sexual abuse, and having violent fathers. Further, over half of these inmates were considered depressed at the time of suicide. In a study of 8000 male and female inmates, Wolff and Jing (2009) found that inmates with mental disorders had higher rates of community and prison-based victimization and feelings of unsafety relative to inmates not reporting mental disorders. Rates of prison-based victimization were higher for those reporting prior community-based victimization.

This study aside, it is argued that many inmates, whether or not they display a negative mental health condition, have dysfunctional family backgrounds (Tartaro and Lester 2009). Therefore, the extent to which having a dysfunctional family background plagued by abuse is an indicator of a worsened mental state among inmates may be questionable. Studies, however, have addressed this concern. For example, Messina and Grella (2006) assessed the relation between childhood traumatic events and mental health problems among 500 female inmates in California. They found that there was a larger proportion of women reporting use of psychotropic medications, previous mental health treatment, or previous suicide attempts, among those reporting exposure to childhood traumatic events. A total of 51% of those reporting five or more childhood traumatic events had previously received mental health treatment. Comparatively, only 17% of those women reporting no childhood traumatic events had previously received medical treatment; similarly, 49% of those reporting five or more childhood traumatic events had previously attempted suicide compared with only 17% of those with no childhood trauma having previously attempted suicide. In addition to these findings, the authors

also observed general increases in the proportion of women who had a positive GSI (global severity index) score or a positive TSC (Trauma Symptom Checklist) score with greater exposure to childhood traumatic events. Thus, while dysfunctional family backgrounds and traumatic experiences were linked, it seems that those women who experienced more early life dysfunction had worsened mental health states.

Interestingly studies conducted by Darby et al. (1998) and Liebling (1992) found that there was a gendered effect of previous victimization on mental health and suicidal behavior. In both studies, it was found that a history of victimization did distinguish male suicide attempters from non-suicide attempters, but that this was not true for females. One reason for this finding is that females in prison are much more likely to report being physically and sexually victimized than their male counterparts (Liebling 1994). Indeed, a 1999 report by the BJS detailed that 6 in 10 female inmates have experienced some form of physical or sexual victimization in their past (Greenfield and Snell 1999). In a nationally representative sample of state and federal inmates, Leigey and Reed (2010) showed that non-life sentenced female inmates reported a considerable history of physical victimization (70.2%) and sexual victimization (40.4%). This percentage increased among female lifers (77.8% for physical victimization and 59.6% for sexual victimization). Thus, victimization is more a characteristic of the general female inmate population than it is a predictor of mental health.

It should be noted that among female inmates sexual victimization is not as common as physical victimization (see the results from Leigey and Reed discussed above). This is important because previous research has shown that sexual abuse explains more variance in mental health outcomes than does physical abuse (Nelson et al. 2002). This suggests a need for research that separates the effects of physical and sexual victimization on mental health among female

inmates. In order to tackle this association between prior victimization and mental health, Verona, Hicks, and Patrick (2005) analyzed a sample of 226 female inmates in Florida. They found that physical victimization did not account for unique variance in suicide attempts, while sexual victimization did account for unique variance in suicide attempts. Further, Aday et al. (2014), made comparisons between sexually-victimized and non-sexually victimized female inmates (including those who were physically victimized but not sexually victimized). Sexually victimized women were more likely to report increases in health problems and mental health diagnoses, as well as other self-reported mental health conditions, such as paranoia, depressive symptoms, anger, and lifestyle changes. Respondents with extensive sexual abuse histories (multiple and across the life cycle) were also more likely to suffer higher levels of paranoia, depression, chronic health problems, and attempted suicide.

Age

While the onset of mood disorders, certain anxiety disorders, and suicide mortality in the general population seems to occur after early adolescence and adulthood (WHO 2004; WHO 2007), these results do not hold true for the inmate population. In fact, studies identify younger inmates as being more at risk for depressive symptoms and suicide than older offenders. For example, in their study of 76 suicides in the New York prison system between the years of 1993 and 2001, Way et al. (2005) found that 47% of individuals who committed suicide were between the ages of 25 to 34. These inmates also reported an increased reluctance to report to mental health staff about their suicidal intentions and about their "sinking" into a more depressed state. Similarly, a Bureau of Justice Statistics report on suicide among incarcerated persons found that the suicide rate for inmates under age 18 was 52 per 100,000 for 2001-2002 (it should be noted, however, that this age group accounted for less than .3% of State prisoners during these years).

The report also found a rate of 14 suicides per 100,000 for the age groups 18 to 24 and 25 to 34 (Mumola 2005). Further, research focused on juveniles in custody has demonstrated that juveniles seem to be at a disproportionate risk for suicide and disproportionally display negative mental health states. A report by Cocozza and Skowyra (2000) found that youth in the juvenile justice system experienced substantially higher rates of mental health disorders than youth in the general population. Further, suicide is the leading cause of death in juvenile detention centers (Gallagher and Dobrin 2006). Hayes (2004) estimated that suicide rates among incarcerated juveniles are more than 4 times higher than suicide rates among juveniles in the general population. Finally, the Bureau of Justice Statistics report on suicide among incarcerated populations mentioned above found a higher rate of suicides for inmates under the age of 18 (101 per 100,000 per year) compared to inmates aged 18 to 24 (38 per 100,000 per year) (Mumola 2005).

Sex

Much of the research on prison suicide has focused almost exclusively on male prisons (White, Schimmel, and Fricke 2002). This focus has existed for several reasons. Namely, males are more likely to commit suicide than are females (Bridges and Kunselman 2002). Suicide among incarcerated populations has in turn been historically treated as largely a male phenomenon (Liebling 1999) and subsequently most mental health research has focused on males because suicide is often the target of mental intervention (Tartaro and Lester 2009). This is problematic for several reasons. First, in almost all societies females are more likely to be depressed than males (Tartaro and Lester 2009). Females are also more likely than males to attempt suicide and have higher suicidal ideation than do males. This is true for both the general U.S. population and for incarcerated populations (Tartaro and Lester 2009). Thus, incarcerated

females may actually be more at risk for *attempting* suicide than are males and are certainly more at risk for a host of depressive symptoms. Next, Dye (2011) used national data on U.S. prisons to compare incarcerated male and female suicide rates. She found that suicide rates were similar for males and females in prison. Further, suicide rates were higher for female inmates and lower for male inmates compared to their respective rates for females and males in the U.S. general population. Thus, incarcerated females are more at risk for completing suicide than females in the general population, while incarcerated males are at lower risk than males in the general population. Finally, the assumption that suicide in prison is a male phenomenon can lead to differences in the classification of female inmate deaths. For example, Liebling (1994; 1999) found that incarcerated female suicides were more likely to be officially labeled as a "misadventure" than were male suicides. In sum, the importation model's assumption that suicide in prison is a male phenomenon is perhaps misguided and may lead to further assumptions that mental health outcomes are worse for male inmates than for female inmates.

Race and Ethnicity

Racial and ethnic patterns in the mental health of inmates (including suicide) have parallels with patterns in the general population (Brown 2003). Specifically, there is an overrepresentation of White inmates with mental disorders and an under-representation of black and Hispanic inmate suicides (Toch 1992). Kovasznay et al. (2004) found Whites made up 28 percent of the 40 suicides that occurred in the New York state prisons from 1993 through 1999. However, Whites only made up 16 percent of the New York correctional population during this time. In support of this study, a report by the Bureau of Justice Statistics also found that white inmates were more likely to complete suicide than were Black inmates and Hispanic inmates (Mumola 2005). Here, the White inmate suicide rate was 22 suicides per 100,000 inmates;

Hispanic inmate suicide rate was 18 per 100,000 inmates; and the Black inmate suicide rate was 8 per 100,000 inmates. Finally, both Lindquist (2000) and Wooldredge (1999) found that Black inmates have better mental health than do White inmates.

The findings that people of color have overall better mental health than Whites could be due to several reasons. First, it may the case that people of color are less likely to seek help for mental health related issues than are Whites. Thus, it may be the case that rates of mental health are similar for people of color and for Whites. Perhaps a more likely explanation is communal support. Previous research has shown that Black communities have a greater level of communal support that do White communities (such as organizational religiosity) and it is this communal support that may stave off negative mental health outcomes (Levin, Chatters, and Taylor 1994). The parallels in racial composition of mental health and suicide between prisons and the general populations have been argued as evidence for the importation model. According to Anson and Cole (1984), the similarities in the relationships between race and suicide observed in prison and in the general population is evidence of pre-prison experiences affecting inmate mental health.

The Limitations of the Importation Model

In sum, research using the importation model focuses on inmate characteristics prior to incarceration and how these characteristics explain the mental health of these inmates. According to the research discussed above, the "culture" of the prison does not so much matter because this culture is not an isolated system. Instead, external values that are imported into the prison by the inmates then serve to create the prison environment. Due to its focus on inmate characteristics prior to incarceration, it seems logical that importation research could be used to create mental screening devices to be administered to inmates prior to incarceration. Indeed, such screeners have been created. Perhaps the most popular of these screeners are those that

assess the risk of suicide for newly incarcerated inmates (Bonner 2000). This has led to the creation of numerous "typical suicide profiles" that are used for assessing inmates who are at risk for suicide (Bonner 2000). These profiles generally include risk factors for suicide identified by importation research on mental health such as previous experience with traumatic events and various demographic correlates at the time of incarceration (Tartaro and Lester 2009; Winter 2003).

These risk profiles have questionable success rates when it comes to suicide prevention. For example, Liebling (1999) analyzed prison suicide data from England and Wales from 1987 and 1993 and found profiles to be highly problematic. Through her analysis Liebling identified three groups of inmates with specific treatment needs. The first group identified was inmates serving life sentences or very long sentences. Interestingly, this group tended to commit suicide at a later point in their sentence than other inmates. Further, these inmates tended to be on average older than the other inmates. The next group was those inmates who were diagnosed with mental disorders. This group, on average, tended to commit suicide earlier in their sentence than the other inmates. Finally, and most importantly, the third group that Liebling identified were the "poor copers." This group tended to have similar demographic characteristics as the other inmates in the general population. The only thing that really distinguished this group demographically from the general population was their vulnerability to a suicide attempt. Most importantly, the poor copers were the largest of the three identified groups. Due to their demographic similarity with the general population, correctional staff operating from a typical suicide profile and mental health screener would likely miss these poor copers. As such, this group would mistakenly be identified as low risk for suicide. Thus, Liebling provides evidence

of how a typical suicide detection system based on demographics and importation research can direct attention away from people who actually need help.

In many ways, looking at the limitations and failures of typical suicide profiles provides insight into the glaring limitations of the importation model. Importation theorists are quick to point to individual inmate characteristics rather than prison specific characteristics as being able to explain inmate mental health. By overemphasizing certain inmate characteristics, the importation model does not adequately address the prison context or the effects of incarceration itself upon the individual. The harm caused by incarceration and the prison experience itself is left unexplored. As is the case with typical suicide profiles, people who match low risk demographics yet who develop worsened mental health states as a result of the prison experience are neglected by the importation model. Some researchers have taken issue with this severe limitation and have instead developed research that critically investigates the effect of prison context on inmate mental health. This research falls in line with the deprivation model of inmate behavior. I discuss this research in the next section.

Deprivation Model

Based on classic works from scholars such as Sykes (1958) and Goffman (1961), the deprivation model emphasizes the role of the prison environment and context in explaining inmate behavior and action. According to the model, the depriving conditions of the prison itself produce violent and self-destructive behavior. Thus, the assumption is made that the stigmatizing and depersonalizing effects of incarcerations in conjunction with the power relations between the prison staff and the inmates lessen the effects of other types of variables such as inmate demographics on inmate outcomes (Dye 2010). Here then, the "pains of imprisonment" (Sykes 1958) and the nature of the "total institution" (Goffman 1961) are primary

when considering inmate mental health. In this vein, studies utilizing a deprivation model focus on things such as prison overcrowding, prison security level, inmate placement and practices of solitary isolation, and family contact.

Prison Security Level and the Supermax Prison

While limited, research suggests that the security level of the prison may impact inmate mental health. In particular, rates of depression seem to be higher and suicides occur more often in maximum security prisons than in medium and minimum security institutions. For example, using national U.S. prison data, Huey and McNulty (2005) found security level was the strongest predictor of prison suicide. Here, suicides were 4.5 times more likely to occur in medium security prisons than in minimum security prisons, while suicides were 7.5 time more likely to occur in maximum security prisons than in minimum security prisons. From a deprivation standpoint, maximum security institutions experiencing higher rates of suicide seems to make intuitive sense as it should be expected that deprivations are greatest in maximum security prisons.

By this logic, it should also follow that inmates in supermaximum prison facilities should have greater mental health concerns. This is expected because supermax prisons seem to represent the epitome of prison deprivation. Conditions within supermax facilities are harsh, with inmates confined to their cells for 22 to 23 hours per day and have extremely limited social and physical contact (Pizarro and Stenius 2004). In addition to anecdotal and journalistic accounts (Champion 2009; King 2006), there are empirical findings that link supermax confinement to negative mental health outcomes. Of particular note, Haney (2003) assessed psychological distress among the inmates in Pelican Bay using a 13-item measure of psychological distress adapted from previous research. Every symptom of psychological distress

but one (fainting spells) was suffered by more than half of the representative sample of supermax inmates. Haney compared these rates with those of inmates in protective custody and found that all measures of psychological distress were higher for the supermax inmates compared to protective custody inmates. Lovell (2008) drew a random sample of supermax inmates in Washington and found that 45% of these suffered from serious mental illness, marked psychological symptoms, psychological breakdowns, or brain damage.

Inmate placement and solitary isolation

Related to research on supermax facilities, there is robust literature on the links between solitary isolation and mental health. Studies of prison isolation have exposed a range of harmful psychological reactions to solitary isolation. In a longitudinal analysis, Andersen et al. (2000) found that solitary confinement is linked to higher rates of anxiety and depression among inmates compared to inmates who were not confined to solitary. Haney (1993) linked practices of solitary confinement to various negative outcomes including greater feelings of hopelessness, feelings of an impending emotional breakdown, and withdrawal (Haney 1993). Daniel and Fleming's (2006) contemporary analysis of U.S. prisons indicated that approximately 60% of suicides occurred in single occupancy cells. Moreover, Huey and McNulty (2005) found that U.S. prisons that house inmates in single cells are significantly more likely to experience a suicide than those prisons where inmates are housed in dormitory-like settings. Finally, many scholars argue that prison practices of confining already suicidal inmates to solitary isolation create the most opportune environment for suicides in prison to occur (Anno 1985; Kerkhof and Bernasco 1990; Kupers 1999; Toch 1992).

Overcrowding

In relation to inmate mental health, overcrowding theory stresses the harmful effects of overcrowding on an inmate's ability to adjust to prison life. For example, the consequences on adjustment caused by overcrowding could increase the chance of suicide (Huey and McNulty 2005). Innes (1987) analyzed data from 527 prisons from 1979 through 1984 and found that an increase in inmate populations was significantly associated with increases in the number of suicides. Similarly, Cox et al. (1984) found that overcrowding was associated with significant increases in psychiatric pathology of inmates and also increased incidences of suicide for the Illinois, Mississippi, Oklahoma, and Texas prisons systems from the early 1950s through the late 1970s. In explanation of this phenomenon, Toch (1985) argued that overcrowded prisons are akin to warehouses that create harmful effects on inmate experience because they deny inmates access to subsistence and rehabilitation services. This lack of access to essential services not only threatens the basic health of the inmate, but it also creates an environment of idleness, which could encourage ruminations.

Huey and McNulty (2005) used national U.S. prison data to analyze how overcrowding modifies other features of the prison context. Looking at suicide specifically, they found that overcrowding was a stronger predictor of suicide than other deprivation variables. For example, literature on security levels suggests that minimum security institutions have a lower probability of suicide than do medium and maximum security institutions. In their study, however, Huey and McNulty found that minimum security institutions were as likely to experience suicide as medium and maximum security institutions at high levels of overcrowding. Their findings point to the need to analyze the effects of overcrowding on mental health in conjunction with other identified deprivations. In all, the overcrowding literature suggests that overcrowding seems to

create environments that impede adjustment, create struggles for space and autonomy, increase the likelihood of suicide, and negatively impact mental health state (Gaes 1992).

Family contact and Prison Support

The extent to which the prison allows and facilities family contact may have an impact on inmate mental health. This is because family contact may provide a buffer against negative mental health outcomes. For example, in her interviews with U.K. prisoners, Liebling (1992) found that those at risk for suicide had few or unreliable family visits and wrote few letters. Next, Way et al. (2013) analyzed treatment preferences among 67 inmates in a maximum security prison in New York who were currently experiencing suicide ideation. They found that family contact was a preferred treatment intervention, especially over placement in a specialized cell. Among a sample of 276 incarcerated juveniles, Monahan et al. (2010) found that parental visitation significantly improved psychological well-being. Interestingly, these protective effects existed regardless of the quality of the parent-juvenile relationship. Among incarcerated females, separation from children seems to be especially difficult (Liebling 1994; Owen 1998; Pollack 2002; Wood and Grasmick 1999). For example, Liebling (1994) found that while male inmates reported boredom and bullying as the most psychologically difficult aspects of incarceration, females reported separation from family and children as the most psychologically difficult. Finally, it is perhaps not surprising that the deprivations of solitary isolation and family contact are bound up with each other. Inmates who are placed in solitary isolation are generally deprived of family contact.

Limitations of Deprivation Model

Prison research that takes a deprivation approach focuses on the context of the prison and how certain deprivations are major factors in prison suicide. Deprivations for mental health

include overcrowding, inmate placement and isolation, and prison security level. Of course, these deprivations are not distinct processes, as multiple deprivations are present at one time. The amount of overcrowding has the potential to moderate the effects of security level on mental health. Further, practices of solitary isolation and family contact are bound up with each other. While deprivation research has provided important insight into the role of prison context on mental health, the deprivation model is not without its limitations. Perhaps the most important critique of the deprivation model is the fact that inmates residing in the same institution have varied mental health states. If prison deprivation is the principal cause of inmate outcomes then why do some inmates in similarly deprived prisons display negative outcomes while other inmates do not? Thus, the deprivation approach cannot adequately assess why incarceration leads to negative mental health for some inmates but not others. In order to distinguish between those who are mentally ill and those who are not, individual characteristics should be evaluated along with prison context. This type of approach would require an integration of both the importation and deprivation models. The need for an integrated approach has been recognized by prison scholars (Liebling 2006). In the next section, I review research that makes use of an integrated approach to inmate mental health.

Integrated Model

As the above discussion indicates, both the importation and deprivation models have weaknesses that leave certain questions unanswered. In terms of inmate mental health, importation cannot adequately assess the prison context, while deprivation cannot adequately assess individual characteristics of inmates. As both Dear (2006) and Liebling (2006) suggest, this calls for a synthesis of the two approaches in order to provide a useful theory of inmate mental health. Importantly, an integrated model recognizes that prisons are painful, depriving

institutions and that some prison conditions increase the likelihood of negative mental health outcomes for some inmates. In this model, there is focus on how inmates react to conditions in prison based upon certain characteristics that may make them more vulnerable to prison effects (e.g., certain socio-demographics, mental disorders, or past experiences with victimization). Thus, this model emphasizes interactions between inmate characteristics and the prison environment. While there is a need for an integrated approach, inmate mental health research using integrated models is still underdeveloped. In fact, most research on mental health using the integrated model focuses specifically on suicide ideation and attempts. However, suicide ideation and attempts are good measures of mental health and thus the research will be discussed here. Having said this, research in this vein does not provide information on mental health states that may precipitate suicidal behavior such as depression. This is a limitation that is addressed by the current research.

Much of the initial empirical support for the integrated model is found within Liebling's early qualitative work on U.K. prisons (Liebling 1992; 1995; 1999). Liebling conducted interviews with inmates and found that suicide attempters coped less well with prison than a comparison group of inmates randomly drawn from the general population within the same prisons. In addition, suicidal inmates reported more instances of sexual trauma, violent family backgrounds, having a more difficult time interacting with fellow inmates, having a more difficult time with idleness, and having a more difficult time keeping in contact with family. Liebling makes the argument that the characteristics of the suicide attempters intensified the depriving aspects of the prison. In short, these inmates were more vulnerable and the deprivations of the prison only served to exacerbate these vulnerabilities.

Building from her qualitative work, Liebling (2006) conducted surveys with inmates and correctional staff within 12 U.K. prisons. The purpose of this study was to understand the relationship between individual experiences, prison setting, and prisoner distress. To this end, Liebling included measures designed to address vulnerabilities to suicide such as previous psychiatric treatment and previous suicide attempt. Each of her vulnerability measures significantly predicted whether the person had considered suicide while in prison. She found these vulnerabilities were related to both prison setting and quality. Further, vulnerability and prison differences both significantly predicted prisoner distress. In all, her regression analysis revealed that deprivation indicators explained 45 percent of prisoner distress while the pre-prison vulnerability measures explained between 8 and 15 percent of prisoner distress.

Finally, Dye's contemporary analysis of prison suicide also provides empirical support for the integrated model. Dye (2010) used national data on 1,082 U.S. prisons to analyze the relevant factors in prison suicide. Dye included measures of prison deprivation and inmate importation and found that deprivation indicators such as high security level and overcrowding significantly increased the likelihood of suicide occurrence. Likewise, importation factors such as the percentage of inmates receiving mental health related care also significantly increased the likelihood of suicide occurrence in the prison. Dye's results pointed to the combined effects of prison deprivation and inmate composition on inmate suicide.

The Compound Stress Model of Health

While the proposed research is concerned with how the environment of the prison moderates the effect of inmate characteristics on mental health, the findings are also linked to broader sociological processes identified in the health literature. Much of this literature focuses on how multiple stressors along with debits in psychosocial coping resources can result in any

one of a wide variety of bodily, behavioral, or emotional problems (Thoits 2010). In terms of mental health, the idea is that certain individuals will lack adequate psychological coping resources to handle stress inflicted by certain environmental configurations (Thoits 2010). Regarding coping resources, stressors can compound and reduce the availability of psychological coping resources over the life course. For example, experiences with victimization in childhood can lead to the reduction in coping resources in adulthood and thus current events can result in greater stress for the individual (Horwitz et al. 2001). Childhood stressors harm adult mental health indirectly through stress accumulation (Turner and Avison 2003). The integrated model of inmate behavior tested here suggests similar occurrences. Namely, the prediction is made that inmates who possess poor coping resources due to individual characteristics and experiences with negative life events will be more susceptible to depriving (and stressful) environmental conditions. Thus, deprivations in the prison call out depression, anxiety, and anger in more vulnerable inmates.

Propositions

In sum, empirical findings of importation research find that behavior and health conditions among inmates are caused by certain characteristics imported into the prison that place the inmate at risk for these behaviors and health conditions. On the other hand, findings of deprivation research show that higher levels of deprivation increase the likelihood of certain behaviors and health conditions. Both models have their weaknesses. Importation cannot adequately explain the effect of prison context on behavior and health conditions, while deprivation cannot adequately explain why some inmates in the same prison display certain behaviors and health conditions while others do not. Contemporary prison research is pushing towards an integrated approach, which utilizes the strengths of both models. An integrated model recognizes that prisons are painful, depriving institutions and that some prison conditions increase the likelihood of certain negative behaviors and health conditions for *some* inmates. The implication here for mental health is that prison conditions are likely to moderate the effects of imported characteristics on inmate mental health conditions. This is consistent with the broader compound stress model. Thus, my thesis is guided by the following propositions:

P1: Imported characteristics predict individual mental health state.

P2: Depriving characteristics of the prison predict individual mental health state.

P3: Deprivation indicators will moderate the impact of imported characteristics on individual mental health state.

Methods

Data

Two separate data sets will be used in order to test my hypotheses. The first data set is the *2004 Survey of Inmates in State Correctional Facilities* (SISCF), and the second is the *2000 Census of State and Federal Correctional Facilities* (CCF). Collected periodically by the Bureau of Justice Statistics since 1974, the SISCF contains individual-level data on a national sample of state inmates. The 2004 survey contains a sample of approximately 14,500 state inmates selected from 1,585 state prisons. The final sample for this analysis consists of 6,675 inmates (see below for a discussion of how the final sample was derived). Data in the survey include the individual characteristics of prison inmates such as socio-demographics, mental health status, prior experiences with victimization, and family background; current offenses; current sentences and time served; criminal histories; prison activities, conditions and programs; and health care services provided while in prison. These data were collected via individual interviews with each inmate. I selected this data set because it is the largest sample of U.S. state inmates in existence that has information on both individual inmate mental health and importation and deprivation predictor variables as identified in the literature.

Despite its distinct advantages in empirically testing the integrated prison model, the SISCF is not without its limitations. First, the data are cross-sectional, which limits the extent to which I can make determinations of causality. Next, while the SISCF provides excellent individual-level data, critical deprivation indicators are not present in the data set. Namely, there are not measures of overcrowding or security level of the institution present in the SISCF.

However, the *2000 Census of State and Federal Correctional Facilities* (CCF) does contain these deprivation indicators. The CCF is a longitudinal survey of U.S. prisons, sponsored by the U.S. Department of Justice and the Bureau of Justice Statistics and is conducted by the U.S. Census Bureau. Compiled every five to seven years since 1974, the CCF contains data on the characteristics of federal, state, and private adult correctional facilities, including prisons, prison farms, state-operated local detention facilities, reception/diagnostic/classification centers, vocational training facilities, and correctional drug/alcohol treatment facilities.

Exclusion Criteria and Merging Data Sets

Because mental health in the SISCF was measured via a series of questions asking about psychological experiences within the past year, I only include inmates who have been incarcerated for at least a year. Therefore, cases that had not been incarcerated for a year were dropped from the analysis. Excluding those who had been incarcerated for at least a year left 8,077 inmates out of the original sample of 14,500.

In order to test the integrated model, it was necessary to merge the SISCF and the CCF. I merged these data sets via a common indicator that appears in both data sets: population count of the prison. The SISCF contains a variable that identified the population count of the prison in which the individual resides. This inmate count was pulled from information given by the respective prison in the 2000 Census. Thus, by comparing these two data sources, it was possible to identify the prison that in which the individual was living at the time of the interview. However, some cases could not be identified by this method due to duplicate population counts in the CCF. For example, if case x was in a prison with a population count of 350 inmates and there were three prisons with 350 population in the Census then it would be impossible to determine which prison case x was nested in. When this occurred, I had to drop the case. In

total, 775 cases out of the original 8,077 cases had to be dropped for this reason, leaving 7,302 cases remaining. Any missing data on responses was handled through maximum likelihood estimation (MLE). Maximum likelihood is an imputation procedure wherein the set of values of the model parameters that maximize the likelihood function are selected. Put simply, maximum likelihood attempts to find the parameter values that make the observed data most likely. In this way, MLE gives a unified approach to estimation (Myung 2002). Despites its strengths, MLE is still not able to handle all missing cases. This approach left a final sample of 6675.

Measures

Dependent Variables

The primary dependent variables are measures of current mental health status. Measures of mental health status exist as two separate indices each measuring a facet of mental health: depression and anger. These indices were computed via confirmatory factor analysis of items in a mental health screening administered to each inmate. This screening was adapted from the referral decision scale (Teplin and Swartz 1989) and contains 22 questions each designed to measure individual mental health condition within the past year. The depression factor is comprised of the following four questions:

1. In the past year, have you had difficulty feeling close to friends or family members?
2. In the past year, have you given up hope for your life or your future?
3. In the past year, have there been periods when you felt like no one cares about you?
4. In the past year, have there been periods when you felt numb or empty inside?

The anger factor is comprised of the following four questions:

1. Have you lost your temper easily, or had a short fuse more often than usual?
2. Have you been angry more often than usual?
3. Have you hurt or broken things on purpose, just because you were angry?
4. Have you thought a lot about getting back at someone you have been angry at?

Table 1 summarizes the results of each CFA. Factor loadings for depression ranged from .36 to .77 while the factor loadings for anger ranged from .45 to .79. Both CFAs had excellent model fit. Thus, as a measure of distinct facets of a mental health state, these constructs seem to be valid. These measures do, however, have certain limitations. As with any mental health screening, there are certain conflations with distinct measures of mental health condition. To account for this, I correlate the errors of depression and anger in the SEM analysis.

Table. 1 CFA of Depression and Anger – Factor Loadings and Model Fit

	Depression	Anger
Q1	.54	.81
Q2	.36	.76
Q3	.77	.45
Q4	.78	.52
CFI = .99, TLI = .998, RMSEA = .015,SRMR = .004		CFI = .98, TLI = .94, RMSEA = .095,SRMR = .027

Deprivation

Deprivation is encompassed by nine independent variables: *overcrowding*, *security level*, *visitors received*, the distance between the prison and the inmate's home, whether television is allowed in the prison, rate of work assignments, whether a suicide was recently committed in the prison, the rate of infractions in the prison, and practices of solitary isolation. For the *overcrowding* measure, I constructed a standardized index similar to the one constructed by Huey and McNulty (2005). This index includes (a) the ratio of the total number of inmates and to the design capacity of the prison, and (b) the ratio of the number of inmates to the number of correctional staff in the prison. Both ratios were added together and then standardized to achieve

a scale of overcrowding. Thus, higher scores on the scale reflect a greater level of overcrowding in the prison.

MaxMedSecurity is measured at the institutional level. In this analysis, I compare minimum security institutions to all other institutions. *NoVisitors* represents the proportion of individuals within each prison that did not receive visitors in the last month. A higher proportion of inmates in the prison who do not receive visitors indicates a deprived environment. Similarly, *GreatDistance* is an aggregate measure representing the proportion of inmates within each prison that are more than 50 miles from their residence prior to incarceration. *GreatDistance* can be thought of as deprivation because it is the institution that removes the individual from possible familial support. *NoTelevision* is a measure of whether televisions are allowed in the prison with "yes" as the reference category. *Work assignments* is measured at the institutional level and indicates the proportion of individuals in the prison who have a work assignment. As suggested by the literature, boredom induced by not having a work assignment can lead to worsened mental health states.

Suicide measures if a suicide occurred in the prison between 1999 and 2000 (the time of the census). The recent occurrence of a suicide indicates a more deprived environment. *Infractions* is an aggregate measure representing the mean number of inmates in each prison that have been charged with rule infractions within the last month. *Solitary* is a measure of whether the inmate has been placed in solitary isolation as a result of rule infractions. *Solitary* is thus a deprivation enacted upon the individual. Taken together, both measures indicate the level of punitiveness in the prison—*rule infractions* through an aggregate measure and *solitary* through an individual measure.

Importation

Importation is measured by nine independent variables all drawn from the SISCF: sex, race, age, history of physical abuse, history of sexual abuse, employment prior to incarceration, residential status before incarceration, and alcohol abuse. *Female* is operationalized as male or female with male serving as the reference category. *Race* is separated into white, black, and other with white serving as the reference category. *Age* is operationalized as the reported age of the inmate at the time of the interview. History of *physical abuse* is operationalized as a question asking whether the inmate experienced physical abuse prior to incarceration with no as the reference category. Similarly, history of *sexual abuse* is operationalized as a question asking whether the inmate experienced sexual abuse prior to incarceration with "no" as the reference category.

Unemployed prior to incarceration records whether the inmate was unemployed the month before being incarcerated. *Homeless* asks if the inmate was homeless the month before being incarcerated. Finally, *alcohol abuse* is a factor constructed from 11 questions on the survey. All of these items are intended to measure the level of alcohol abuse by the individual prior to incarceration. EFA revealed that all items loaded on a common factor (the lowest loading was .94) and the alpha was .98. For the scale, higher values indicate higher levels of alcohol abuse prior to incarceration.

Hypotheses

Each proposition has the following hypotheses:

Prop1: Imported characteristics predict individual mental health state.

H1a: Females will have higher levels of depression than males.

H1b: Females will have higher levels of anger than males.

H1c: White inmates will be more depressed than black inmates.

H1d: White inmates will have greater levels of anger than black inmates.

H1e: Inmates with prior experiences with physical victimization will be more depressed.

H1f: Inmates with prior experiences with sexual victimization will be more depressed.

H1g: Inmates with prior experiences with physical victimization will have greater levels of anger.

H1h: Inmates with prior experiences with sexual victimization will have greater levels of anger.

H1i: Age will be negatively related to depression.

H1j: Age will be negatively related to anger.

H1k: Unemployment prior to incarceration will be positively associated with depression.

H1l: Unemployment prior to incarceration will be positively associated with anger.

H1m: Homelessness prior to incarceration will be positively associated with depression.

H1n: Homelessness prior to incarceration will be positively associated with anger.

H1o: Higher levels of alcohol abuse prior to incarceration will be positively associated with depression.

H1p: Higher levels of alcohol abuse prior to incarceration will be positively associated with anger.

Prop2: Depriving characteristics of the prison predict individual mental health state.

H2a: Inmates residing in prisons that are operating over capacity will have higher rates of depression than inmates residing in prisons that are operating at or under capacity.

H2b: Inmates residing in prisons that are operating over capacity will have higher rates of anger than inmates residing in prisons that are operating at or under capacity.

H2c: Inmates residing in non-minimum security institutions will have higher rates of depression than inmates who are in minimum security institutions.

H2d: Inmates residing in non-minimum security institutions will have higher rates of anger than inmates who are in minimum security institutions.

H2e: Inmates who are residing in facilities where there are fewer visitations each month will have higher levels of depression.

H2f: Inmates who are residing in facilities where there are fewer visitations each month will have higher levels of anger.

H2g: Inmates who are residing in facilities where there is a higher proportion of inmates who are more than 50 miles from their home residence will have higher rates of depression than inmates who are residing in facilities where there is a lower proportion of inmates who are more than 50 miles from their home residence.

H2h: Inmates who are residing in facilities where there is a higher proportion of inmates who are more than 50 miles from their home residence will have higher rates of anger than inmates who are residing in facilities where there is a lower proportion of inmates who are more than 50 miles from their home residence.

H2i: Inmates residing in facilities where television is not allowed will have higher levels of depression than inmates residing in facilities where television is allowed.

H2j: Inmates residing in facilities where television is not allowed will have higher levels of anger than inmates residing in facilities where television is allowed.

H2k: Inmates residing in facilities that have a greater proportion of inmate workers will have lower rates of depression than inmates residing in facilities with a lower proportion of inmate workers.

H2l: Inmates residing in facilities that have a greater proportion of inmate workers will have lower rates of anger than inmates residing in facilities with a lower proportion of inmate workers.

H2m: Inmates residing in facilities where a suicide has recently occurred will have higher rates of depression than inmates residing in facilities where a suicide has not recently occurred.

H2n: Inmates residing in facilities where a suicide has recently occurred will have higher rates of anger than inmates residing in facilities where a suicide has not recently occurred.

H2o: Inmates who are residing in facilities where there are greater proportions of rule violations given in the last month will have higher rates of depression than inmates residing in facilities with lower proportions of rule violations.

H2p: Inmates who are residing in facilities where there are greater proportions of rule violations given in the last month will have higher rates of anger than inmates residing in facilities with lower proportions of rule violations.

H2q: Inmates who have been placed in solitary confinement within the last month will have higher levels of depression than inmates who have not.

H2r: Inmates who have been placed in solitary confinement within the last month will have higher levels of anger than inmates who have not.

Prop3: Deprivation indicators will moderate the impact of imported characteristics on individual mental health state.

H3a: Higher security levels will exacerbate the effect of a) sex, b) race, c) experiences with physical and or sexual abuse, d) youth, e) unemployment, f) homelessness, and g) alcohol abuse on depression.

H3b: Higher security levels will exacerbate the effect of a) sex, b) race, c) experiences with physical and or sexual abuse, d) youth, e) unemployment, f) homelessness, and g) alcohol abuse on anger.

H3c: Overcrowding will exacerbate the effect of a) sex, b) race, c) experiences with physical and or sexual abuse, d) youth, e) unemployment, f) homelessness, and g) alcohol abuse on depression.

H3d: Overcrowding will exacerbate the effect of a) sex, b) race, c) experiences with physical and or sexual abuse, d) youth, e) unemployment, f) homelessness, and g) alcohol abuse on anger.

H3e: Fewer visitations will exacerbate the effect of a) sex, b) race, c) experiences with physical and or sexual abuse, d) youth, e) unemployment, f) homelessness, and g) alcohol abuse on depression.

H3f: Fewer visitations will exacerbate the effect of a) sex, b) race, c) experiences with physical and or sexual abuse, d) youth, e) unemployment, f) homelessness, and g) alcohol abuse on anger.

H3g: Distance will exacerbate the effect of a) sex, b) race, c) experiences with physical and or sexual abuse, d) youth, e) unemployment, f) homelessness, and g) alcohol abuse on depression.

H3h: Distance will exacerbate the effect of a) sex, b) race, c) experiences with physical and or sexual abuse, d) youth, e) unemployment, f) homelessness, and g) alcohol abuse on anger.

H3i: Denial of television will exacerbate the effect of a) sex, b) race, c) experiences with physical and or sexual abuse, d) youth, e) unemployment, f) homelessness, and g) alcohol abuse on depression.

H3j: Denial of television will exacerbate the effect of a) sex, b) race, c) experiences with physical and or sexual abuse, d) youth, e) unemployment, f) homelessness, and g) alcohol abuse on anger.

H3k: A lower proportion of inmate workers will exacerbate the effect of a) sex, b) race, c) experiences with physical and or sexual abuse, d) youth, e) unemployment, f) homelessness, and g) alcohol abuse on depression.

H3l: A lower proportion of inmate workers will exacerbate the effect of a) sex, b) race, c) experiences with physical and or sexual abuse, d) youth, e) unemployment, f) homelessness, and g) alcohol abuse on anger.

H3m: A recent occurrence of suicide will exacerbate the effect of a) sex, b) race, c) experiences with physical and or sexual abuse, d) youth, e) unemployment, f) homelessness, and g) alcohol abuse on depression.

H3n: A recent occurrence of suicide will exacerbate the effect of a) sex, b) race, c) experiences with physical and or sexual abuse, d) youth, e) unemployment, f) homelessness, and g) alcohol abuse on anger.

H3o: A greater proportion of rule violations will exacerbate the effect of a) sex, b) race, c) experiences with physical and or sexual abuse, d) youth, e) unemployment, f) homelessness, and g) alcohol abuse on depression.

H3p: A greater proportion of rule violations will exacerbate the effect of a) sex, b) race, c) experiences with physical and or sexual abuse, d) youth, e) unemployment, f) homelessness, and g) alcohol abuse on anger.

H3q: Solitary confinement will exacerbate the effect of a) sex, b) race, c) experiences with physical and or sexual abuse, d) youth, e) unemployment, f) homelessness, and g) alcohol abuse on depression.

H3r: Solitary confinement will exacerbate the effect of a) sex, b) race, c) experiences with physical and or sexual abuse, d) youth, e) unemployment, f) homelessness, and g) alcohol abuse on anger.

Analytic Strategy

To better understand inmate and prison factors associated with mental health, this study uses SEM techniques with latent class variable analysis. The use of SEM has several advantages

when compared to other multivariate analysis techniques. Of particular importance for the present study is the fact that SEM allows for the correlation of errors between endogenous variables. One of the primary issues with analyzing mental health outcomes is that measures often conflate discrete mental health conditions. This is especially true for questions measuring depression and questions measuring anxiety (Tartaro and Lester 2009); however, depression and anger can also be conflated. By correlating the errors between the two latent constructs, it is possible to control the conflations of these discrete mental health outcomes.

In order to test the integrated model, interaction terms were created. For example, to test the effect of experiences of physical abuse before incarceration with security level the variable *physical abuse* was multiplied by the variable *MedMaxSecurity*. The computed interaction term was then placed into the full model. *Overcrowding, NoVisitors, Work Assignments,* and *GreatDistance* were standardized before computing the interaction terms. Finally, a critical α level of .01 is used in order to account for the testing of multiple hypotheses.

Findings

Descriptive Statistics

Tables 2A and 2B present descriptive statistics for the sample. Proportions are reported for dichotomous variables while means and standard deviations are reported for scale level variables. As is shown, most individuals in the sample reside in either medium or maximum security institutions. There is a greater proportion of whites in the sample than blacks (.48 vs. .40), which is true of the general prison population. Age ranges from 18-84. A proportion of .27 of the cases have had experiences with physical and .17 have had experiences with sexual victimization. Perhaps most notably, there are 1,515 females in the sample. This is a larger number of female inmates than is available in most other samples.

Correlations and Model Fit

Table 3 presents the bivariate correlations with depression while table 4 presents the bivariate correlations with anger. *Physical abuse, sexual abuse, homelessness, and alcohol abuse* are all positively correlated with depression. All of the correlations between the

Table 2A. Descriptive Statistics – Importation Variables

Female	0.26		
Race	White	Black	Other
	0.48	0.4	0.11
Age	Range		
	18 to 84		
Physical Vict	0.27		
Sexual Vict	0.17		
Unemployed	.028		
Homeless	.09		
Alch Abuse Scale	Mean	S.D.	
	0.18	(.31)	
Final Sample of Inmates	N=6,675		

Table 2B. Descriptive Statistics – Deprivation Variables

MedMax Security	0.84	
Overcrowding	Mean	S.D.
	0.00	(1)
NoVisits	Mean	S.D.
	0.68	(.14)
NoTelevision	0.1	
Work Assignments	Mean	S.D.
	0.67	(.33)
Suicide	0.19	
GreatDistance	Mean	S.D.
	0.85	(.17)
Rule Infractions	Mean	S.D.
	0.53	(.18)
Solitary	0.15	
Number of Prisons	N=232	

deprivation variables and depression are in the expected direction. For anger, all of the importation variables are correlated in the expected direction except for the *Other* racial category. All of the correlations between the deprivation variables and anger are in the expected direction except for *Security Level*. For full correlations matrices, please see Appendix A.

The full model was estimated twice, once without correlating the errors between depression and anger and once with correlating the errors between depression and anger. This was done in order to determine if correlating the errors produced a significantly better model fit. The model without correlated errors had an overall poor fit with the data (CFI = .878, TLI = .848, RMSEA = .044, SRMR = .043). Both the CFI and the TLI are approaching the lower threshold of acceptance. The model in which I allow the errors to correlate has an overall adequate model fit. (CFI = .947, TLI = .933, RMSEA = .029 SRMR = .017.) Furthermore, the CFI and the TLI change are significant. Thus, allowing the errors between depression and anger to correlate produces a significantly better fitting model.

Importation Model – Trimmed

Figure 1 presents the importation model with non-significant paths trimmed. For depression, all importation variables are significant except for *Black, Other, and Female*. It is interesting that being *female* does not predict higher levels of depression because females having higher rates of depression than males is a common and robust finding of mental health research. For anger, all importation variables are significant expect for *Other* and *Female*. Thus, for anger, being *black* is a significant predictor unlike for depression. As with depression, being *female* does not significantly predict anger, which is again a contradictory finding. In all, the results of the importation model indicated partial support for the importation hypothesis.

Table 3. Correlations with Depression

	Depression
Depression	1
Phys Abu	0.2545
Sex Abu	0.2207
Female	0.1307
Age	-0.063
Black	-0.0344
Other	0.0238
Homeless	0.1541
Unemployed	0.073
Alc Abu	0.162
MedMaxSec	0.0513
Crowding	0.0112
NoVisits	0.0069
NoTelevision	0.0369
Work Assign	-0.0135
Suicide	0.028
GreatDistance	0.0456
Rules	0.0792
Solitary	0.0892

Table 4. Correlations with Anger

	Anger
Anger	1
Phys Abu	0.1458
Sex Abu	0.1363
Female	0.0882
Age	-0.1726
Black	-0.0386
Other	0.0012
Homeless	0.1172
Unemployed	0.0858
Alc Abu	0.142
MedMaxSec	-0.016
Crowding	0.0051
NoVisits	0.0149
NoTelevision	0.0754
Work Assign	-0.0248
Suicide	0.0392
GreatDistance	0.0017
Rules	0.0296
Solitary	0.1078

Deprivation Model - Trimmed

Figure 2 presents the deprivation model with non-significant paths trimmed. For depression, *security level*, *distance, rule violations*, and *solitary* are significant and in the expected direction. Surprisingly, *overcrowding* is not a significant predictor of depression nor is *suicide*. For anger, only *television, suicide, and solitary* are significant predictors. Interestingly, the only common predictor between depression and anger is *solitary confinement*. This implies that different deprivations impact different facets of mental health in a unique way. Perhaps the most surprising finding in the deprivation model is the non-significance of *overcrowding* in predicting depression or anger. According to the crowding literature, we should expect *overcrowding* to be a relatively robust predictor of mental health making this finding contradictory.

The Full Model - Trimmed

Figure 3 presents the full model with non-significant paths trimmed. For depression, all of the importation variables were in the expected direction. Thus, inmates who have been *physically abused* prior to incarceration have higher levels of depression ($\beta = .17$; $p<.01$) as do inmates who have been *sexually abused* prior to incarceration ($\beta = .14$; $p<.01$). *Female* becomes significant in the full model such that females have higher levels of depression than males ($\beta = .042$; $p<.01$). *Age* is negatively associated with levels of depression ($\beta = -.06$; $p<.01$). Higher levels of depression were associated with being *unemployed* the month prior to incarceration ($\beta = .038$; $p<.01$) and with being *homeless* prior to incarceration ($\beta = .105$; $p<.01$). Finally, higher levels of *alcohol abuse* prior to incarceration are associated with higher levels of depression ($\beta = .14$; $p<.01$). While *female* became significant in the full model, *Black* and *Other* remain non-significant. This is in contrast to importation theory, which would predict that whites would be

more depressed than blacks and the other racial category as is the case in the general population. Besides *Black* and *Other*, the results indicated support for the importation hypothesis and depression.

In terms of deprivation and depression, all significant variables were in the expected direction. Inmates residing in *non-minimum* facilities are more depressed than inmates residing in lower security levels ($\beta = .04$; $p<.01$). In the full model, *overcrowding* becomes a significant predictor of depression. Thus, higher levels of *overcrowding* in a facility are associated with higher levels of inmate depression ($\beta = .05$; $p<.01$). Individuals residing in facilities where a higher proportion of inmates are more than 50 miles from their home residence have higher levels of depression ($\beta = .04$; $p<.01$). Inmates residing in facilities where a higher proportion of inmates received punishments for rule infractions within the last month are also associated with higher levels of depression ($\beta = .05$; $p<.01$). Finally, inmates who were placed in solitary isolation show higher levels of depression than inmates who were not ($\beta = .07$; $p<.01$). The four deprivation factors that were not significantly related to depression were the proportion of inmates in each prison who had not received visitors within the last month, whether the prison allows inmates to watch television, the proportion of inmates who had a work assignment, and whether a suicide had recently occurred (however, it should be noted that suicide was significant at the .05 level). Aside from these four variables, all other results indicated support for the deprivation hypothesis and depression.

For anger and importation, all variables are in the expected direction except for *race*. Inmates who have been *physically abused* prior to incarceration have higher levels of anger ($\beta = .09$; $p<.01$) as do inmates who have been *sexually abused* prior to incarceration ($\beta = .08$; $p<.01$). Similar to depression, *female* becomes a significant predictor of anger in the full model. Thus,

females have higher levels of anger than males (β = .05; p<.01). *Age* is negatively associated with levels of anger (β = -.17; p<.01). *Blacks* have higher levels of anger than do Whites (β = .05; p>.01). While significant, this relationship is not in the expected direction. Higher levels of anger were associated with being *unemployed* the month prior to incarceration (β = .04; p<.01) and with being *homeless* prior to incarceration (β = .07; p<.01). Finally, higher levels of *alcohol abuse* prior to incarceration are associated with higher levels of anger (β = .138; p<.01). Except for *race*, the above results demonstrate support for the importation hypothesis and anger.

Deprivation hypotheses for anger are also supported. As with depression, *overcrowding* becomes a significant predictor of anger in the full model. Thus, higher levels of *overcrowding* in a facility are associated with higher levels of inmate anger (β = .03; p<.01). Inmates who reside in facilities where *television* is not allowed display higher levels of anger than inmates in facilities where television is allowed (β = 04; p<.01). Facilities in which more *suicides* have occurred are associated with higher levels of inmate anger (β = .05; p<.01). Finally, inmates who were placed in *solitary isolation* show higher levels of anger than inmates who were not (β = .09; p<.01). Interestingly, *security level*, the aggregate measure of whether the inmates *received visitors* in the last month, *work assignments*, the aggregate measure of inmate *distance* from prior residence, and the aggregate measure of *punishments for rule infractions* were not significant. Thus, results indicated partial support for deprivation hypotheses and inmate anger. Finally, as noted above, the model fitted the data well (RMSEA = .029, SRMR = .017, CFI = .947, TLI = .933).

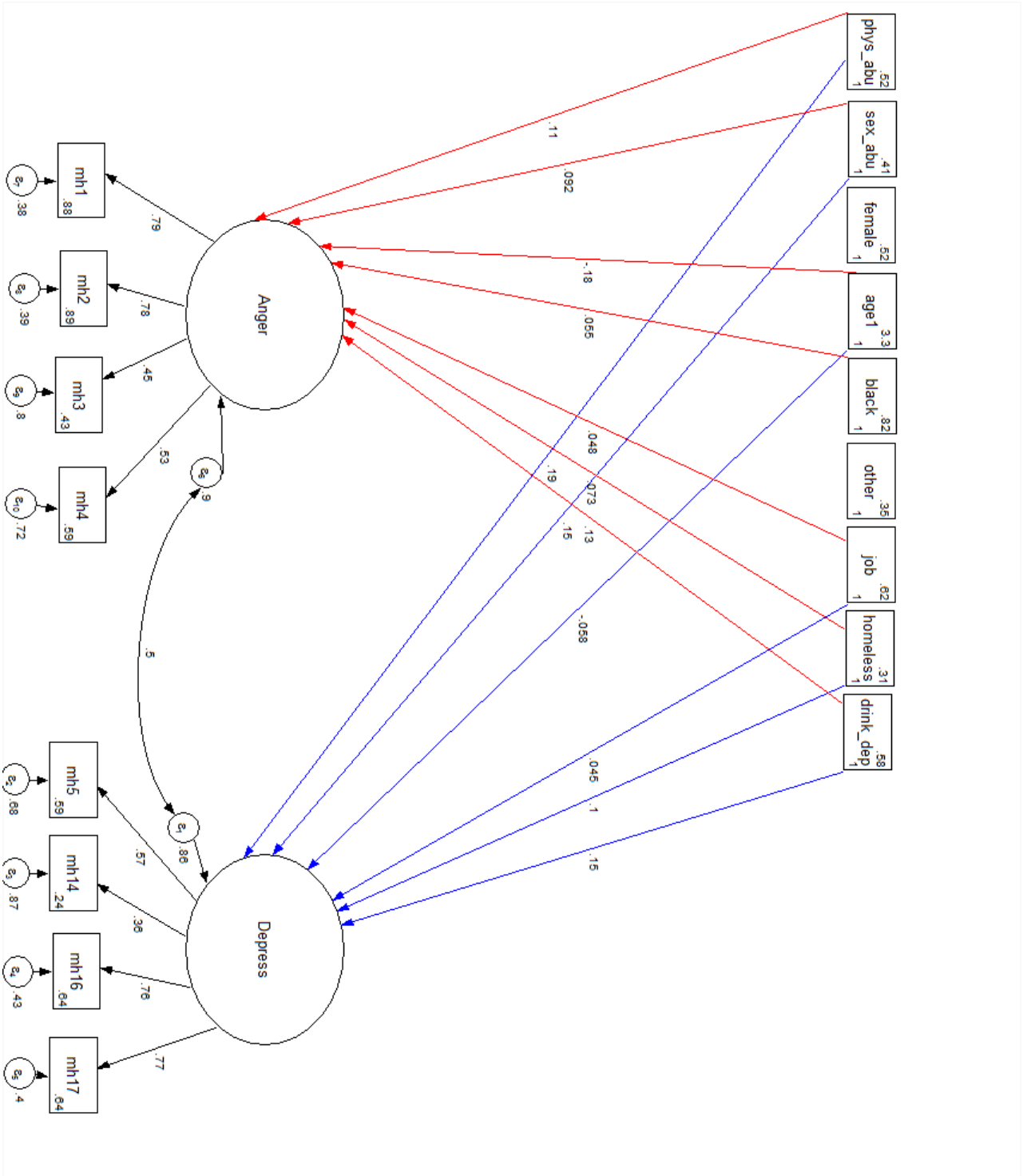

Figure 1. Importation Model

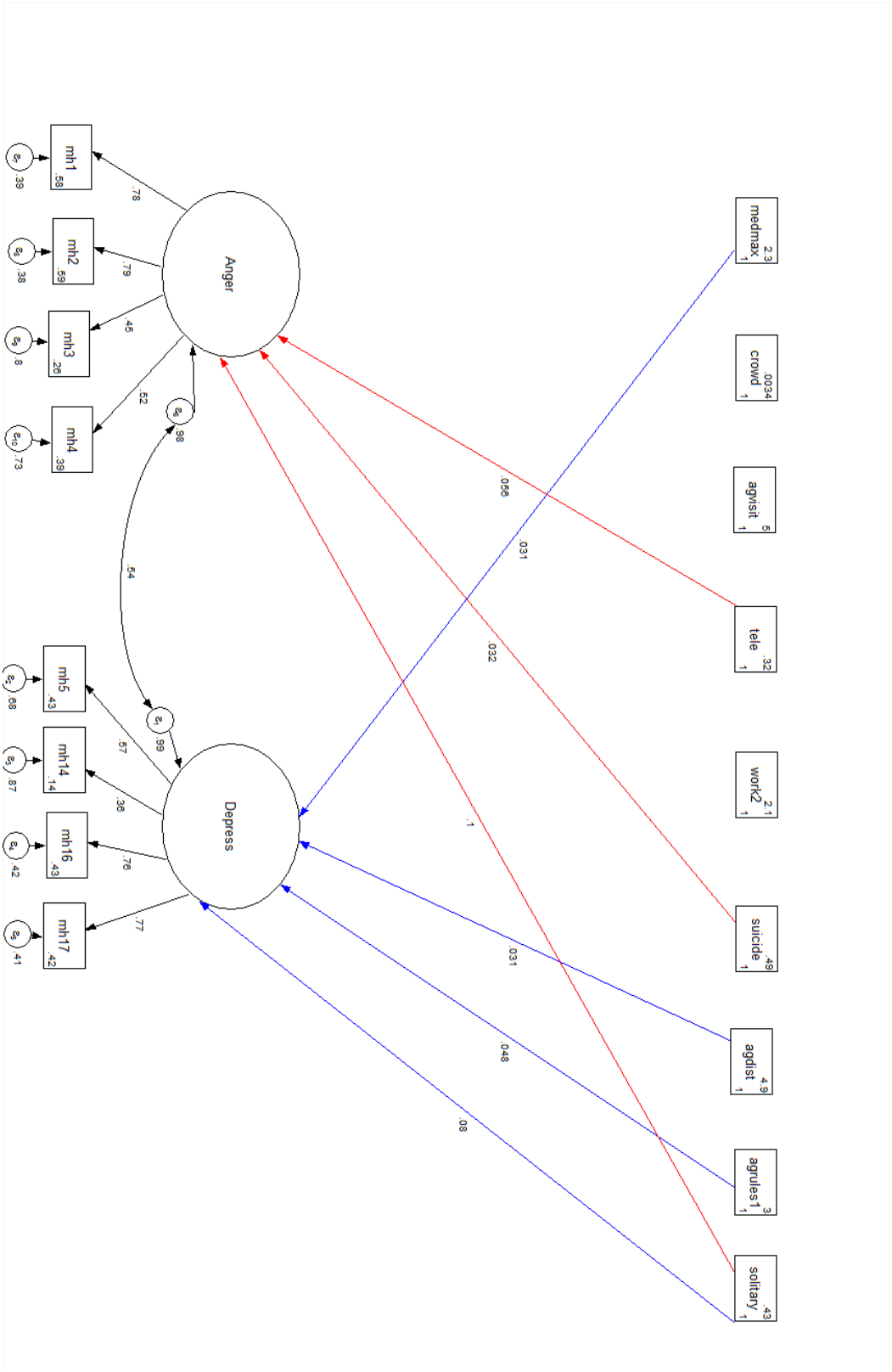

Figure 2. Deprivation Model

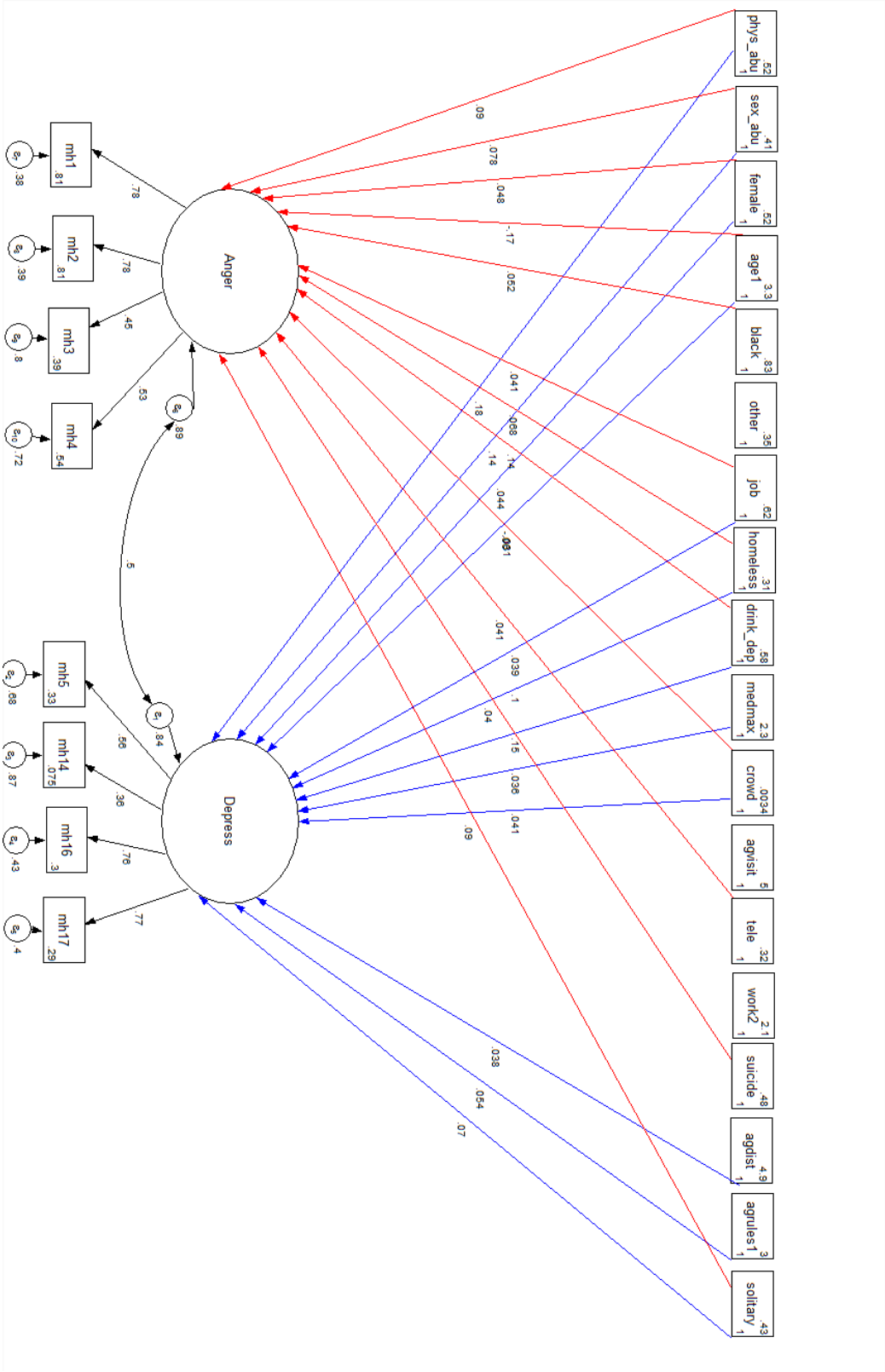

Figure 3. Trimmed SEM of Importation and Deprivation on Mental Health Outcomes

Table 5. Interaction Effects for Depression

	Physical Abuse with Depression		Sexual Abuse with Depression		Female with Depression		Age with Depression		Job with Depression		Homeless with Depression		Alcohol Abuse with Depression	
	B	p	B	p	B	P	B	P	B	p	B	p	B	p
MedMax	-.04	.20	-.03	.22	-.03	.27	-.04	.38	.00	.81	-.01	.70	.03	.25
Crowding	-.01	.32	-.00	.94	-.01	.37	-.01	.66	-.00	.71	.00	.81	.00	.68
Distance	.06	.29	-.04	.50	-.00	.96	.01	.84	.03	.57	-.15	.0	-.01	.80
Rules	.03	.35	.00	.86	.00	.85	-.04	.45	.03	.32	-.00	.99	-.02	.61
Solitary	-.00	.70	.01	.46	-.00	.52	.01	.68	.01	.54	.02	.09	.00	.77

Table 6. Interaction Effects for Anger

	Physical Abuse with Anger		Sexual Abuse with Anger		Female with Anger		Black with Anger		Age with Anger		Job with Anger		Homeless with Anger		Alcohol Abuse with Anger	
	B	p	B	p	B	p	B	p	B	p	B	p	B	p	B	p
Crowding	.02	.11	.00	.96	-.01	.37	.01	.40	.00	.87	-.01	.74	.00	.75	.02	.07
Solitary	.00	.61	.02	.06	.04	.00	-.02	.33	-.02	.58	-.03	.07	-.01	.76	.00	.84
Television	.01	.48	-.00	.94	.01	.17	.04	.08	-.05	.17	.01	.25	.01	.65	.02	.15
Suicide	.01	.26	.00	.51	.00	.65	-.01	.94	.01	.67	-.03	.06	.02	.21	.01	.23

Interaction Effects

Table 5 presents results for the interaction of deprivation and imported characteristics on depression, while table 6 presents the results for anger. As is shown, none of the interactions were significant except for the interaction between female and practices of solitary isolation on anger. Due to the number of hypotheses being tested, it is difficult to determine if this sole significant effect is real or is merely an anomaly. These non-significant results are in direct contrast to what the integrated proposition would predict.

The non-significant results of the interaction terms was surprising. Therefore, I attempted other avenues of testing the integrated model. After testing each interaction term, I attempted to create a latent factor for deprivation by conducting a CFA with each deprivation variable in the model. However, a single factor could not be achieved. I then constructed an additive scale for deprivation. For each case, I assigned a deprivation score based on the relative level of deprivation that the case was experiencing. Thus, an inmate who was in an overcrowded non-minimum security facility would receive a score of 2, and so on. Interactions using this scale were also non-significant. The implications of these null findings are discussed below.

Discussion

Findings indicate support for both the importation and deprivation theories as applied to inmate mental health. In the full model, all importation variables except for race significantly predicted depression. Similarly, all of the importation variables significantly predicted anger; however, race was not in the expected direction. For deprivation, *medmaxsecurity, overcrowding, greatdistance, rule violations,* and *solitary isolation* significantly predicted depression in the full model, while *overcrowding*, *denial of television, recent occurrence of suicide,* and *solitary isolation* significantly predict anger. Finally, none of the interaction effects are significant. Table 7 summarizes findings for each respective hypothesis.

Implications for Importation Research

As previously explained, research utilizing an importation approach has traditionally focused on how certain demographics and life experience factors can be related to mental health. Thus, much of the research focuses on how sex, race, age, and substance abuse prior to incarceration can explain the negative mental health states of inmates. Further, there is now a growing body of research on traumatic life experiences and inmate mental health. My findings do indicate support for findings from previous research. However, my findings also uncover phenomena that have yet to be explored in the importation research. First, I find homelessness and unemployment prior to incarceration significantly predict both depression and anger. Future research should explore how these two life experience factors impact other inmate behaviors and mental health outcomes. Finally, my findings regarding the relationship between sex and mental health are different between the importation model and the full model. In the importation model

(where deprivation indicators are excluded) being female does not significantly predict depression or anger, which is in contrast to the predictions made by the importation model. In the full model, being female becomes a significant predictor of both depression and anger. Thus, my findings indicate that controlling for deprivation indicators allows the effects of sex to become significant. This finding indicates that there is a suppression effect. Thus, when characteristics of the facility are controlled for, being female is allowed to predict a negative mental health state.

In all, findings here suggest an expansion of importation research that moves beyond the traditional focus on demographic correlates and mental health. For example, the findings on homelessness suggest an interesting effect. While being homeless is a traumatic event in the life course that could predict depressive outcomes, the intervention of prison may be beneficial. Transitioning from being homeless to being in a sheltered environment (even if that environment is a prison) could be beneficial for overall mental health. This effect could also be similar for other indicators of economic distress. Thus, it would be useful for future research to disentangle these effects.

Table 7. Support for Hypotheses

Importation Hypotheses		Deprivation Hypotheses	
H1a	Supported	H2a	Supported
H1b	Supported	H2b	Supported
H1c	N.S.	H2c	Supported
H1d	N.S.	H2d	N.S.
H1e	Supported	H2e	N.S
H1f	Supported	H2f	N.S.
H1g	Supported	H2g	Supported
H1h	Supported	H2h	N.S.
H1i	Supported	H2i	N.S.
H1j	Supported	H2j	Supported
H1k	Supported	H2k	N.S.
H1l	Supported	H2l	N.S.
H1m	Supported	H2m	N.S.
H1n	Supported	H2n	Supported
		H2o	Supported
		H2p	N.S.
		H2q	Supported
		H2r	Supported

Implications for Deprivation Research

Much of the previous research on mental health and deprivation explores suicide. Thus, how deprivations impact different facets of mental health is relatively unknown. My findings indicate that the deprivations that impact anger may be different from the deprivations that impact depression. *Security level*, *overcrowding*, *distance*, *rule violations,* and practices of *solitary isolation* significantly predicted depression, while *overcrowding, denial of television*, *recent occurrence of suicide,* and practices of *solitary isolation* significantly predicted anger. Thus, depression and anger share only two deprivation indicators. This implies that future research should examine deprivations for their relationship to depression and anger separately. One suggestion is to look at length of time spent incarcerated. Research suggests that depression and suicidal tendencies are highest within the first year of incarceration (Tartaro and Lester 2009). As time passes and inmates become acclimated to initial deprivations, depression may lessen. Feelings of depression may become replaced with feelings of anger. However, anger

may not be impacted by deprivations such as security level as these are deprivations to which the inmate has become acclimated. Instead, the inmate may be angry (and not necessarily depressed) about the consistent denial of liberty that accompanies an elongated prison sentence. How deprivation is experienced throughout different points in the prison sentence may help to explain inmate anger.

Next, the findings for *overcrowding* between the deprivation model and the full model are of interest. In the deprivation model (where importation variables are excluded) overcrowding is not a significant predictor of depression or anger, which is in direct contrast to the predictions of the deprivation model. In particular, the crowding literature suggests that overcrowding has a particularly robust impact on inmate behavior and outcomes such as suicide (Huey and McNulty 2005). In the full model—where the imported characteristics are included—overcrowding becomes a significant predictor of both depression and anger. Thus, when imported characteristics are excluded, the relevant impact of overcrowding on depression and anger may be underestimated. Future research examining how environmental characteristics of the prison can impact inmate mental health should consider the suppression effect that characteristics and life experience factors can exert upon findings. If it is the case that the effects of overcrowding are being suppressed by imported characteristics such as experiences with physical abuse then not controlling for abuse will not allow the researcher to ascertain the actual effect of overcrowding on negative mental health outcomes.

The Integrated Model

My findings cannot offer empirical support for an integrated model. An integrated model would expect prison deprivations to moderate the impact of imported characteristics on inmate mental health. Thus, inmates who have experienced physical abuse and who reside in

overcrowded environments should show significantly greater levels of depression than inmates who have experienced physical abuse but who do not reside in overcrowded environments. The null findings in this analysis could be for several reasons. The null results may be a reflection of the difficulty in assessing the myriad number of variables that can impact depression and anger. Mental health conditions are host to a wide variety of influences that are simply not captured in the data here. It is possible that leaving these influences uncontrolled for is producing null results. Finally, it may the case that the integrated model is better tested with longitudinal data. By and large, the empirical support for the integrated model comes from data that tracked inmate behavior over a period of time. As mentioned, these data are cross-sectional. It could be the case that the integrated model is a more nuanced model sensitive to time related effects. Thus it may be difficult to support the integrated model when not taking time related effects into account.

The Dual Model

Finally, while I cannot offer support for an integrated model of mental health, my results do offer support for a dual perspective on inmate mental health. I found support for both inmate characteristics and prison characteristics on inmate mental health. Results here suggest that research that only makes use of one model may not be uncovering the entire story. It does seem to be the case that experiences with physical and/or sexual abuse—for example—do predict higher levels of depression and anger within the inmate population. It is also the case that overcrowded environments predict greater levels of depression and anger within the inmate population. However, overcrowding only becomes significant when imported characteristics are controlled for. Research that only looks at the impact of deprivation indicators on inmate mental health may be underdeveloped. Similarly, the significance of imported characteristics can also

depend upon controlling for deprivation indicators. My results indicated that being female significantly increased both depression and anger only when controlling for deprivation indicators. As mentioned, this probably indicates real differences between male and female institutions. Thus, there is perhaps something different about overcrowded female facilities versus overcrowded male facilities.

Therefore, it is important for prison administrators to be aware of both life experience effects and conditional effects of incarceration on inmate mental health. It is easy to give attention only to inmates who are identified as at risk for mental health problems due to life experience factors. However, if prison context is not taken into account then inmates who are in depriving environments who need help with mental problems but who do not fit the typical demographic profile may be overlooked. At the same time, it is important to recognize that those inmates who are at risk because of life experience factors may be placed at a greater disadvantage when they reside in depriving environments.

Conclusions

Mental health is a serious problem in the prison system. This evidences a need to conduct research aimed at uncovering the reasons why some inmates have worsened mental health states than others. Prior research on inmate conditions and behavior, however, has largely been confined to either narrow descriptions of inmate characteristics that place them at risk for mental health problems (importation) or to characteristics of the prison that may create the environment for mental health problems to manifest (deprivation). Both types of research have their weaknesses. Importation cannot adequately assess the effect of prison context on inmate mental health while deprivation cannot adequately assess why some inmates display worsened mental health states. Contemporary prison research is pushing towards an integrated approach, which utilizes the strengths of both models while alleviating their weaknesses. While an integrated approach is promising, more empirical support for the model needs to be established. For one, there has yet to be an integrated study that utilizes a large sample of inmates *and* institutional prison data. In order to fill this gap, my study made use of individual level data on inmates available through the SISCF and institutional level prison data available through the CCF. By using SEM analysis, I found support for a dual model but not an integrated model. It does seem to be the case that both life experience factors and prison characteristics predict negative mental outcomes among inmates. However, interactions between the two types of variables were not significant. This may be because the interaction model is sensitive to time related effects.

Perhaps the most interesting finding in my study is that being female did not significantly predict either depression or anger in the importation model. It was only when the prison characteristics were added that being female become a significant predictor of depression and anger. As mentioned, this probably indicates real differences between male and female institutions. This is an important finding because it suggests that deprivation characteristics exert a suppression effect on being female. From what is known in the literature, being female should be a significant predictor of depression and anger. In the case of prison populations, however, it seems that the effects of the environment could be suppression the effect of being female.

Here, it may be the case that female inmates are more likely to be in minimum security facilities or facilities that are less overcrowded. This lack of deprivation would mean that depression and anger among females (who reside in the less deprived female facilities) is less than that in male facilities. However, when these environmental characteristics are controlled for, the effect of being female is allowed to emerge. Comparative studies that examine both male and female inmates *and* male and female facilities are required to further explore this. Unfortunately, few actual comparative studies between male and female facilities exist. This is mainly due to the fact that female samples are generally relatively small. My study somewhat alleviates this limitation by having a relatively large sample of female inmates.

However, there are limitations with my data. The largest limitation is that my data are cross-sectional. Because of this, I cannot assess time effects of deprivation on inmate mental health. Next, my data does not contain information on deprivation characteristics such as sexual assaults that happen to inmates while they are incarcerated. Despite these limitations, my results do suggest a need for research that utilizes an integrated approach towards inmate behavior and outcomes. Future research would hopefully be able to make use of time effects to uncover how

deprivations impact different inmates over time. Further, it is necessary to examine how these time effects operate in female facilities compared to male facilities.

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Appendix A.

	Phys Abu	Sex Abu	Female	Age	Black	Other	Homeless	Job	Alch Abu	MedMax	Crowd	NoVisit	NoTele	WorkAssign	Suicide	GreatDist	Rule Vio	Solitary
Phys abu	1																	
Sex abu	0.4274	1																
Female	0.3566	0.4346	1															
Age	-0.012	0.0129	0.0044	1														
Black	-0.1381	-0.0985	-0.0486	-0.0958	1													
Other	0.0191	0.0233	-0.0044	-0.0334	-0.2934	1												
Homeless	0.1537	0.108	0.055	-0.0346	-0.013	-0.0008	1											
Job	0.055	0.068	0.1287	-0.0992	0.0894	-0.0254	0.0987	1										
Alch abu	0.1026	0.0603	-0.0131	0.0193	-0.0914	0.0017	0.1012	0.0129	1									
MedMax	0.0079	0.0013	-0.0975	0.0462	0.0115	-0.0123	-0.0059	-0.0168	0.0119	1								
Overcrowd	-0.0096	-0.0117	0.0087	0.0586	-0.047	0.0263	-0.0115	-0.0341	0.0095	-0.1529	1							
NoVistit	-0.0833	-0.1024	-0.2366	0.0077	-0.0171	0.0085	0.0031	-0.0149	-0.0008	0.1654	0.052	1						
NoTelevision	0.0394	0.0075	-0.0069	-0.0996	-0.0292	0.0286	0.0183	0.0035	-0.0075	-0.0404	-0.076	0.0702	1					
Work Assign	-0.0117	-0.0109	-0.0057	0.0176	0.0075	-0.0002	-0.0105	-0.0108	0.015	-0.0859	0.0987	0.0805	-0.0504	1				
Suicide	0.0066	-0.0263	-0.1182	0.013	0.0176	-0.0117	0.0195	0.0151	-0.0101	0.1644	-0.0429	0.0756	0.0631	-0.1449	1			
GreatDistance	-0.0087	-0.0101	-0.0403	-0.0212	-0.0429	0.0306	0.0046	-0.0022	-0.0217	0.1656	-0.0851	0.411	0.0439	0.1256	-0.0109	1		
Rule Violations	0.0298	0.0075	-0.1084	0.05	0.0233	-0.0116	0.0012	-0.0014	0.0181	0.2981	-0.0942	0.0281	-0.0157	0.0961	0.2394	0.227	1	
Solitary	0.018	0.0169	-0.0619	-0.0649	0.0655	-0.0306	0.0301	0.0462	0.0145	0.1005	-0.0605	0.0402	0.081	0.0003	0.044	0.0202	0.1665	1