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SOCIAL DEPRIVATION AND SOLITARY CONFINEMENT

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Social Deprivation and Solitary Confinement

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The Doctorate Program in Clinical Psychology
Florida School of Professional Psychology
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CERTIFICATE OF APPROVAL

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Abstract

Solitary confinement is one of the most enduring, severe, and restrictive prison practices that has been widely debated since its inception in the early 19th century. Across the United States, the development of supermaximum prison facilities and the use of solitary confinement have become foundational aspects of corrections. Despite the controversy surrounding solitary confinement, there has been a lack of empirical research in this area. This literature review attempted to further explore and advance the understanding of the potential harmful effects of solitary confinement on incarcerated individuals. Specifically, this review summarized what is currently known regarding the effects of social isolation on incarcerated individuals' overall functioning and discussed the gender differences related to social deprivation. In addition, the major gaps in past research were identified and directions for future research as well as recommendations for clinicians and the prison system were addressed.

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CHAPTER I: SOLITARY CONFINEMENT

Overview

Solitary confinement is the housing of an individual, adult or juvenile, with little to no contact with others. Inmates who are housed within solitary confinement often experience sensory deprivation and are offered very few opportunities to engage in educational, vocational, or rehabilitative programs (O'Keefe, 2008). Haney (1993) suggested that long-term confinement in solitary housing offers little to no opportunity for inmates to engage with others socially, resulting in minimal social contact and support.

Isolation, separation, and segregation as well as cellular or solitary confinement are some of the most common terms used to describe a type of confinement where individuals are held alone in their cell (Shalev, 2008). According to O'Keefe (2008), solitary confinement is most simply defined as restriction to a single-bunk cell for 23 hours per day, allowing only 1 hour out of the cell. Individuals are typically confined to a small sparsely furnished cell, if furnished at all, with little or no view of the outside world (Shalev, 2008).

Within both the prison system and the literature, solitary confinement is known by many names (O'Keefe, 2008). Throughout correctional systems, solitary units may be referred to as administrative segregation, administrative maximum units, special housing units, secure housing units, isolation units, close custody units, control units, intensive management units, adjustment centers, or extended control units. According to Shalev (2008), there are often different meanings attached to each of these terms within different jurisdictions. However, the term *solitary confinement* is often used interchangeably with the terms *isolation* and *segregation*. Although the titles can differ, they are all characterized by isolation from all forms of human contact and social interaction (Frost, Monteiro, Lynch, & Rodriguez, 2016).

According to Shalev (2008), inmates can be placed within solitary confinement for a variety of reasons. One reason an individual may be held in solitary confinement is when it is used as a form of punishment, which is referred to as punitive segregation or disciplinary segregation. Typically, when utilized as a punitive method, segregation is employed as a type of reprimand for inmates' misconduct and is usually imposed for a specific period. Being held in segregation is considered to be the most severe and restrictive form of punishment for inmates. When punitive segregation is used, cell furnishings are minimal, and inmates are typically allowed even fewer supplies and personal belongings than those who are in a non-punitive type of segregation. In addition, in some jurisdictions, exercise and access to family visits are restricted even further or not permissible altogether (Shalev, 2008).

Prison management is another reason solitary confinement can be used across correctional facilities (Shalev, 2008). When used for this reason, it is considered to be an internal correctional tool for isolating those who are believed to be dangerous, violent, or disruptive. Confinement for these reasons is typically imposed through a centralized process that is governed by administrative rules, policies, and regulations. According to Shalev (2008), the justification for this type of isolation is that segregating high-risk inmates is hoped to reduce the overall number of incidents of violence across the prison system and allow prison order, discipline, and regulations to be maintained more easily.

Shalev (2008) noted an additional purpose for isolation is when it is used as a form of security or protection, which is referred to as protective segregation or protective custody. Protective segregation is utilized for keeping more vulnerable inmates separated from the general prison population. Vulnerable individuals may include sex offenders, police informants, former officers, or those who may be harmed by other inmates. Within some jurisdictions, these types of

inmates are allowed to associate with one another; however, in others, they are held in strict segregation for the duration of their sentence. The segregation environment and restrictions are often identical to those in punitive or other types of segregation (Shalev, 2008).

According to Shalev (2008), solitary confinement can also be utilized due to the lack of more appropriate placement. This placement often occurs when there are no other available options for housing. Unfortunately, inmates who suffer from mental illness are often placed in segregation due to a lack of secure hospital beds. In this case, these inmates may not necessarily pose a threat to others or themselves but are isolated due to a lack of other solutions. Individuals also may be placed within solitary confinement due to overcrowding within units or while waiting for space to become available in a more appropriate setting (Shalev, 2008).

One of the most widely recognized reasons for placing inmates within solitary confinement is in regard to national security. This type of segregation is often referred to as administrative segregation and typically involves those who have been suspected or convicted of politically motivated crimes and who are members of major organized criminal gangs or terrorist groups. The rationale for segregation, in this case, is to prevent the inmate from being able to contact or continue to be involved with the group or gang he or she is affiliated with outside of the prison. Individuals who are convicted of crimes involving national security typically spend their entire prison sentence in severe segregation (Shalev, 2008).

In addition to the reasons noted above, an individual may be held in isolation due to an ongoing pre-charge or pretrial investigation. According to Shalev (2008), in most jurisdictions, pre-charge detention is limited to a few hours or a few days by law. However, some jurisdictions have provisions for lengthier periods. In most cases, individuals are held in isolation during pretrial to prevent them from compromising the investigation (Shalev, 2008).

The amount of time an individual spends within solitary confinement is subjective and often based upon the recommendation of correctional staff (Pizarro & Steenius, 2004). Thus, no one set of guidelines or standards are followed to determine one's length of stay in isolation. In most jurisdictions, one's admittance into a supermax facility or isolation unit does not depend on a formal hearing. Instead, it is based on the individual's criminal and behavioral history while incarcerated (Pizarro & Steenius, 2004). Typically, continued misconduct related to underlying mental health problems, which are often consequently exacerbated by isolation and time spent in solitary confinement, can result in individuals with mental health problems being held in solitary confinement indeterminately (Shalev, 2008).

Although the specific conditions of solitary confinement may differ according to the regulations and procedures across facilities, the most prominent characteristic is the isolation of inmates to areas designed specifically for restricting their movement (Frost et al., 2016). O'Keefe (2008) noted that the basic conditions and environment of solitary confinement often include lack of windows, 24-hour-per-day lighting in the cell, lack of exercise and outdoor activity or recreation, lack of reading materials or related activities, extremely limited therapeutic and mental health services, and restricted interpersonal contact.

In regard to the features of typical solitary confinement units, a typical cell ranges in size from 6 feet by 8 feet to 8 feet by 12 feet (Guenther, 2013). Cells are part of a pod of 8 to 10 cells that are typically arranged into 2 tiers. They are usually painted white or pale gray to reduce any form of visual stimulus. In terms of furnishings, the cells typically consist of a bed, table, seat, sink, and toilet, which are all bolted into the floor (Guenther, 2013). The door of the unit is usually made of perforated stainless steel, which obstructs the inmate's view of the outside world and often does not allow any natural light. Fluorescent lights are kept on for 24 hours per day,

and surveillance cameras are operating continuously. In addition, there are no windows in the cells, only a small slot in the door; referred to as a cuffport, meal port, or tray port; through which meal trays are exchanged, and the inmate's hands are cuffed or uncuffed (Guenther, 2013).

Aside from brief interactions with corrections staff, supermax inmates are rarely in the presence of another person, including physicians or psychotherapists, without being in multiple forms of physical restraints (Haney, 2003). In addition, they are monitored by multiple cameras and often converse with staff through intercoms instead of speaking with them directly. Any type of visit, whether with a loved one or family member, is conducted via videoconferencing rather than allowing any face-to-face interaction (Haney, 2003). Further, in many prisons, "telemedicine" and "telepsychiatry" are employed to minimize any type of direct or face-to-face contact between inmates and staff (Haney, 2003).

An inmate in solitary confinement or those in supermaximum prisons often go years without any form of human touch aside from the chaining and unchaining of wrists through the door (Guenther, 2013). When individuals are escorted outside of their cells, they are most often placed in restraints or tethered to a lead held by a correctional officer. The brief periods of outdoor activity that is allowed, if any, typically takes place in caged-in or concrete-walled areas that are often referred to as "dog runs" (Haney, 2003).

Regarding leisure activities or hobbies, inmates may be given access to books, radio, or television depending on their level of security and good behavior (Guenther, 2013). Typically, the only television available to the inmates in supermax facilities is a closed-circuit broadcast of training videos and religious programming stations. Additional characteristics often include hostile and violent interactions, excessive use of force, and an "us-against-them" atmosphere

among prison staff (Cloud, Drucker, Browne, & Parsons, 2015). Overall, the three main domains that make up solitary confinement include social isolation, reduced environmental stimulation, and loss of control over almost all aspects of one's daily life (Frost et al., 2016).

History and Development of Solitary Confinement in the United States

The use of solitary confinement across U.S. prisons has been at the center of debate since the early 19th century. According to Shalev (2008), solitary confinement is regarded as one of the oldest, most enduring, and most extreme prison practices utilized in correctional facilities. Solitary confinement first arose in the United States as a standard technique of punishment with the establishment of the penitentiary system in the early 19th century (Guenther, 2013). It was once believed that by segregating problematic inmates, they would have a better chance of being reformed (Shalev, 2008). However, it soon emerged that instead of being rehabilitated, many of the individuals being held in confinement became mentally ill, and these facilities were not showing any reduction in reoffending (Shalev, 2008). However, despite documentation of the serious consequences throughout the 1800s, extreme isolation has become a widespread method for managing and housing inmates in the United States.

During the early 1800s, two major prison systems were developed in the United States: the Pennsylvania system and the Auburn system (Arrigo & Bullock, 2007). Although both of these prison systems were established during the same period, the purpose of incarceration between the two was quite disparate. The Pennsylvania system was based upon the premise that isolation and segregation would provide inmates with time to reflect upon their offenses and become "penitent," which is where the term penitentiary originated (Arrigo & Bullock, 2007). This system was characterized by "the rigid isolation of prisoners," as these individuals were

segregated from society, as well as from one another, to reflect upon their wrongdoings (Grassian, 2006, p. 330).

According to Arrigo and Bullock (2007), the Auburn system, which was developed in New York, was focused on the premise that while incarcerated, individuals should be subjected to silent and congregate labor. This practice included inmates being restrained to one another while carrying out manual tasks, such as taking care of the fields surrounding the facility or building and maintaining roads. The main idea behind the Auburn system was that inmates would pay for their crimes, as well as assist with maintaining the prison facilities through severe, manual labor (Arrigo & Bullock, 2007). The distinguishing feature of this system was that inmates were permitted to work together in the daylight hours while always maintaining silence. Both the Auburn and Pennsylvania systems were based on the premise that criminal behaviors were learned from and reinforced by other criminals. The Pennsylvania system was discontinued in 1890 and replaced by the Auburn system, as ultimately, it was found that extreme segregation and isolation resulted in damaging health-related and psychological consequences for the prisoners (Arrigo & Bullock, 2007).

Approaching the latter part of the 19th century, it became more widely recognized that inmate segregation and isolation were forms of torture (Eisenman, 2009). As a result of this recognition, the United States began to experience a rapid decline in the utilization of solitary confinement over the next 80 years, with the exception of housing extremely aggressive inmates only for means of short-term control. Even though the use of solitary confinement became less prominent throughout the majority of facilities in the Western region of the United States, the issue continued to remain controversial. A major turning point for almost complete elimination of solitary confinement occurred following a study in the 1950s on the perceptual deprivation

that prisoners of war experienced upon returning from the Korean War. Those who opposed solitary confinement rapidly gained ground on the issue and sought to eliminate all forms of solitary confinement. Despite this, the prison system in the United States had a large number of those in support of the use of housing prisoners in solitary confinement over the next two decades, which ultimately provided support for the resurgence of solitary confinement, including establishment of supermaximum prisons (Eisenman, 2009).

Rise of Solitary Confinement and Supermaximum Security

Supermaximum prisons are described as those in which “all prisoners are held in extreme isolation” and are completely isolated from other inmates and prison staff, including guards (Arrigo & Bullock, 2007). The National Institute of Corrections (NIC) (1997) defined a supermax prison as a free-standing facility, or a distinct unit within a facility, that provides for the management and secure control of inmates who have been officially designated as exhibiting violent or seriously disruptive behavior while incarcerated. Such inmates have been determined to be a threat to safety and security in traditional high-security facilities, and their behavior can be controlled only by separation, restricted movement, and limited direct access to staff and other inmates (p. 1).

Although there is a clear overall consensus that supermax facilities are designed to house and isolate inmates that necessitate the highest security classification, unfortunately, there is not a universally accepted definition (Frost et al., 2016). Supermax facilities are typically large in size, have heightened security and control, and are specifically designed for long-term, strict isolation of inmates who have been classified as problematic and/or as a high security risk (Shalev, 2008).

In 1963, the U.S. Penitentiary, Marion (USP Marion) opened to replace the maximum-security federal prison on Alcatraz Island in San Francisco, California, which was closed the same year (Pizarro & Stenius, 2004). USP Marion became the first control unit in the United States after a violent uprising in 1983 resulted in authorities placing the facility on lockdown. The lockdown at USP Marion consisted of securing all inmates to isolation, which further rendered the Marion system as a supermaximum facility (Committee to end the Marion Lockdown, 1992). The lockdown at Marion lasted for over two decades, during which time it provided the impetus for other correctional facilities throughout the United States to develop and enforce similar measures, ultimately becoming the model for state solitary housing units across the nation (Kurki & Morris, 2001).

As the United States developed parallel facilities that mirrored both the structure and function of the newly developed USP Marion, prison facilities nationwide recorded an increase in overcrowding and collectively reported an overwhelming punitive nature of such facilities (Haney, 2003). In the 1990s, the United States saw a dramatic increase in the development of correctional facilities throughout the nation, due to these institutions attempting to overcome the punitive and over-populated nature of prisons (Haney, 2003). However, Haney (2003) noted that due to the culmination of the historical lockdown at USP Marion, the increased use of solitary confinement, and the growth of the prison industry overall, supermax prisons in particular increased exponentially throughout the United States during this time.

By the turn of the 21st century, more than 50 supermax facilities had been established throughout the United States, which provided coverage for nearly 70% of the nation (King, 1999). Further, due to the increase in supermax facilities, approximately 20,000 inmates were housed in such facilities by 1998 (Pizarro & Stenius, 2004). Mears (2005) noted that in a 2004

Urban Institute survey of supermax wardens, it was reported that 44 states in the United States were operating at least one supermax facility, and collectively these facilities housed over 25,000 inmates. Unfortunately, the structure of entire supermaximum facilities increasingly began to parallel the structural characteristics found within solitary confinement, which forced inmates to be in isolation with very little interaction or social connection with others.

Prevalence and Contemporary Use

Across the United States, supermaximum prison facilities have become a foundational aspect of corrections. According to Pizarro, Zgoba, and Haugebrook (2014), between 25 and 44 states within the United States are currently operating one or more of these types of systems. However, these numbers are increasing, as isolation units continue to be built in prisons, jails, and juvenile detention centers across the United States (Guenther, 2003). Given the lack of accurate data on solitary confinement, it is difficult to quantify or provide accurate estimates regarding solitary confinement throughout the United States. Earlier estimates noted that somewhere between 1 and 3% of the entire inmate population was housed in highly restrictive segregation units (Guenther, 2003). However, these estimates have been criticized as underestimates. Naday, Freilich, and Mellow (2008) noted that the vast majority of correctional institutions have, in the past, failed to report their numbers of those in segregation accurately, as a way to avoid controversy and condemnation.

Currently, the most accurate estimates regarding the prevalence, as well as the cost of the use of solitary confinement, come from analyses of its use within the federal system.

Administrative segregation at the federal level covers three different types of restricted housing, which has increased at a faster rate than the general inmate population (McGinnis et al., 2014). The Bureau of Prisons (BOP) refers to these three main types of segregation as special housing

units (SHUs), special management units (SMUs), and administrative maximums (ADXs). All three of these restrictive housing methods are based on the same premise, that inmates who are identified as disruptive, violent, or aggressive need to be housed in a controlled setting to provide safety and security to maintain their facilities effectively (U.S. Government Accountability Office, 2013).

In the first report, the U.S. Government Accountability Office (U.S. GAO, 2013) reviewed the use of solitary confinement practices across the federal system from 2008 to 2013. Specifically, the U.S. GAO reviewed the trends within the population of segregated housing units, the extent to which the BOP monitored how segregated housing policies and rules are carried out, and the degree to which the BOP assessed the impact of segregated housing on inmates, as well as institutional safety. According to the GAO report, 7% of all federal inmates are held in administrative segregation. The report also indicated that 81% of isolated inmates in BOP facilities were in SHUs, approximately 16% were in SMUs, and approximately 450 inmates were housed at the ADX facility (U.S. GAO, 2013).

The report also highlighted that cost estimates for housing inmates in restricted housing are significantly higher than those held in non-segregated units or those within the general population units. The report described that in 2012, the total cost of housing just 1,987 inmates in SMUs use was \$87 million. It was noted that the cost of housing the same inmates in a medium-security institution would have been \$42 million or \$50 million in a high-security facility (U.S. GAO, 2013).

In addition to estimates from the federal system, staff members from the Liman Program at Yale Law School and the Association of State Correctional Administrators (ASCA) collaborated on a survey of administrators of correctional facilities across 46 different

jurisdictions (Liman Program & ASCA, 2015). The survey, from the fall of 2014, asked jurisdictions to provide a report for the number of inmates who were housed in any type of segregated housing or solitary confinement. The report, which was sent to the Department of Justice, *Time-In-Cell*, provided an estimate of the prevalence of segregation across the United States in 2014. The report noted that of the 34 jurisdictions that responded, approximately 66,000 inmates were being housed within some form of restrictive housing (Liman Program & ASCA, 2015).

In addition, the report indicated a somewhat stable trend in terms of the numbers of inmates housed in administrative segregation, reporting an average decrease of less than 1% of the percentage of inmates in solitary confinement between 2011 and 2014 (Liman Program & ASCA, 2015). Although some prison systems appear to be more recently motivated to reduce the number of inmates in isolation, the use of segregation and restrictive housing continues to be a problem throughout the nation (Frost et al., 2016).

As previously noted, the operation of these units involves a great deal of controversy. It has been argued that this type of housing and confinement has become an overused and commonplace method for managing inmates (Arrigo & Bullock, 2007). Further, it has been debated that supermax units have also become the “go-to” method for inmates who are more of a nuisance than dangerous (Arrigo & Bullock, 2007). Although not all, many administrators of supermax facilities maintain the rationale for supermax prisons by claiming it to be a necessity in decreasing the level of violence and disruption among inmates. However, Briggs, Sundt, and Castellano (2003), among many other researchers and individuals involved in correctional facilities, note that the effectiveness of enhancing prison safety with these methods in supermax prisons remains highly controversial and unclear. While a majority of facilities continue to

employ the typical practices of solitary confinement, many human rights activists have found segregation and isolation from other individuals to be in direct violation of the Eighth Amendment (Smith, 2006). Due to this, many U.S. courts have criticized the conditions that characterize solitary confinement (Arrigo & Bullock, 2007). However, long-term isolation has not been deemed illegal in the United States and continues to be a defining feature of correctional facilities nationwide.

Solitary Confinement in Other Nations

Although solitary confinement is employed in various ways from nation to nation and there are some efforts to reduce and reform the practice, solitary confinement continues to be an established aspect of prison systems internationally (Mendez, Papachristou, & Ordway, 2016). Mendez et al. (2016) conducted a review of the laws and regulations of certain nations regarding their use of solitary confinement in order to analyze the practices of solitary confinement in various jurisdictions around the world. The report provides a summary regarding the various laws and policies from jurisdictions around the world that allow and/or prohibit solitary confinement, how it is employed and its conditions and how they differ. Due to the scope of this literature review, the aspects of use across nations and social contact are briefly highlighted as they pertain to the review conducted by Mendez et al (2016).

In the report, almost all of the jurisdictions that were surveyed utilized solitary confinement as a form of punishment (Mendez et al., 2016). However, the behavior that leads to one being held in segregation differs greatly from country to country, ranging from minor offenses such as using profanity, to more serious offenses such as murder or other serious acts of violence and assault. In addition, Melendez et al. (2016) noted that one of the most marked

aspects of the study was the extent to which some countries, including highly developed ones, allow such severe confinement to be practiced in their nations.

In regard to social connection accommodations, Mendez et al. (2016) indicated that in 26 of the jurisdictions that were surveyed, there was no direct contact allowed for inmates housed in solitary confinement, except for contact with prison guards, medical, religious personnel under special circumstances, or other prison staff. However, in some jurisdictions, including South Africa, New Zealand, and Colorado, there is a minimum frequency with which the inmate must be visited by prison personnel (Mendez et al., 2016). The report noted that in England, for example, prison staff play a key role in terms of engaging with the inmates housed in segregation. In addition, they are even encouraged to interact with the inmates by talking and participating in activities with them when appropriate. Further, Mendez et al. reported that in France, the current warden is required to assemble the inmates on special occasions or holidays if their behaviors allow for it.

Solitary confinement has gained a greater amount of attention in the past several years across the globe. Due to the controversial matter of its use, some nations have attempted to reform their policies and regulations to improve conditions and decrease the practice altogether. However, unfortunately, this trend is not yet widespread, as harsh solitary confinement continues to be used in jurisdictions throughout the world (Mendez et al., 2016).

Statement of the Problem

The United States incarcerates more individuals than any other nation, with an incarceration rate that is approximately seven times greater than the average rate in European countries (Cloud et al., 2015). Regarding solitary confinement prevalence rates, the number of individuals being held within solitary confinement rose by 17%, from 10,659 to 12,460 inmates,

between the years 2008 to 2013. Thus, high rates of incarceration as well as a rising prevalence of solitary confinement rates suggest this practice will impact an even greater number of inmates over time. It has been estimated that approximately 93% of inmates are eventually released from prison, creating a difficult challenge both within the prison as well as for society in terms of re-socializing and rehabilitating and reintegrating released inmates (U.S. GAO, 2013). Although researchers have begun to investigate the impact of solitary confinement on incarcerated individuals, it is an area that continues to remain relatively unexplored. Further, there is limited discussion of the concept of social deprivation involved in solitary confinement, how social deprivation affects individuals long-term, and whether there are gender differences related to being isolated.

Purpose of CRP Literature Review

The intention of this literature review is to explore further the detrimental effects of solitary confinement on incarcerated individuals. Specifically, this review intends to identify the effects of social deprivation to predict the impact of solitary confinement on incarcerated individuals' overall functioning and to identify whether there are gender differences related to deprivation of socialization. In addition, other populations that experience isolation and similar conditions to solitary confinement will be examined to provide a further understanding of the effects of severe isolation. Based on the findings of this review, recommendations for prison programs that will increase social interaction among all inmates, which may, in turn, lessen the harmful effects of being held in isolation, will be discussed. This review will address the following research questions:

- a. What consequences arise when individuals are isolated from human contact and social interaction?

- b. Are there gender differences that should be considered in terms of socialization and isolation?
- c. What impacts do solitary confinement and isolation have on adult inmates?

Research Procedure

Various databases will be utilized for this literature review to locate relevant psychological and scientific journal articles, books, and dissertations that address the use and development of solitary confinement as well as the negative effects associated with segregation. In addition, the importance of social connections and socialization as well as the effects of social deprivation will be evaluated.

CHAPTER II: SOCIALIZATION AND SOCIAL RELATIONSHIPS

Social Interaction and Social Learning Throughout the Lifespan

Socialization is referred to as the processes by which individuals are taught the skills, values, behaviors, and motivations necessary to function effectively in the culture in which they are raised (Maccoby, 2015). Socialization is critical both to individuals and to the societies in which they live.

Through social interaction, individuals gradually become able to see themselves through the eyes of others and learn how to fit into the world (Newman & Newman, 2006). To function successfully in society, individuals need to learn the basics of both material and nonmaterial culture, including everything from how to dress to how to behave and react in certain social situations (Newman & Newman, 2006). A growing body of research suggests that the need for individuals to connect and interact with one another is as important as attaining physiological needs for survival. Social interaction also plays a vital role in the development of personality and self-awareness as well as the formation of one's morals, values, and beliefs (O'Neil, 2009).

Researchers, health care professionals, neuroscientists, and scholars tend to agree that humans and their brains are shaped by, and function in, endless interactions with other individuals (Hari & Kujala, 2009). Humans live in a world where most of the daily environment is comprised of and affected by other humans. As such, humans' understanding, perception, and awareness of themselves and the world are shaped early on by the environment and the individuals who surround them (Hari & Kujala, 2009). According to Hari and Kujala (2009), social interaction involves numerous aspects of communication and connection. Some of the main avenues of social interaction noted by Hari and Kujala (2009) include imitation, cooperation, competition, helping, informing, negotiating, and collaboration with other human

beings. Most social scientists and researchers agree that socialization represents the process of learning throughout life and is a central influence on the behavior, beliefs, and actions of adults, as well as of children (Newman & Newman, 2006). Socialization is a lifelong process that is everchanging and continues throughout the entirety of the lifespan. However, the early stages of socialization are crucial for development (Hari & Kujala, 2009).

Early socialization. Socialization and social learning are a long-lasting learning process that begins shortly after birth (Grusec, 1992). Social development in early childhood is an important part of a person's overall health, well-being, and happiness throughout his or her life. Social development is very closely linked to cognitive and emotional development, and together these developmental markers and milestones build the foundation for developing relationships with other people, coping with stressful situations, and many other skills (Grusec, 1992).

As children grow and develop, so do their levels of interaction and socialization with others (Newman & Newman, 2006). As parents respond to a baby's physical requirements for food and shelter, they are also beginning to teach the baby what to expect from their environment and how to communicate their needs. The action-reaction cycle of smiling, cooing, and touching is a child's earliest interaction with greater society. It is believed that these early interactions during infancy play a major role in future social adjustment, as well as more complex thinking patterns (Newman & Newman, 2006).

Research has consistently shown that the period of early childhood is the most crucial for healthy social, cognitive, and emotional growth and development (Newman & Newman, 2006). Several theories of childhood socialization and development have guided research and highlighted the major elements of social development that occur in childhood. One of the most widely known and recognized theories related to cognition and development is Jean Piaget's

theory of cognitive development. Piaget's theory emphasized a process in which individuals explore, investigate, and discover meaning in their world (Newman & Newman, 2006). His theory highlighted social factors as well as how individuals interact with their environment and the world around them. Piaget believed that individuals create their knowledge through active engagement and posited that as individuals learn about the larger principles that govern objects and physical relationships, they also learn about themselves and others (Newman & Newman, 2006).

Another important and widely applied theory of development is Lev Vygotsky's social development theory. Vygotsky contended that development can only be fully understood within a social framework (Newman & Newman, 2006). His theory proposed that humans and their culture are interwoven through the process of social interaction. Vygotsky believed that higher levels of understanding and cognitive growth begin on an interpersonal level, as an infant or child synchronizes interactions with those of an adult. He believed that, ultimately, interpersonal alliance becomes internalized in the child and makes up his or her mental framework. Vygotsky's theory posited that through ongoing interaction and socialization with other adults and more mature individuals, a child progressively modifies and advances his or her level of understanding (Newman & Newman, 2006).

The concept of social learning arose from the awareness that a vast majority of early learning takes place through observation and imitation of the behaviors of others (Bandura & Walters, 1963). Social learning theorists highlight the importance of social contact and have focused even more so than other theorists on the significance of interpersonal relationships and engagement with others (Bandura & Walters, 1963). Bandura and Walters (1963) suggested that children not only observe behaviors carried out by a model but also watch what happens to the

model. It is believed that through observation an individual can learn a behavior and acquire the motivation to perform the behavior depending on what is learned about the rewards or consequences involved (Bandura & Walters, 1963). Therefore, observational learning can, in turn, lead to self-regulation and internalization of standards of right and wrong (Grusec, 1992).

As previously discussed, Vygotsky believed that children learn through social interactions and their culture. Through what Vygotsky called “dialogues,” individuals socially interact and communicate with others to learn the cultural values of society. The co-constructed dialogues lead to internalization, which in turn, leads one to independent thinking (Woolfolk, 2004). In addition, Vygotsky believed “human activities take place in cultural settings and cannot be understood apart from these settings” (as cited in Woolfolk, 2004, p. 45). Therefore, culture and social exchanges help shape cognition, personality formation, and overall development.

To some degree, all of the theories discussed highlight the important role of socialization. The noted theories attempt to explain how social interactions relate to healthy adjustment and how development is a product of ongoing interaction between an individual and the environment. Overall, theorists and researchers tend to agree that early socialization is required for healthy cognitive, emotional, and physiological development.

Socialization and relationships throughout adulthood. Because the majority of research on socialization focuses on childhood and adolescence, there have been few direct conclusions to draw upon in terms of conceptualizing socialization in emerging and latter adulthood (Arnett, 2007). However, as previously noted, researchers, theorists, and other professionals tend to agree that socialization continues throughout early and emerging adulthood and beyond. Interacting and socializing with others as well as having relationships has been

correlated with psychological well-being from childhood throughout old age (Hartup & Stevens, 1997). According to Grusec's (2002) definition, socialization is the process whereby "individuals are assisted in the acquisition of skills necessary to function as members of their social group" (p. 143). In line with this idea, socialization undoubtedly continues throughout adult years, as knowledge, values, and behaviors are instilled and learned through interactions with "elder" influences with whom individuals come into contact (Arnett, 2007). Macionis (1993) noted that distinct from other living organisms, humans rely on social interactions to learn and acquire the workings of greater society to survive and prosper into adulthood.

Grusec (2002) proposed that socialization involves three outcomes: the development of self-regulation and emotion, thinking, and behavior; the acquisition of standards and values of a culture and the development of role-taking skills; and strategies for resolving conflicts and ways of viewing relationships. Although cultures vary greatly throughout the world, all three of Grusec's goals of socialization are ones that are posited to continue to be developed throughout one's adulthood. Overall, Grusec's (2002) conceptualization of socialization clearly highlights that the process is not complete by the end of childhood or adolescence, as important developments continue to take place throughout emerging adulthood as well as in later years. Thus, it has been maintained that socialization is an important source that not only influences behavior throughout the lifespan, but also influences an individual's evolving personality and character traits.

George Mead's theory of social behaviorism stresses that humans are part of a social world in which the development of personality and sense of self are embedded in the interactions and experiences with others (Proshansky, Fabian, & Kaminoff, 1983). Mead believed that personality and self-concept are constructed from social surroundings, as the individual learns

how to respond to them. In sum, Mead's theory emphasized that an individual learns to identify and judge himself or herself in much the same way that others judge him or her (Proshansky et al., 1983). As personality evolves, the individual concurrently becomes his or her own distinctive individual, which in turn, leads to the development of one's self-concept and self-esteem. In the absence of social experiences and personality, a healthy sense of self simply does not develop and is not carried on throughout adulthood (Macionis, 1993).

The process of social comparison is another example of one way in which an individual's self-concept is heavily influenced by social origins throughout the entire lifespan. Social comparison occurs when humans learn about their skills and abilities, opinions, and appropriateness of their attitudes, beliefs, and behaviors as compared to those of others (Collins, 2000). The process of social comparison also plays a key role in the development of self-esteem, as individuals compare themselves to others to come to conclusions regarding their abilities, skills, and behaviors. Social comparison is important throughout the life course, as it provides a sense of hope, offers a source of motivation, and helps an individual better evaluate oneself as well as one's actions, thoughts, and behaviors (Festinger, 1954).

Overall, research related to socialization highlights the importance of social interactions and how they continue to play a key role throughout one's life. Social interactions and relationships are developmentally significant throughout the life course, as they are cognitive and affective resources from childhood through old age (Hartup & Stevens, 1997). Although authors have noted that socialization is of utmost importance in early childhood for one's successful overall development, it has also been established that socialization remains an essential aspect of one's continued adult existence, as it continues to characterize one's sense of self, self-efficacy,

behavior, and self-regulation, as well as perceptions of one's self and of others (Arnett, 2007; Grusec, 2002; Hartup & Stevens, 1997).

Negative Effects of Social Deprivation

Consequences of social isolation for children. The question regarding the impact of early social deprivation on one's development remains an important concern for clinicians, researchers, and theorists (Hobson, 2004). Due to ethical and practical obstacles, a great deal of research regarding the consequences of social isolation in children has come about from case reports or studies involving children raised in institutions, such as orphanages. Until the 1990s, Romanian orphanages, in particular, were notorious for their harsh conditions. Children reared in these orphanages often experienced extreme social deprivation and an overall lack of a healthy amount of human contact. In addition to a severe lack of social interaction and human contact, Hobson (2004) noted that these institutions often had harsh living conditions, infants and children were often confined to their beds without toys or other materials, and there was an extreme lack of social exchanges or interpersonal interactions among caregivers and children. Literature exploring the effects of social deprivation in individuals raised in orphanages in Romania has suggested that often, these children experience a number of difficulties, including lacking reciprocal social exchange, showing limited empathy and social awareness, and struggling to maintain social interaction as well as experiencing attachment problems (Hobson, 2004).

The English and Romanian adoptee study (Rutter, 1998) is a longitudinal, multimethod investigation of the long-term outcomes of individuals who spent their infancy up to 43 months in severe deprivation in Romanian institutions before being adopted by U.K. families. The study initially monitored a random sample of 165 Romanian children who were adopted before they

were 3 years old and were assessed at ages 4, 6, 11, and 15. A control group of 52 adopted children from the United Kingdom who had not been raised in such institutions was assessed as well. The objective of the study was to assess the extent to which the sample of children could recover from extreme deprivation (Rutter, 1998).

Sonuga-Barke et al. (2017) utilized data from the original English and Romanian Adoptees study to assess further whether deprivation-associated neurodevelopmental and mental health outcomes persist into one's young adulthood. Sonuga-Barke et al. found that the adoptees who had experienced less than 6 months in an institution ($n = 67$ at ages 6 years; $n = 50$ at young adulthood) had lower levels of symptoms across most ages and outcomes. However, the Romanian children who were reared in an institution for more than 6 months ($n = 98$ at ages 6 years; $n = 72$ at young adulthood) had persistently higher rates than the United Kingdom controls of symptoms of autism spectrum disorder and disinhibited social engagement as well as inattentive and hyperactive tendencies into young adulthood. According to Sonuga-Barke et al., these patterns of behavior stem directly from the children's early severe social and emotional deprivation and bring about a number of emotional, behavioral, and interpersonal problems.

Consequences of social isolation for adults. There are a number of both health and psychological consequences that occur in isolated adults. Similar to children, adults who experience social deprivation are subjected to a wide range of negative and potentially long-lasting effects.

Health-related consequences. The lack of, or complete absence of, social relationships can threaten one's health, life, and genetic legacy (Cacioppo & Cacioppo, 2014). As previously noted, humans need others to survive and prosper due to the important role that socialization continues to play throughout humans' lives. Research has suggested that social relationships

have short- and long-term effects on health that emerge in childhood and can progress throughout life. These effects can either promote advantages or disadvantages to one's physiological health and well-being (Umberson & Karas Montez, 2010). According to the World Health Organization (2017), social well-being is seen as a key component of one's overall health. Extant literature has established an association between measures of social relationships and mortality and physical morbidity, as well as adjustment to and recovery from chronic diseases (Cohen, Gottlieb, & Underwood, 2000).

Social isolation and the absence of positive relationships in one's life have been found to be significant risk factors for morbidity, as well as mortality (Cacioppo & Cacioppo, 2014). Berkman and Syme (1979) explored the relationship between social and community ties and mortality by utilizing the 1965 Human Population Laboratory survey of a random sample of 6,928 adult men and women in Alameda County, California, as well as a 9-year mortality follow-up. Their results showed that individuals who lacked both social and community relationships were more likely to die in the nine-year follow-up period than those who had more ties within the social and community realm. Further, this finding remained true even when controlling for socioeconomic status, health behaviors, and other confounding variables that may have influenced one's mortality (Berkman & Syme, 1979).

A more recent study conducted by Steptoe, Shankar, Demakakos, and Wardle (2013) intended to assess the extent to which the association between social isolation and mortality is mediated by loneliness. An important objective of this particular study was to explore further whether social isolation and loneliness are two processes independent of one another that each affect health risk or whether the emotional state of being lonely itself provides a mechanism through which social isolation affects health. Steptoe et al. measured social isolation in 6,500

men and women, 52 years of age and older, who took part in the English Longitudinal Study of Ageing from 2004 to 2005. They assessed social isolation by considering a number of components, such as contact with friends and family, as well as participation in community and civic organizations. Steptoe et al. administered a standard questionnaire of loneliness and monitored all-cause mortality through March 2012, which provided a mean follow-up period of 7.25 years. The study found that mortality was higher among more socially isolated and lonely participants. After statistically adjusting for demographic factors and baseline health, social isolation remained significantly associated with mortality, but loneliness did not (Steptoe et al., 2013). Overall, both social isolation and loneliness were associated with increased mortality. However, the effects of loneliness were not independent of demographic features or health problems. Therefore, Steptoe et al. suggested that loneliness alone did not contribute to the risk associated with social isolation.

In addition to mortality, it is also important to consider the effects of social isolation on morbidity. Research regarding mortality alone does not provide enough information to understand fully where along the spectrum of disease and illness social connections have the largest impact (Berkman, 1984). Although literature regarding the serious effects of social isolation on physiological health is growing, a great deal of research has been based on cross-sectional data.

Hawkey, Thisted, Masi, and Cacioppo (2010) utilized longitudinal data to investigate the degree to which loneliness was associated with elevated blood pressure over a 4-year follow-up period in the same sample of adults from the Chicago Health, Aging, and Social Relations Study (CHASRS). CHASRS was a longitudinal, population-based study of non-Hispanic White, African American, and non-Black Latino American individuals born between the years 1935 and

1952. Data for this study were collected annually between 2002 and 2006 for each of the participants, with 229 individuals on the first testing occasion and 163 participants in the last testing occasion in year 5. For each of the five annual data collection visits, participants were administered standard psychological surveys and health interviews as well as a cardiovascular protocol that included blood pressure measurement. The UCLA Loneliness Scale-Revised (UCLA-R; Russell, Peplau, & Cutrona, 1980) was utilized to measure general loneliness and participants' degree of satisfaction with their social relationships. Cross-lagged panel analyses revealed that loneliness at the study's onset predicted systolic blood pressure (SBP) increases 2, 3, and 4 years later. The SBP increases for participants were cumulative, as higher initial levels of loneliness were associated with larger increases in SBP over 4 years. According to Hawkley et al. (2010), the effect of loneliness on one's SBP was independent of gender, race and ethnicity, age, cardiovascular risk factors, health conditions, medications, social support, depressive symptom effects, perceived stress, and hostility.

An additional variable to consider as it relates to one's health and well-being is the experience of stress. Having dependable social ties often lessens one's experience of stress due to an individual being able to receive support assistance, support, comfort, or relief, which is often directly linked to overall health (Cohen & Wills, 1985). Alternatively, those without such ties do not receive the same levels of tangible support in times of stress and, consequently, are thought to show more frequent activation of the sympathetic nervous system and the sympathetic adrenomedullary and hypothalamic pituitary adrenocortical (HPA) axes (Cacioppo & Hawkley, 2003). Cacioppo et al. (2000) examined differences between lonely and isolated individuals and those who were connected socially to explain differences in health outcomes. Results from the study revealed that chronically lonely individuals were characterized by elevated mean salivary

cortisol levels during the course of a day, suggesting more discharges of corticotropin-releasing hormone and elevated activation of the HPA axis.

Another study providing support for the association between social contact and health was conducted by Brummett et al. (2001) to more closely examine the psychosocial characteristics of individuals with coronary artery disease who lacked social relationships. Social isolation was assessed as a predictor of mortality in 430 individuals with diagnosed coronary artery disease. Brummett et al. compared the more isolated individuals with their less isolated counterparts on factors, such as the number of people in their social support network, that were thought to help explain the association between isolation and survival. Results from the study indicated that the mortality rate was greater among the socially isolated individuals. Those who had three or fewer people in their social support network had a relative risk of 2.43 ($p = .001$) times higher for cardiac mortality and 2.11 ($p = .001$) times higher for all-cause mortality, controlling for age and disease severity.

Further, adjustments for hostility, income, and smoking behaviors did not change the risk due to social isolation. Brummett et al. (2001) concluded that the individuals' social networks were connected to the survival of those diagnosed with coronary artery disease. Further, the association was noted to be linear, as individuals who reported very few or lack of social relationships were at the highest risk for earlier mortality. Although a variety of hypotheses and explanations could be proposed to account for the association between social isolation and mortality, Brummett et al.'s study provided additional evidence for the adverse effects of social isolation on one's health, specifically as it relates to cardiovascular health and well-being.

An additional study that highlighted the importance of social relationships and health outcomes was conducted by Tomaka, Thompson, and Palacios (2006). Their study examined the

associations between social isolation, loneliness, and social support and how they related to health outcomes in a randomly selected sample of Caucasian and Hispanic New Mexico seniors. Tomaka et al. assessed how the aforementioned social variables related to a number of health conditions and diseases including heart disease, diabetes, hypertension, liver disease, tuberculosis, arthritis, emphysema, cancer, kidney disease, stroke, and asthma. In general, correlational and logistic analyses garnered from the study showed consistent support for the various roles of these social variables in terms of health outcomes. Data suggested belongingness support (i.e., support from friends and social networks) to be the most constant predictor of disease outcomes, predicting diabetes ($b = -.29$), hypertension ($b = -.27$), liver disease ($b = 1.36$), arthritis ($b = -.19$), and emphysema ($b = -.69$). These associations were noted to all fall within the anticipated protective direction, as they negatively predicted the diseases assessed except liver disease. In addition, living alone was negatively associated with heart disease ($b = -.37$), but familial support was negatively related to stroke ($b = -.42$), with high levels of support being associated with low levels of disease (Tomaka et al., 2006).

Psychological consequences. Loneliness and social isolation have long been recognized by scholars and researchers to have a major impact on one's psychological well-being (Alpass & Neville, 2003). According to Matthews et al. (2016), being involved in positive social relationships provides individuals with meaning and support and can influence long-term outcomes of psychological health and well-being. Unfortunately, a great deal of the research that has assessed social isolation and its effects on mental health have utilized cross-sectional data, which makes it difficult to conclude the exact direction of causality between social connections and mental health. However, research has consistently suggested that social isolation is often

connected to developing symptoms of depression or a depressive disorder and can greatly impact one's overall psychological well-being (Cacioppo et al., 2006).

It has been suggested that being isolated socially can prompt further withdrawal, which can often lead to depression, as well as other mental health issues. For example, in 1934 Faris posited that a reclusive or withdrawn personality, which is often considered to be a defining feature of schizophrenia, may, in fact, be exacerbated by a prolonged period of segregation from any interpersonal or social connections (Shalev, 2008). When an individual is socially deprived of any and all forms of human contact, especially any meaningful interactions, he or she is more likely to withdraw and deteriorate (Shalev, 2008).

A study conducted by Matthews et al. (2016) intended to explore the association between social isolation and loneliness and how they related to depression using data from the Environmental Risk (E-Risk) Longitudinal Twin Study. The sample included data from 1,116 same-sex twin pairs born in England and Wales in 1994 and 1995. Briefly, the E-Risk sample was constructed in 1999–2000, when 1,116 families with same-sex 5-year-old twins participated in home-visit assessments. The sample comprised 55 % monozygotic (MZ) and 45 % dizygotic (DZ) twin pairs and sex was evenly distributed within zygoty (49 % male). Follow-up home visits were conducted when the children were age 7 (98% participation), 10 (96% participation), 12 (96% participation), and 18 (93% participation). There were a total of 2,066 children who participated in the E-Risk assessments at age 18. Matthews et al. reported that the proportions of MZ (55%) and male same-sex (47%) twins were almost identical to those found in the original sample at age 5. Participants reported on their levels of social isolation, loneliness, and depressive symptoms via the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988), which assessed individuals' access to supportive

relationships with family and friends. Matthews et al. conducted regression analyses to test the differential associations of isolation and loneliness with depression. Results revealed that social isolation and loneliness were moderately correlated ($r = 0.39$), which reflected the separateness of these two constructs. Further, data suggested that both social isolation and loneliness were associated with depression. When entered simultaneously in a regression analysis, loneliness was more robustly associated with depression. In general, results suggested that the young adults who were socially isolated experienced greater feelings of loneliness and were more likely to struggle with depression (Matthews et al., 2016).

Werner-Seidler, Afzali, Chapman, Sunderland, and Slade (2017) investigated the relationship between depression and social connection factors in the 2007 Australian National Survey of Mental Health and Well-being. The sample included a national survey of 8,841 individuals across three different age groups including young (16-34 years), middle-aged (35-54 years), and older adults (55+ years). Logistic regression was utilized to assess the association between factors of social connectivity and the 12-month occurrence of major depressive disorder in the whole sample, as well as across the three age groups. Participants specified how often they were in communication with family and friends (frequency of contact) as well as how many individuals they believed they could confide in and rely on for support (quality of support). The World Mental Health Composite International Diagnostic Interview (Kessler & Ustun, 2003) was utilized to assess individuals for major depressive disorder. Overall, results indicated that the quality of social connectivity was consistently associated with a lower chance of past-year depression. Specifically, having three or more family members or friends to confide in or rely upon was associated with lower levels of past-year depression. Alternatively, results indicated that being without friends or family to seek support from was associated with an increased

likelihood of having had a depressive episode within the last year. Results from this study suggest that both emotional and instrumental support are important aspects of the development and experience of depression (Werner-Seidler et al., 2017).

A systematic literature review was conducted by Gariépy, Honkaniemi, and Quesnel-Vallée (2016) to assess what features of social support may act as protective factors for a depressive disorder across the lifespan. The systematic review utilized meta-analytic methods and included both cross-sectional and longitudinal studies to provide a quantitative combination of existing literature. Thirty-six studies assessed the association between social support and protection from depression in samples of adults, which included individuals ages 18 years and older. A majority of these studies (89%) indicated a significant association between social support and protection from depression among adults. Spousal support was most consistently associated with protection from depression (100% of studies), followed by familial support (88%), support from friends (73%), and support from children (67%). Regarding the type of social support, emotional support was identified to be most consistently associated with protection from depression (75%). Overall, Gariépy et al.'s review demonstrated highly consistent evidence and provided additional support for the notion that social support is an important protective factor against depression.

Cruwys et al. (2013) provided additional support regarding the importance of social connectedness and its potential to protect against the development of depression, as well as alleviating symptoms and reducing relapse of depression. The objective of the study was to investigate the potential benefits of belonging to a social group as it related to current depression as well as preventing future depression. The study focused on testing two key predictions: whether an increase in individuals' number of group memberships would lead to reduced

depressive symptoms and whether a greater number of group memberships would be beneficial for both depressed and non-depressed individuals. Data from the English Longitudinal Study of Ageing (ELSA) was utilized, as it is a large-scale, nationally representative dataset. The ELSA was drawn from households that previously responded to the Health Survey for England, with all respondents born prior to March 1952. All participants were aged 50 years or more and were residing in England when surveyed. The study revealed several important findings overall. First, the number of groups that an individual belonged to was a significant predictor of depression, both when measured across a 2-year and 4-year period. In addition, a larger number of group memberships appeared to be both protective against the development of depression, as well as somewhat curative of depressive symptoms. Results revealed that depressed respondents with no group memberships, but who subsequently joined one group, reduced their risk of depression relapse by 24% and if they joined three groups their risk of relapse was reduced by 63%. Overall, results suggested that being part of more groups was a powerful predictor of a reduction in future depressive relapses among individuals with a history of depression. The authors postulated that once an individual presents with depression, it may not be “too late” to address social isolation, as increasing social connectedness and interactions may be a vital, curative aspect of treatment. Overall, the findings from this study provide strong support to the idea that group memberships and social connection may be an important treatment intervention for depressive symptomatology (Cruwys et al., 2013).

In addition to the increased risk of depressive symptoms, social isolation has also been considered to be a major risk factor associated with suicidal outcomes. Méndez-Bustos et al. (2019) conducted a narrative review to provide an overview of recent research on the link between social isolation and suicidal ideation and behaviors. The review included 40 original

observational studies with a majority of them focusing on adolescents and young adults. The suicidal outcomes investigated included suicidal ideation, suicidal planning, non-suicidal self-injurious behaviors, intentional self-harm, suicide attempt, and suicide. Data from the studies reviewed suggested that both the subjective feeling of loneliness and the objective condition of social isolation were strongly associated with suicidal outcomes, specifically, suicidal ideation and suicidal attempts (Méndez-Bustos et al., 2019). Another consequence associated with isolation, including restrictive custody or detention, which will be discussed in detail in the next chapter, is the increased risk of developing mental illness. A study conducted by Holmgren Frisell, and Runeson (2011), noted that solitary confinement posed a significant risk for mental illness, even when controlling for psychiatric history, substance abuse, and gender (Holmgren et al., 2011).

Gender differences in socialization. The effects of social isolation on an individual's physiological and psychological well-being may also differ greatly by gender. Although no known studies to date have directly addressed the differences experienced by men and women as they relate to lack or absence of social interaction, most scholars and theorists tend to propose that females are more likely to depend on and yearn for interpersonal connection as they progress throughout the lifespan than their male counterparts are (Belle, 1990). Gender differences are common in studies that have investigated social networks and their consequences and they often find that women have larger, more diverse social support systems than men (Antonucci & Akiyama, 1987; Haines & Hurlbert, 1992). Further, it has been widely documented that women without social support tend to report experiencing higher rates of psychological distress in general than men do, which is a finding that may be explained by the important role that social connectedness has for women (Kawachi & Berkman, 2001).

There are several reasons women may tend to be more impacted by a lack of social connection. However, the research is still growing in terms of investigating how socialization and isolation vary according to gender. Belle (1990) concluded that women are more inclined to create and sustain more emotionally close relationships than men are, rely on social relationships throughout stressful periods than men do, and provide a greater amount of social support and closeness to others than their male counterparts do. Further, women in the United States are often encouraged more than males to express emotions, care for others, and foster and maintain friendships and relationships. This way in which society and culture shape and encourage more gendered socialization is yet another reason women may be more impacted than men by lack of quality social relationships (Kawachi & Berkman, 2001).

Research on gender differences in socialization has often examined social support disparities among older adult men and women. One such study conducted by Antonucci and Akiyama (1987) investigated the gender differences in relational support in men and women ranging in age from 50 to 95 years old. The data were obtained from a national survey of older individuals that included 214 men and 166 women. The analyses from the study revealed that women had larger networks and received a greater amount of support from multiple sources while men, alternatively, relied almost exclusively on their spouses. Antonucci and Akiyama (1987) indicated that both the quality and quantity of social support had greater impacts on overall well-being for women compared to men. However, the quality of support had significantly greater effects on well-being than did the quantity for both genders.

A study conducted by Walen and Lachman (2000) aimed to examine the association of social support and strain with psychological well-being and health and examined whether supports depended on relationship type (i.e. family, friends, or partner). The study also sought to

assess whether the pattern of results differed for men and women of varying age groups. Walen and Lochman (2000) predicted that any significant interactions between social exchange variables and sex or age would be in the direction of stronger associations for women and older adults.

The sample comprised 3,485 non-institutionalized adult participants from the Midlife in the United States Survey (MIDUS), which is a national probability sample recruited via random digit dialing. Participants were interviewed for 20-30 minutes over the telephone and completed two self-administered survey questionnaires that were received in the mail. Walen and Lachman (2000) reported the response rate to be 87%. The age of participants ranged from 25 to 75 years, with a median age of 47.8 years, and over 50% of respondents were female. Individuals who reported that they were married or cohabitating were used in the study. Walen and Lachman (2000) noted that the sample used for the study was biased in terms of socioeconomic status, which was likely due to methods used (i.e. telephone surveys and self-report questionnaires requiring reading).

Walen and Lochman (2000) measured the respondents' psychological well-being by examining life satisfaction and positive and negative mood. Physical health was measured by inquiring about subjective health as well as reported health problems. All of the areas assessed were measured by various questions included in the mailed surveys and were self-reported on 5 to 10 point Likert scales.

Analysis from the study indicated that among the relationship-specific correlations for support and strain, the relationship was strongest for partner, suggesting that when partner support is high, strain is typically low. In terms of whether psychological well-being and health measures differed by sex, results revealed that women reported more negative mood and health

problems and less positive mood than men. Within the age factor, those in the older age group (60-75) reported more life satisfaction, more positive mood, and lower subjective health than those in younger (25-39) and middle (40-59) age groups. All age groups differed on reported negative mood and health problems, as negative mood decreased with age, while health problems increased. There was not a significant interaction found between gender and age when well-being and health outcomes were examined. Walen and Lochman (2000) found some evidence for the differential effects of sex, as it was reported that family strain predicted negative mood and health problems only for women, however it was noted that the effect sizes were small.

Results suggest that, overall, social exchange variables exerted similar effects for men and women across the lifespan and social support and strain are important predictors of well-being. Although past research has found mixed results for how men and women are differentially affected by the spousal relationship, the authors found that one's partner was an important predictor for well-being regardless of gender. However, some differences were found among men and women and the relationship between social exchanges and well-being. Consistent with Schuster, Kessler, and Aseltine (1990), who found that women were more impacted by family strain than men when predicting depressed mood, Walen and Lochman (2000) found that family strain was related to negative mood and health problems only for women. This finding could be because women tend to reach out to more people, making themselves more vulnerable to network stress. Past research suggests that women experience a 'burden of care' in regards to social networks and that they are more vulnerable to the emotional strain of network members' problems (Rook, Dooley, & Catalano, 1991). For example, women report a greater number of life events occurring with their social network members and are more negatively affected by

these events. Additionally, it may be that depressed and physically unhealthy women elicit strained exchanges from family members (Rook, Dooley, & Catalano, 1991).

Another important area of research that has recently been growing is the investigation of the impact of social interaction and support on cognitive functioning among older adults. In their targeted review on social ties and mental health, Kawachi and Berkman (2001) noted that over the last five years, three studies have shown that social engagement, social participation, or social networks have predicted cognitive decline in both men and women over age 65. All of these research studies were noted to be longitudinal and controlled for baseline cognitive function. Although this area of research needs to be investigated further to make any sound conclusions regarding the impact of social connection on cognitive functioning, it is an important area to consider, especially in terms of the overall health and well-being of individuals as they age.

As detailed in this chapter, socialization is a critical component to individuals across the lifespan. Communicating, being involved in social relationships and networks, and maintaining connectedness with others are developmentally significant components from infancy through old age (Hartup & Stevens, 1997). Because socialization remains of the utmost importance throughout the entire life course, being deprived socially or having a lack of social relationships can result in a number of consequences. Research has suggested that social isolation is a significant risk factor for morbidity and mortality as well as one's overall physiological health (Cacioppo & Cacioppo, 2014).

In addition, this chapter highlighted some of the important psychological consequences that are often found to be associated with social deprivation in the general adult population, as well as some of the gender differences observed regarding the impact of social ties. Within the

research, social isolation consistently has been connected with an increased risk of developing depressive symptoms or a depressive disorder. Further, socialization and social support have been identified to be an important protective factor not only against depression but against suicidality and suicidal behaviors, as well.

CHAPTER III: INCARCERATED ADULTS IN ISOLATION

As noted in the previous chapter, research has established that socialization plays an important role throughout the life course, and absence of social relationships can pose a number of detrimental consequences to one's overall health and well-being. Due to the present literature review's objective and overall goals, this chapter will detail the research outlining the number of potential psychiatric and physiological consequences that arise when incarcerated adults are held in solitary confinement and deprived socially. Unlike the general adult population, incarcerated individuals, particularly those in solitary confinement, likely suffer more detrimental consequences related to being socially isolated (Frost et al., 2016; Shalev 2008). Not only is this population likely more vulnerable to the distress associated with segregation, but they also are exposed to a more severe form of social isolation than the general population is (Shalev, 2008).

Psychiatric Consequences of Isolation

The most widely documented and researched outcomes of solitary confinement are its potential psychiatric effects. Both qualitative and quantitative studies have been utilized to assess further the potential psychopathological effects of isolation and solitary confinement. In the literature, qualitative studies have provided detailed and in-depth accounts of the numerous effects surrounding the experience of being held in isolation while quantitative studies have attempted to examine the effects among groups of inmates. Although some research within this domain has yielded mixed results due to the utilization of different research methods, most researchers, clinicians, and health care professionals would agree that an individual's experience in solitary confinement can leave lasting detrimental psychological effects (Frost et al., 2016).

For example, a longitudinal study conducted by Holmgren, Frisell, and Runeson (2011), which was authorized by the Swedish Prisons and Probation Service, assessed the health

outcomes of restricted custody, including solitary confinement, among those on remand. It was reported that one in four of those who were detained with restrictions, such as segregation, suffered from mental illness, compared to one in five of those held without restrictions in ordinary custody (Holmgren et al., 2011).

One of the most impactful early qualitative studies is Grassian's (1983) research, in which interviews were conducted with 14 incarcerated males who were challenging the conditions of their segregation in a lawsuit against the Massachusetts Department of Corrections. A subsequent court order mandated psychiatric evaluations of 15 inmates at the Massachusetts Correctional Institution at Walpole, which is the maximum-security state prison in Massachusetts. Grassian noted that the prison was divided into 13 cell blocks with one specific block being reserved for solitary confinement at the time of the present study. The final sample included 14 male inmates, as one of the 15 was no longer being held in the solitary confinement block at the time of the interviews. The age of the inmates ranged from 22 to 38 years, with a mean age of 28. The median duration of confinement in isolation was 2 months, with a range of 11 days to 10 months. Each inmate was interviewed for approximately 30 minutes by one of two psychiatrists. During the interviews, the interviewing psychiatrists gathered the history of imprisonments, previous experience with solitary confinement, and previous as well as present psychological symptoms and treatments. Grassian indicated that the interviews were conducted in an open-ended manner to avoid suggesting possible symptoms.

The extensive interviews with these inmates documented a lengthy list of negative psychological effects including generalized hypersensitivity to external stimuli (11 prisoners); affective disturbances (10 prisoners); perceptual distortions, hallucinations, and derealization experiences (seven prisoners); disturbances of thought (six prisoners); and difficulties with

impulse control (five prisoners). Further, from the qualitative interviews, Grassian (1983) determined that the psychiatric outcomes that were documented “may have significant psychopathological effects and that these effects may have the potential form a clinically distinguishable syndrome” (p. 1454). Based upon the culmination of symptoms that were discovered, Grassian identified a psychopathological syndrome, which was termed SHU syndrome. According to Grassian (1983), SHU syndrome is characterized by perceptual changes, affective disturbance, thinking problems, memory and concentration difficulties, and impulse control problems. Of note, Grassian reported that most of the offenders had no previous history of psychiatric problems. In addition, it was noted that in all of the cases, their disturbing symptoms subsided after the inmates were released from segregated housing.

In addition to the psychopathological effects and symptoms gathered from the interviews, Grassian (1983) also noted several shared ways in which the inmates communicated about their experiences. For example, Grassian indicated that the inmates tended to utilize a variety of defense mechanisms, such as rationalization, avoidance, denial, distortion, and repression, in an effort to minimize their reactions to and experiences in isolation. In addition, as interviews progressed, several inmates were noted to express an overtly marked increase in anxiety and panic as they described their thoughts and feelings surrounding their time in solitary confinement (Grassian, 1983).

There are several important limitations related to Grassian’s (1983) study to take into consideration. One of the most important criticisms of Grassian’s study is that it included inmates who were actively involved in a class-action lawsuit against the state. Thus, it has been argued that this involvement was highly likely to influence the inmates’ responses to questioning. In addition, although Grassian noted that the interviews were open-ended, it is

unclear whether the psychiatrists utilized a specific set of questions to maintain consistency across interviews. In addition, the interviews were quite limited in nature, as it was noted that the interviewers only explored the history of incarceration, previous experience with solitary confinement, and psychological symptoms and treatments. The inadequate information gathered in the interviews left out a large amount of applicable material that could have affected the conclusions drawn from the study. For instance, inmates' family history and upbringing, personality characteristics, and medical history are just a few of the important aspects that could have rendered more thorough conclusions. Further, each interviewer was noted only to interview each inmate for one-half hour, which is an extremely short period to gather information and develop rapport. In addition, there were no standardized measures utilized in the study to assess for manifestation of psychopathological symptoms, which also complicates the ability to draw any sound conclusions. Failure to examine the potential impact of length of time spent in solitary confinement is an additional limitation worth noting, given the wide range of times that inmates were in solitary (i.e., 11 days to 10 months). Further limitations involved in the study were the small sample size, lack of a control group, and non-random selection of inmates, which all pose methodological and generalizability issues.

Another investigation that has produced some of the most comprehensive data on the effects of solitary confinement stemmed from the *Madrid v. Gomez* case (1995). The *Madrid v. Gomez* case (1995) was a civil rights case that challenged the conditions and practices of confinement at California's Pelican Bay State Prison, due to the numerous complaints from prisoners. In September of 1992 and January of 1993, Dr. Craig Haney acted as an expert witness for the case and gave testimony relating to mental health care, as well as the conditions in the SHUs at Pelican Bay. During Haney's first two visits to Pelican Bay as an expert witness,

he toured the prison and spoke informally with prison personnel. He also conducted formal interviews with 65 inmates, reviewed depositions of mental health professionals, and examined a number of documents and files. Based upon his interviews, Haney, as well as the other experts utilized in this case, essentially agreed that those inmates who already were suffering from mental illness were most vulnerable to the conditions of SHU. In addition, Dr. Haney testified that the inmates with mental illness should never be subjected to the harsh conditions imposed in solitary confinement. Dr. Haney and other experts also noted that being in segregation may exacerbate pre-existing mental illness and that inmates who are in acute distress or experiencing any type of suicidal ideation should not be placed in confinement.

In 1993, Haney and a team of researchers returned independently to the Pelican Bay State Prison on two separate occasions in August, in order to complete a systematic study that entailed comprehensive assessments of a group of 100 randomly selected male inmates. The inmates were individually assessed in two separate face-to-face interviews, and data were considered to be representative of the entire sample of inmates at this particular facility. Inmates were asked a series of 27 questions that explored two major areas. The first domain included questions that were geared toward assessing whether the individual experienced any of 12 various indicators of trauma or psychological distress and the second aspect explored included a group of questions meant to assess whether the inmate experienced any of 13 psychopathological effects of being in isolation. It was noted that the symptoms were regarded as reliable indicators of general psychological distress and were similar to indices of distress that others have utilized to assess prison populations, but information regarding the validity and reliability of these measures was not provided. A control question related to the experience of a tingling sensation in the ends of one's fingers or toes, which is not a symptom of psychological trauma or a psychopathological

effect of isolation, was included to provide a baseline against which to measure the significance of the trauma-related responses (Haney, 1993).

The results revealed that a majority of the SHU inmates reported a number of the assessed symptoms and that many reported a “constellation of symptoms” that appeared to be related to the development of a mood or emotional disorder. Haney (1993) noted that 11 of the 12 symptoms of trauma and distress were experienced by more than half of the sample of inmates. For example, 91% suffered from symptoms of anxiety and nervousness, and 77% were in a state of chronic depression. Haney also reported that based on the interviews, 70% indicated that they felt they were on the “verge of an emotional breakdown” (p. 133). Further, within the second domain of psychopathological symptoms, Haney (1993) found that almost all of the inmates reported ruminations and intrusive thoughts, oversensitivity to stimuli, increased anger and irritability, distorted and confused thoughts, attention/concentration and memory difficulties, and a tendency to withdraw and become avoidant socially. In addition, a very high percentage suffered from headaches and had difficulty sleeping and more than half reported that they were disturbed by nightmares (Haney, 1993).

Although Haney’s (1993) Pelican Bay study provided a wealth of insight regarding the psychological consequences associated with solitary confinement among prisoners, it has a number of methodological issues. For example, one major limitation worth taking into consideration is that there was not a control group included in the study. In addition, no longitudinal data were gathered, which eliminates any long-term conclusions being drawn. Further, Haney did not specify the frequency nor the degree to which the inmates reported experiencing the symptoms, which makes it difficult to accurately assess the extent of the psychopathological pain reported by the sample of inmates. The way in which symptoms were

assessed was also unclear, as interview assessment format and data collection methods were not directly discussed and validated instruments were not used. Further, Haney's study did not take into account the length of time that had been spent in solitary confinement, which likely plays a large role in both the frequency and degree of psychopathological symptoms. Another major limitation involved in this specific study is the conditions of the supermax facility. The California supermax conditions have been noted to be some of the most inhumane and severe, which makes it difficult to apply the data gathered to the greater inmate population held in other solitary confinement environments that may differ from the conditions in this particular study.

Andersen et al. (2000) conducted a longitudinal study comprised of two groups of randomized samples of pretrial Danish prisoners remanded in custody. The objective of the study was to compare the incidence of mental illness in a group of prisoners in solitary confinement with a group not in solitary confinement. The sample in Andersen et al.'s study included two groups of pretrial prisoners and included both males and females. The prisoners ranged from 10 to 18 years of age. The total sample of 228 prisoners was comprised of 133 individuals in solitary confinement and 95 individuals in a non-solitary confinement setting. The prisoners were chosen by the research team using a randomization list, and only prisoners who were detained and awaiting trial were included in the final sample.

Andersen et al.'s (2000) study utilized standardized interview-based and self-reported measures, including the Schedules for Clinical Assessment in Neuropsychiatry (SCAN), formerly known as the Present State Examination, 10th Edition (PSE-10; Wing, Birley, Cooper, Graham, & Isaacs, 1967), the Hamilton Anxiety Scale (HAS; Hamilton, 1969) the Hamilton Depression Scale (HADS; Hamilton, 1960), the Wechsler Adult Intelligence Scale (Wechsler, 1972), the General Health Questionnaire, 28-item version (GHQ-28; Goldberg & Hillier, 1979),

the Eysenck Personality Questionnaire (EPQ; Eysenck & Eysenck, 1975), and two semi-structured abuse/dependence and sociodemographic interviews. One of two psychiatrists interviewed participants in both of the groups after imprisonment. The interviews were carried out in a semi-structured way, and it was noted that each subject was subsequently interviewed by the same interviewer. The second interview was reported to be similar in nature to the first and took place 3 weeks after imprisonment on remand. The subjects were subsequently examined every month. However, once an individual was released or sentenced, they were not examined further. Upon the first examination, participants were interviewed via the PSE-10 (Wing, 1991), an abuse/dependence interview, and a sociodemographic interview. In addition, the HAS (Hamilton, 1969), HADS (Hamilton, 1960), WAIS (Wechsler, 1972), GHQ-28 (Goldberg & Hillier, 1979), and the EPQ (Eysenck & Eysenck, 1975) were administered at the first examination. Following the first examination day, the psychiatrists completed the PSE-10, HAS and HADS, and GHQ-28 at every examination.

Results from the study suggested that the incidence of mental health disorders developed in the prison setting was significantly higher in the group of prisoners in solitary confinement (28%) than those who were not in solitary confinement (15%). Andersen et al. (2000) reported the most common disorders among the prisoners were adjustment disorders, with a mixture of anxiety, depressive, psychosomatic, and other psychological symptoms. Andersen et al. noted several trends based on the results, including that the risk of developing a disorder during imprisonment increased with age, prisoners with more than 10 past remand imprisonments had a lower risk of developing a disorder, and those with predominant substance dependence disorders had a lower risk of developing psychiatric disorders. Overall, Andersen et al. posited that solitary

confinement was a significant risk factor for the development of non-psychotic psychiatric morbidity compared to imprisonment in non-solitary confinement.

Although the results from this study indicated that there was a higher risk for developing a psychiatric disorder or symptoms of a disorder, several limitations are worth taking into consideration. First, as Andersen et al. (2000) noted, those prisoners who were released, transferred, or sentenced were not assessed further, which likely affected the percentage of individuals who met the criteria for certain diagnoses. Had those individuals been reexamined and interviewed, some may have indeed qualified for other diagnoses that were not reported in the study. While a strength of the study was the use of standardized assessments to evaluate incidence of mental illness, it was noted that the two psychiatrists made diagnoses primarily using the results from the PSE-10, which is based on ICD-10 criteria. Both time and frequency limitations of the ICD-10 criteria regarding anxiety and depressive disorders likely eliminated some participants who were examined only once from being diagnosed with an incident psychiatric disorder, as some may have qualified for other diagnoses if they had been reassessed after 2 weeks. An additional limitation to take into consideration is the remand population that was utilized. Due to the randomized selection process, it is unclear how long individuals had been imprisoned at the time of the study, which likely greatly affected the results. Further, the sample used in this study was only comprised of those on remand, which does not make the results easily applicable to the incarcerated prison population or those who are not pretrial detainees.

Miller and Young (1997) conducted a study to assess the general psychological distress levels for inmates housed in segregated units in a federal institution in Kentucky. The Brief Symptom Inventory (BSI; Derogatis, 1993), which is a measure used to evaluate psychological

distress and psychiatric disorders, was administered to two groups of 10 male inmates. The BSI is a 53-item self-report scale that utilizes a 5-point Likert scale.

The study included one group of offenders who were segregated for administrative reasons and the second group of inmates who were being held in segregation for disciplinary reasons. Miller and Young (1997) compared the two groups in segregation to a group of 10 inmates who were incarcerated in the general population, who acted as a control group in the study. Results revealed that the two groups of segregated inmates reported increased distress within five of the nine primary symptom dimensions of the BSI. The offenders held in segregation reported symptoms including withdrawal, hostility, aggression, rage, and impulsivity. The authors concluded that as the inmates' environmental restrictions increased, so did their levels of psychological distress (Miller & Young, 1997). Overall, this study shed light on the comparison between inmates in confinement versus those incarcerated in the general population and the increased psychological distress reported in segregated inmates.

There are several limitations involved in the Miller and Young (1997) study. Only one diagnostic measure was utilized to assess the inmates' psychological distress, which ultimately weakens results. Another obvious limitation calling into question the issue of generalizability is the small sample sizes of the groups of segregated inmates assessed. In addition, Miller and Young assessed inmates incarcerated at a federal institution in Kentucky. Assessing inmates at both state and federal levels would be useful, as the environments of confinement differ significantly depending on the jurisdiction and state versus federal institution across the U.S. (Shalev, 2008). In addition, it was not specified how long each group of segregated inmates had spent in segregation, which is a major limitation that is identified readily within the research on solitary confinement.

More recently, O'Keefe, Klebe, Stucker, Sturm, and Leggett (2010a) sought to better understand the long-term psychological effects of administrative segregation (AS), specifically for those with mental illness. O'Keefe et al. (2010a) tested three hypotheses: (a) inmates in segregation would develop an array of symptoms consistent with the security housing unit (SHU) syndrome; (b) inmates with and without mental illness would deteriorate over time in segregation, but at a rate more rapid and extreme for the mentally ill; and (c) inmates in segregation would experience greater psychological deterioration over time than the comparison groups. Study participants included male inmates incarcerated at the Colorado State Penitentiary (CSP) who were placed in administrative segregation (AS) and comparison inmates who were incarcerated in the general population (GP). It was noted that placement into AS or GP conditions occurred as a function of routine Colorado Department of Corrections prison operations. The GP comparison inmates included those at risk of AS placement due to their institutional behavior while incarcerated.

Inmates in both AS and GP study conditions were divided into two groups including inmates with mental illness (MI) and inmates with no mental illness (NMI). A third comparison group of inmates suffering from severe mental health illness who were placed in San Carlos Correctional Facility (SCCF), a psychiatric care prison facility, was also included in the study. The purpose of the SCCF comparison group was to study inmates with behavioral problems and severe mental illness who were managed in a psychiatric prison setting. A total of 302 inmates were approached to participate in the study, however 55 refused to participate or later withdrew their consent. Participants ranged in age from 17 to 59 years at the time of consent, with a mean age of 31.8. In terms of race and ethnicity of the participants, O'Keefe et al. (2010) noted that 40% were white, 36% were Hispanic, 19% were African American, 4% were Native American,

and 1% were Asian. Of the inmates with mental illness who were included in this study, 56% were identified as having a serious and pervasive mental health disorder.

Participants were tested at 3 month intervals over a year-long period. Testing was scheduled at 3 months, 6 months, 9 months, and 12 months, after an initial testing administration at the date of consent. O'Keefe et al. (2010) selected assessment measures that would aim to comprehensively explore the variety of psychological constructs associated with AS. The primary constructs that were assessed in the study included (a) anxiety, (b) cognitive impairment, (c) depression/hopelessness, (d) hostility/anger control, (e) hypersensitivity, (f) psychosis, (g) somatization, and (h) withdrawal/alienation. The constructs of malingering, self-harm, trauma, and personality disorders were assessed only once to limit burden on the inmate participants. O'Keefe et al. utilized 12 self-report measures, as well as ratings of psychological and behavioral functioning that were obtained via clinical staff and correctional/security staff. The self-report measures included: (a) Beck Hopelessness Scale (BHS; Beck, 1988), (b) Brief Symptom Inventory (BSI; Derogatis, 1993), (c) Coolidge Correctional Inventory (CCI; Coolidge, Segal, Klebe, Cahill, & White, 2009), (d) Deliberate Self-Harm Inventory (Gratz, 2001), (e) Personality Assessment Screener (PAS; Morey, 1989), (f) Prison Symptom Inventory (O'Keefe et al., 2010b), (g) Profile of Mood States (POMS; McNair, Lorr, & Droppleman, 1971), (h) Saint Louis University Mental Status Exam (Tariq, Tumosa, Chibnall, Perry III, & Morley, 2006), (i) State Trait Anxiety Inventory (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983), (j) Structured Inventory of Malingered Symptomatology (SIMS; Widows & Smith, 2005), (k) Trail Making Test, abbreviated as "Trails" (Corrigan & Hinkeldey, 1987), and (l) Trauma Symptom Inventory (TSI; Briere, 1995). Clinical staff completed the Brief Psychiatric rating Scale (BPRS) and the correctional staff completed the Prison Behavior Rating Scale (PBRs). In addition to the self-

reports, the researchers from the study developed the Prison Symptom Inventory (PSI) in order to assess for panic disorder, hypersensitivity to external stimuli, and physical hygiene levels. All assessments except the BPRS were administered at each testing period. The BPRS was administered at only the first, third, and fifth testing interval, due to limited time for mental health staff to complete the measure (O'Keefe et al., 2010a)

Composite scores were developed for seven of the eight primary constructs assessed by standardizing scores from the scales on the self-report assessments. Standardized scores were utilized so that comparisons between the constructs could be more easily assessed and to create a single measure for constructs assessed by multiple self-report assessments. A composite score was computed by standardizing each assessment and averaging the standardized scores across the individual assessments as the composite score (O'Keefe et al., 2010). To test the first hypothesis, one sample *t-tests* were conducted to see if study groups significantly differed from normative data on the study measures at each time period. To test the second hypothesis, analysis of variance (ANOVA) statistical techniques were used to assess if the AS groups had differential change over time. Comparisons were made on mean change over time for each construct for the mentally ill and non-mentally ill groups in AS confinement conditions. In order to test the third hypothesis, ANOVAs were utilized to assess mean change over time and groups for each construct of interest. In particular, the researchers were interested in determining whether there was a significant interaction between time and group to indicate that there was differential change over time depending on condition of confinement. An analysis was completed for those with different mental illness statuses, as the mentally ill group in AS was compared to the mentally ill groups in the general prison and in the psychiatric prison, whereas the non-mentally

ill in AS were compared to the non-mentally ill within the general prison population (O'Keefe et al., 2010)

O'Keefe et al.'s (2010) study yielded results that were largely inconsistent with the study's hypotheses as well as the bulk of literature that has indicated the harmful effects of solitary confinement for inmates, with and without mental illness. Similar to other research, the study found that segregated offenders were elevated on multiple psychological and cognitive measures when compared to normative adult samples. However, elevations were present among the comparison groups too, suggesting that high degrees of psychological disturbances are not unique to the AS environment (O'Keefe et al., 2010)

In examining change over time patterns, there was initial improvement in psychological well-being across all study groups, with the bulk of the improvements occurring between the first and second testing intervals, followed by relative stability for the remainder of the year-long study. On only one measure, withdrawal, it was found that inmates worsened over time, but this finding was only true for the two NMI groups, so it is not attributable to AS (O'Keefe et al., 2010).

According to O'Keefe et al. (2010), contrary to the study's hypothesis, offenders with mental illness did not deteriorate over time in AS at a rate more rapid and more extreme than for those without mental illness. The MI groups (CSP MI, GP MI, SCCF) tended to look similar to one another but were significantly elevated compared to the NMI groups (CSP NMI, GP NMI), regardless of their setting. For the AS offenders, the MI group scored worse than the NMI group on all self-report measures except the Trails test and on all staff measures except the PBRS Anti-Authority scale. In addition to the changes over time described above, PBRS scores decreased significantly for segregated inmates regardless of their mental health status, which may indicate

that staff may have perceived improvements. However, the significant differences were between the first and second assessment periods during which the majority of participants changed facilities, which suggests the observed decreases in PBRs scores for segregated inmates may be a measurement error rather than an actual improvement. As hypothesized, there was a differential time effect for the MI and NMI groups on several composite measures (i.e., anxiety, hostility-anger control, hypersensitivity, somatization), however the interactions were in the opposite direction of the initial hypothesis; on average, the CSP NMI group did not change while the CSP MI group improved (O'Keefe et al., 2010)

The third hypothesis from O'Keefe et al.'s (2010) study was related to inmates in segregation developing an array of symptoms consistent with SHU syndrome. All of the study groups, with the exception of the GP NMI group, showed symptoms that were associated with the SHU syndrome. In terms of improving, declining, or staying the same over time, the majority remained the same over the year-long period. A small percentage of inmates (7%) worsened over time and a larger percentage (20%) improved in terms of psychological symptoms endorsed. These elevations were present from the start and were more serious for the mentally ill than non-mentally ill. Thus, in this study, the presence of SHU symptoms cannot be attributed to confinement in AS. O'Keefe and Klebe (2010a) noted that the features of the SHU syndrome appear to characterize the most disturbed offenders in prison, regardless of their housing status while incarcerated. In fact, the group of offenders who were placed in a psychiatric care facility (SCCF) had the greatest degree of psychological disturbances and the greatest amount of negative change (O'Keefe et al., 2010a)

While comprehensive and informative, O'Keefe et al.'s (2010) study is not without some methodological flaws. For instance, all of the inmates who participated in the study had been

exposed to some form of solitary confinement, due to transfer wait list issues and disciplinary hearings. Therefore, all of the inmates had experienced segregation for various time periods before their initial testing session. In addition, the study was limited to a one-year period. Although O'Keefe and Klebe believed this time frame to be adequate to detect negative effects of isolation, it is quite possible that more harmful psychological effects may not become apparent until after longer periods of time. Further, testing sessions occurred at 3 month intervals, which did not allow for the assessment of brief, severe episodes of psychopathology. For example, there may have been inmates experiencing a brief psychotic episode, which was not reflected in the assessment data. Another obvious limitation involved in this study is that the findings can only be generalized to other prison systems having similar conditions of segregation to the state of Colorado. The same findings may have not held true for other institutions that have different inmate populations or criteria for placement, more severe confinement, or fewer offered mental health services.

A more recent cross-sectional study conducted by Hagan et al. (2017) sought to assess the relationship between solitary confinement and symptoms of post-traumatic stress disorder (PTSD) in a group of offenders post-release. Hagan et al. (2017) utilized baseline data and screened all new patients at two Transitions Clinic Network (TCN) sites in New York and Connecticut between May 2013 and February 2015. According to Hagan et al. (2017), the TCN includes 15 community-based healthcare programs across seven states in the U.S. and Puerto Rico. For the purposes of the study, inclusion criteria were noted to be: (a) recent release from prison (within 6 months); (b) presence of at least one chronic health condition, including substance use and mental health problems, that warranted primary medical care, or age equal to or above 50 years; (c) fluency in English or Spanish; (d) plans to reside in or near the area of the

TCN program for the duration of the study. The final sample of offenders post-release included 119 participants, with a median age of 44 years. The sample was mostly male (85%), non-Hispanic Black (51%) or Hispanic (34%), and not residing in a stable home (85%).

Data were collected via baseline surveys from the two sites and were administered either in person at the TCN site or over the phone. The data collected was noted to include sociodemographic information, self-reported incarceration history (including type of restricted housing status), medical and mental health history, substance use history, and treatment (Hagan et al., 2017). The main independent variable in the study was any self-reported solitary confinement during the individuals' most recent incarceration and the dependent variable was the presence of PTSD symptoms, as determined by the Primary Care PTSD Screen (PC-PTSD; Prins et al., 2015) at the time of the baseline survey. All participants were screened for PTSD symptoms using the PC-PTSD, which is a validated 4-item screener utilized in primary health care settings for identification of PTSD.

Hagan et al. (2017) compared sociodemographic and clinical variables between participants with and without experience of solitary confinement using chi-square or *t-tests* as deemed appropriate. A multivariate logistic regression model with solitary confinement being the independent variable and PTSD symptoms being the dependent variable was subsequently constructed. Hagan et al. (2017) noted that age, gender, and history of mental health problems were adjusted for. Two sensitivity analyses were performed in order to exclude individuals with prior PTSD diagnosis, and logistic regression models were repeated to determine whether solitary confinement was associated with development of PTSD symptoms. Hagan et al. (2017) also compared PTSD symptoms among offenders with short periods of confinement (less than 1

week) to those with longer periods of confinement (greater than 1 week) using several exploratory analyses.

Hagan et al. (2017) reported that overall, 43% of the participants had a history of solitary confinement exposure. The most common reason for solitary housing was reported to be disciplinary action (73%). Forty-two percent of offenders remained in confinement for 1 month to 1 year, and 12% were housed in segregation for over 1 year. Hagan et al. (2017) reported that 28% of participants screened positive for symptoms of PTSD, and bivariate testing revealed that those with a history of solitary confinement were more likely to report PTSD symptoms than those without exposure to solitary confinement. In multivariable logistic regression, history of solitary confinement and chronic mental health conditions were significantly associated with a positive PTSD screening. In exploratory analyses, there was no difference noted in PTSD symptoms between those with longer (greater than 1 week) and shorter (less than 1 week) durations of solitary confinement (38 vs. 33%). In addition, the reason for placement in solitary confinement was not associated with presence of PTSD symptoms.

Overall, Hagan et al.'s (2017) study provides important data regarding the association between prior solitary confinement and PTSD symptoms among offenders. Specifically, it sheds light on the importance of offender's mental health post release. Hagan et al.'s (2017) study provided further support for the idea that solitary confinement may have traumatic effects for inmates, not only while held in confinement, but also following an individual's incarceration.

Some limitations worth noting in Hagan et al.'s (2017) study are the fact that it was a cross-sectional study and offenders were not assessed over a period of time. Further, the data cannot be utilized to establish cause and effect or to determine the direction of the association. For example, solitary confinement may be a traumatic event that could potentially lead to PTSD,

however, those with unidentified PTSD symptoms may experience exacerbated symptoms while incarcerated that may lead to behavioral difficulties resulting in solitary confinement as a punitive measure. Therefore, comprehensive and in-depth screening and assessment is necessary in order to determine accurate pre- and post-incarceration diagnosis. In addition, the primary method for historical data collection was via self-report surveys, with some even being over the phone. While convenient and probably quicker for purposes of data collection, self-report can provide a disadvantage, as some answers could easily be exaggerated, minimized, or affected by bias on the part of the respondent. Additionally, while the PC-PTSD is a validated tool to measure symptoms of PTSD, participants were not asked to identify the event or experiences that preceded the development of PTSD symptoms. Therefore, it cannot be assumed that the symptoms arose from the experience of solitary confinement, which makes it difficult to determine the role that solitary confinement played in the development of PTSD symptoms. Further, the sample of individuals assessed in the study were all recruited from the TCN and receiving medical and psychiatric care post-release. Thus, reported exposure to solitary confinement and symptoms of PTSD may have been overrepresented in this sample of individuals.

Another more recent study conducted by Lovell in (2008) aimed to explore the clinical status of a group of supermaximum unit (SMU) inmates in the Washington Department of Corrections. Lovell (2008) sought to interview and assess at least 30% of the intensive management unit male inmates sampled at random in each of three SMUs within the Washington Department of Corrections. It was noted that in order to ensure that findings would be representative, charts of the inmates who declined as well as those who accepted were reviewed. A total of 131 inmates were asked to participate, 44 declined or were unavailable, 87 were

interviewed, and 122 total charts were reviewed. It was noted that during the 5 years they had spent incarcerated for their current offense, they had averaged 21 months in supermax or segregation and 4 months in a residential mental health unit.

In addition to information gathered from medical charts and the department's electronic offender system, the Brief Psychiatric Rating Scale (BPRS; Overall & Gorham, 1962) was utilized. The BPRS is a well-established, 18-item scale that is used to measure psychiatric symptoms, such as depressed mood, hostility, disorganization, and agitation using a loosely structured clinical interview method. Lovell (2008) also coded evidence from chart notes and comments in inmates' electronic records, such as psychotic behavior, self-injury, and brain damage. Ultimately, four forms of disturbance or impaired functioning were assessed including serious mental illness as documented by the Department of Corrections electronic system, BPRS total scores, psychotic or self-injurious episodes described in medical charts or electronic records, and indications of brain damage in medical charts.

From interviews with 87 of these inmates, combined with reviews of medical and institutional behavior records, it was concluded that 45% of supermax residents suffer from serious mental illness, marked psychological symptoms, psychological breakdowns, or brain damage. In addition, 60 inmates had together committed 135 assaults including 45 aggravated assaults and 65 assaults on staff (including 5 aggravated). Four of them had infractions for homicide. Less-violent forms of disruptiveness included 220 infractions for threatening, 168 for throwing objects (often urine or feces), 83 for destroying property, and 28 for flooding cells. Twelve men had been infraacted for mutilating themselves, usually two or three times. Lovell reported that serious mental illness can safely be attributed to at least 25% of supermax prisoners in this study, compared with a rate of 13% from Lovell (2003), which was found with similar

methods and criteria in a statewide survey of all major prison units. Although not a direct comparison between short versus long-term isolation, this study provided some useful information related to the rates of mental illness in supermax units among inmates who had spent a prolonged period of time in segregation.

Some obvious limitations worth noting from the Lovell (2008) study are that only one measure was utilized to assess psychiatric symptoms, which limits the knowledge of the full range of psychopathological symptoms the inmates' may have been experiencing. Further, it was unclear whether any of the inmates interviewed had been exposed to solitary confinement prior to their current incarceration, which would have been useful information to know in order to better understand the impact of their current prolonged experience of segregation. For example, it is possible that resiliency factors may have played a role for any of those who had prior exposure. In addition, this study sheds light on the large rate of those with mental illness in supermaximum facilities, but it does not allow for any causality or correlations to be made.

Self-harm and suicide risk. Increased risk of self-harm and suicide is a specific area that has been examined in past literature. Both self-harm and suicidal behaviors are dangerous and widespread occurrences across correctional settings (Cox & Morschauer, 1997). Historical reports of segregated inmates in the 19th Century repeatedly describe acts of self-mutilation, injurious and aggressive behaviors towards the self, and suicide. According to USA Today, suicide, which has long been the leading cause of death in prison facilities in the U.S., hit a high of 50 deaths for every 100,000 inmates in 2014 ("Many US Jails Fail to Stop," 2019). USA Today added that this number is 3½ times the rate of suicides in the general non-incarcerated population. Contemporary studies have also shown that self-harm and suicide is more common in isolation units than within the general prison population (Toch, Acker, & Bonventre, 2018).

For example, in California, a reported 69% of prison suicides in 2005 occurred within segregated housing units (National Offender Management Service, 2004).

Incarcerated individuals engage in self-harmful behaviors in a number of ways, ranging from more minor to fatal injuries (Lohner & Konrad, 2006). Unfortunately, episodes of both self-harm and suicide continue in jails and prisons, even though a majority of these occurrences are predictable and preventable (“Many US Jails Fail to Stop,” 2019; Welch & Gunther, 1997).

Not surprisingly, prisoners in isolation experience a great amount of hopelessness and despair, leading some to engage in self-injurious behaviors, including suicide (Kaba et al., 2014). Inmates’ motives to harm themselves are varied, complex, and difficult to establish fully. Often, they may be greatly influenced by the stress within the prison system or may be an attempt to avoid certain punishments including, but not limited to, solitary confinement (Kaba et al., 2014).

Often, prison guards and other staff tend to believe that the inmates who are engaging in self-injurious behaviors are utilizing manipulation tactics in order to be released from solitary confinement (Toch, Acker, & Bonventre, 2018). However, the reality is that frequently, the acts of self-harm are not necessarily internally motivated. Instead, they are often in response to heightened anxiety caused by the hostile and harsh environment that characterizes solitary confinement (Toch, Acker, & Bonventre, 2018).

Kaba et al. (2014) analyzed data from jail admissions in the New York City jail system to better understand acts of self-harm among the incarcerated population. Kaba et al. (2014) analyzed data from medical records on 244,699 incarcerations from January 1, 2010, through January 31, 2013. Data related to demographics, jail admission and discharge dates, housing placement, and utilization of emergency services were abstracted from the electronic jail health records. Kaba et al. (2014) defined serious mental illness (SMI) with standardized criteria

followed by mental health professionals throughout New York, including the Department of Health and Mental Hygiene. In addition, information related to self-harm was obtained from a database kept by the Bureau of Correctional Health Services, including method, severity, and outcome of acts of self-injurious behaviors. Self-harm risk was calculated as the number of self-harm acts per 1,000 inmate days. Risk ratios of self-harm were calculated by gender, age group, race/ethnicity, mental illness status, assignment to solitary confinement, and length of total jail stay. The relationship between self-harm and solitary confinement was examined by first comparing self-injurious acts at any time to whether an inmate was ever in solitary confinement during their incarceration. Self-harm and solitary confinement were also compared by distinguishing acts of self-harm that occurred during an inmate's time in solitary confinement from those that occurred during incarceration but not while in segregation.

Four logistic regression models were conducted to estimate odds ratios and 95% confidence intervals for predictors associated with self-harm and potentially fatal acts of self-harm. The first model looked at the effects of solitary confinement, SMI, age group, length of stay, gender, and race/ethnicity on self-harm, and the second model looked at the effects of the same independent variables on potentially fatal self-harm acts. The third model explored the impact of gender, length of stay, race/ethnicity, and the interaction of solitary confinement with SMI, and age on self-harm. The fourth model investigated the association of these variables, as well as their interaction with potentially fatal self-harm acts. For persons who experienced solitary confinement and also committed self-injurious acts during the same incarceration, Kaba et al. (2014) calculated and graphed the timing of the first self-harm act relative to the week of placement in solitary confinement.

Kaba et al. (2014) indicated that the study's population included 134,188 individuals who had experienced 244,699 incarcerations. In 1,303 of the incarcerations, 2,182 included acts of self-harm, and in 89 incarcerations, there were 103 acts of potentially fatal self-harm. Kaba et al. (2014) reported that the most common methods of self-harm included laceration (34%), ligature (28%), swallowing a foreign object (15%), and overdose (14%). The risk ratios for self-harm increased sharply with the length of stay in jail, from 0.02% for those with stays less than 8 days to 1.4% for those with lengths of stay 31 days or more. The risk ratios were noted to be highest for those inmates with SMI (6.0, $p < .01$) and those aged 18 years or younger (18.9, $p < .01$). Further, those inmates who had ever been held in solitary confinement had a far greater risk of self-harm than did those who were never in segregation (14.4, $p < .01$). In addition, the risk ratio for potentially fatal acts of self-harm among inmates with SMI was 9.5 ($p < .01$), and the risk ratio for potentially fatal self-harm among inmates ever in solitary confinement was 10.2 ($p < .01$).

Overall, Kaba et al. (2014) suggested that self-injurious acts were strongly associated with inmates being held in solitary confinement. Those inmates held in solitary confinement were approximately 6.9 times more likely to carry out acts of self-harm after the following were controlled for: length of stay, SMI, age, and race/ethnicity. Kaba et al. (2014) noted that the association, while slightly weaker, also remained true for potentially fatal self-harm. The regression analysis with interaction of solitary confinement and SMI and age revealed that inmates who were older and in solitary confinement were more likely to commit potentially fatal self-injurious acts, while inmates who were of younger age and held in segregation were more likely to engage in less lethal acts of self-harm. Further, approximately 50% of all completed suicides involved the 5% to 10% of inmates being held in solitary confinement at any given time

(Kaba et al., 2014). Ultimately, this appalling statistical finding provides a great deal of support for the idea that solitary confinement is strongly associated with suicide and self-injurious acts within correctional facilities.

While Kaba et al.'s (2014) study shed some light on our understanding of self-harm among inmates being housed in solitary confinement, there are several limitations. First, the setting that was utilized was a jail setting, which is often more short-term in nature than a prison setting, which calls into question the generalizability of results to the longer-term prison setting. In addition, no data were available regarding the inmates' past self-harm acts from previous incarcerations. Lack of data from past acts of self-harm makes it difficult to determine whether currently suicidality or self-harm is a pattern of disturbed behavior or one that arose from the current conditions. Additionally, of those incarcerations that were assessed in the present study, only 7.3% of admissions included any solitary confinement. Although the results garnered significant results related to acts of self-harm and acts of potentially fatal self-harm within this group, these results only capture a small percentage of inmates compared to the greater jail population that was analyzed.

Way, Sawyer, Barboza, and Nash (2007) examined the total number of days that inmates resided in the SHUs in the New York State prison system before a suicide occurred, examining the years between 1993 and 2003. During this period, 32 inmates were identified as being in SHU at the time of the suicide, comprising more than 25% of the total of 132 suicides throughout the New York State prison system during the period studied. The median number of days the inmates spent in SHU before suicide occurred was 63 and the median length of the total disciplinary sentence being served at the time of suicide was 298.5 days. Overall, results indicated that the first 2 months in SHU should be considered a risk factor for suicide. Way et al.

(2007) suggested that those inmates who are transferred to this type of housing should receive heightened observation for at least the first 2 months and should be given access to more mental health care while in SHU.

Although the present study offered a greater understanding of the critical period for potential suicide completion for inmates being housed in SHU and provided several notable recommendations, there are limitations worth discussing. For one, Way et al. (2007) solely reviewed suicides that occurred for one distinct period, between 1993 and 2003, and only in the New York State prison system. Only reviewing suicides in one state's prison system for one period weakens any overall conclusions and findings. In addition, potential confounding factors including psychiatric history of the inmates, history of suicide attempts, age, race/ethnicity, and incarceration history were not accounted for or taken into consideration, which also complicates drawing any major, sound conclusions from the study.

Though there have been several informative studies conducted related to self-harm and suicidality among inmates, much more research is needed to further the understanding of these behaviors. For one, a majority of the larger-scale studies were conducted years ago and do not provide much recent data related to self-harm and suicidal behaviors among the incarcerated population. In addition, due to potential underreporting and a general reluctance to share sensitive data, it is unlikely that every suicide or act of self-harm has been accounted for in past research. In addition, although studies evaluating the general incarcerated population are beneficial, they do not fully address the self-injurious and suicidal behavior of those who are housed in a more severely isolated setting, and more focused research is warranted in this area.

Vulnerability of inmates with preexisting mental health problems. It has been widely demonstrated that the severe conditions of solitary confinement can produce a variety of negative

symptoms even in healthy inmates, as the incarcerated population is often considered to be a vulnerable population (Shalev, 2008). Although the effects of residing in solitary confinement vary from one inmate to another, there are some groups of individuals who have been identified in the past literature as being particularly vulnerable to the negative consequences of segregation, including those with preexisting mental illness, those who are of younger age, and pretrial detainees (Enggist, Møller, Galea, & Udesen, 1992).

While the earlier mentioned O'Keefe et al. (2010) study reported the contrary, experts in the field agree that individuals with preexisting mental health conditions are at a particularly high risk of deteriorating psychological problems as a result of being isolated (Grassian, 2006; Haney, 2003). As previously noted, individuals who suffer from mental illness are largely overrepresented in the general prison population, particularly segregation housing units (Shalev, 2008). For example, O'Keefe estimated that in 2005, the prevalence of mental illness in administrative segregation in Colorado was greater than 35 percent, as compared with a mental illness rate of less than 25 percent among the general prison population.

As previously mentioned, there are a variety of reasons why an inmate may be placed in solitary confinement, and although individuals who suffer from mental illness may come to be segregated for their own protection, they are also frequently placed in solitary confinement due to their behavior, which can be seen by correctional staff as violent in nature or as a violation of rules (Enggist et al., 1992; Shalev, 2008). Unfortunately, behavior and perceived adherence to prison regulations regularly determine inmates' housing throughout their time in the system, which can turn into a vicious cycle that ultimately results in prolonged isolation (Shalev, 2008).

The notion that severe isolation and harsh conditions related to solitary confinement often exacerbate psychopathological symptoms of mental illness was described by Terry Kupers

(Jones 'El v. Berge, 2001). Dr. Kupers, a psychiatrist, testified as an expert witness for inmates as part of a lawsuit that challenged the conditions of solitary confinement at Wisconsin's Supermax Correctional Institution. This case, in particular, focused on the consequences of supermaximum security on inmates with psychiatric disorders. Kupers reported that segregation and social inactivity within the solitary confinement units not only aggravated but worsened an individual's mental illness. Kupers further stated that a lack of social interaction and general activity deprived the inmate of any opportunity for accurate reality testing (Jones 'El v. Berge, 2001). The court concluded that housing an inmate with serious and persistent mental illness in this type of confinement ultimately violated the cruel-and-unusual-punishment clause of the Eighth Amendment and acknowledged "confinement in supermaximum security prison . . . is known to cause severe psychiatric morbidity, disability, suffering, and mortality" (Jones 'El v. Berge, 2001, p. 1101). More recently, the American Psychiatric Association recognized the especially detrimental consequences that solitary confinement can produce in individuals with mental illness by stating "prolonged segregation of adult inmates with serious mental illness, with rare exceptions, should be avoided due to the potential for harm to such inmates" (American Psychiatric Association, 2012, p. 10).

It is well established that persons with mental illness are particularly vulnerable to the harms of solitary confinement (National Commission on Correctional Health Care, 2012). As a result, federal courts have repeatedly found that isolating those with mental illness is unconstitutional, and in 2012, the American Psychiatric Association adopted a policy opposing the prolonged segregation of prisoners with serious mental illness, which it defined as longer than 15 days. While the difference between exposure to prolonged versus short-term isolation does not appear to have been specifically examined in the literature, it is apparent that any form

of prolonged solitary confinement would create an array of negative consequences, particularly in individuals with mental illness (National Commission on Correctional Health Care, 2012).

Two other groups of individuals who are deemed to be particularly vulnerable to the effects of solitary confinement are children and young adults (Shalev, 2008). These populations are considered to be particularly sensitive to the conditions of solitary confinement due to their incomplete development. In addition, the prevalence of mental illness among young adults in prison is higher than among adult inmates, with as many as 95% suffering from at least one mental health problem and 80% having more than one mental illness (Shalev, 2008). Despite the growing body of evidence supporting the notion that solitary confinement is damaging to this group of individuals, placing young adults in solitary confinement and denying them contact with family or other individuals is common. For example, a 2012 survey conducted in Texas reported that the majority of jail facilities held juveniles and young adults in solitary confinement for 6 months to more than 1 year (U.S. Department of Justice, 2012).

Pretrial detainees held on remand are another population that research has shown is particularly sensitive to the effects of solitary confinement housing. The International Association for Suicide Prevention Task Force on Suicide in Prisons concluded that 54% of prison suicides took place among detainees on remand, and approximately half of these suicides occurred within 1 month of being taken into custody (Konrad et al., 2007). This appalling statistic provides another reason why prison staff should provide more services and pay greater attention to this particular population. Overall, past literature suggests that solitary confinement is harmful for the greater incarcerated population, but potentially creates even more damaging effects for these more vulnerable groups of individuals.

Sensory deprivation effects. Another detrimental aspect involved in solitary confinement is that of sensory deprivation. According to Wilson (2011), solitary confinement is a sensory deprivation technique that can ultimately be devastating for individuals. Further, it is evident that various forms of sensory deprivation, including solitary confinement, produce a variety of negative effects, including psychological, physical, and behavioral consequences (Wilson, 2011). The impact of sensory deprivation on incarcerated inmates, as well as captives and terrorists, has garnered the attention of the media, as well as that of researchers, scholars, human rights activists, and the greater society. According to Wilson (2011), most of what psychologists, scholars, and researchers currently understand about the effects of sensory deprivation was generated from Donald Hebb's classic isolation studies in the 1950s, as well as Dr. Stuart Grassian's research in the 1980s.

In Hebb's early isolation studies, subjects were placed in a setting designed to greatly reduce external stimuli (e.g., lighting, sound, tactile stimuli; as cited in Grassian & Friedman, 1986). The major symptoms that were reportedly developed in these sensory-deprived settings included illusions, perceptual distortions, vivid fantasies, hallucinations, feelings of derealization, and hyperactivity to external stimuli once reintegrated into a normal setting. In some cases, subjects were observed demonstrating marked dissociative and catatonic-like behaviors. It was noted that in most of the subjects, these negative symptoms dissipated somewhat rapidly; however, in a few of the cases, the detrimental symptoms persisted (as cited in Grassian & Friedman, 1986).

Although Hebb's early sensory deprivation research was a forerunner in providing insight into how sensory deprivation affects humans, some major limitations were involved (as cited in Grassian & Friedman, 1986). For one, Hebb's experiments included male graduate students,

whom he offered a \$20 per day incentive to participate. In addition, Hebb's small isolation chambers have been criticized as being much more extreme than what is experienced by incarcerated individuals in solitary confinement. The participants included in the study, as well as the conditions employed in Hebb's experiments (as cited in Grassian & Friedman, 1986), complicate the ability to apply these findings to the actual prison population exposed to solitary confinement.

Bexton, Heron, and Scott (1954) placed 22 male college university students into cubicles for 2 to 3 days under sensory-deprived conditions. The overall effects on the students' cognitive functioning were measured by the Embedded Figures Test (EFT; Witkin, Oltman, Raskin, & Karp, 1971), which is an objective assessment that specifically measures visual perception. The EFT was administered before, during, and after the isolation in the cubicles. The main symptoms reported by the students while in the cubicles included restlessness, emotional instability, visual and perceptual distortions, and minimal hallucinatory activity. In addition, results revealed declining performance by the students during isolation compared to a control group of university students who were not put into sensory-deprived cubicles (Bexton et al., 1954).

A major limitation involved in Bexton et al.'s (1954) study is that the sample included in the study was comprised only of college students, similar to Hebb's work, which greatly limits the generalizability of the findings to the prison population. Further, the study utilized only one objective measure to assess cognitive functioning in the sample of student, which prohibits garnering a more in-depth understanding of an individual's level of cognitive decline when sensory deprived. In addition, university college students are likely more motivated, exhibit higher intelligence levels, and have more stable adjustment and resiliency factors, which may not compare to the isolated prison population.

More recently, in 2008, Professor Ian Robbins, head of trauma psychology at St. George's Hospital in the United Kingdom, attempted to recreate Hebb's experiment from the 1950s in collaboration with the British Broadcasting Corporation (BBC; as cited in Worthington, 2008). According to Dr. Robbins, who oversaw the experiment, the overall aim of the study was to take a closer look at the impact of sensory deprivation and what occurs when the brain lacks stimulation due to the lack of recent studies surrounding the effects of sensory deprivation. More specifically, the study's focus was to observe the volunteers during their isolation and to examine the brain's central executive functioning by administering cognitive measures, such as the Controlled Oral Word Association Test (COWAT; Benton & Hamsher, 1989), the Stroop Color and Word Test (SCWT; Stroop, 1935) and subtests of the Wechsler Memory Scale, Fourth Edition (WMS-IV; Wechsler, 2009) including Logical Memory and Visual Reproduction before and after seclusion (as cited in Worthington, 2008). Dr. Robbins isolated 6 volunteers for a period of 48 hours in sound-proofed cells in a former nuclear bunker in England. One group of three volunteers were held in dark, sound-proof rooms, while the other three were placed in foam arm cuffs, heavily filtered goggles, and static-filled earphones. According to Dr. Robbins (as cited in Worthington, 2008), the purpose of the utilization of the devices was to enhance the effects of deprivation for one group of volunteers.

Results from the assessments revealed significant memory impairment in the Visual Reproduction and Logical Memory subtests for all of the volunteers. Of note, the delayed condition of the Logical Memory subtest revealed that volunteers struggled significantly to accurately recall details and were vulnerable to suggestibility. Dr. Robbins (as cited in Worthington, 2008) noted that this finding suggests that after sensory deprivation individuals may begin to question their own thoughts, viewpoints, and accurate recall. Even more

pronounced deficits were noted in executive functioning tests, such as the SCWT, which indicated that after experiencing sensory deprivation these individuals had significant difficulty with inhibiting cognitive interference, processing speed, and maintaining attention. Overall, results from the assessments were summarized by Dr. Robbins (as cited in Worthington, 2008) as revealing a reduction in speed of information processing, reduction in verbal fluency, and increase in suggestibility. In addition, volunteers reported a number of psychological consequences including feelings of numbness, hallucinations, paranoia, and increased anxiety.

Although not the objective of this review, it is important to consider the aspects of sensory deprivation that are involved in most types of solitary confinement. Sensory deprivation has been noted by scholars and experts in the field to promote a host of negative and disturbing symptoms. However, it remains a difficult area to study. An additional limitation, in general, to the majority of research surrounding sensory deprivation is the inability to infer whether it is sensory deprivation, itself, or, perhaps, the number of other aspects involved in isolation that create the negative consequences suffered by incarcerated individuals. One can conclude that sensory deprivation is harmful to individuals. However, it may be that what contributes to its detriment is isolation from others, having no positive interactions, or any of the other harsh features that make up solitary confinement within the prison setting.

The Effects of Isolation on Physiological Health

Literature has suggested that individuals who are held in solitary confinement and deprived of social interaction also can suffer from a variety of consequences associated with their health and overall physical functioning (Umberson & Karas Montez, 2010). Regarding physiological consequences, Smith (2006) concluded that regardless of the specific conditions and amount of time spent in isolation, solitary confinement has the potential to cause serious

health problems, such as headaches, heart palpitations, oversensitivity to stimuli, pain in the neck and back, digestive issues, weight loss, dizziness, and chest pains. Unfortunately, correctional facilities often tend to pay far too little attention to the issue of overall physical health and chronic illnesses suffered by prisoners behind bars (Fleury-Steiner, 2015). Further, Fleury-Steiner (2015) noted that when considering reentry into the community, researchers, professionals, and criminologists rarely take into consideration inmates' medical histories as much as they do their criminal behavior and history.

Due to the varying severity and degree of physical health symptoms, many researchers have suggested that it can be difficult to understand fully and come to any sound conclusions regarding physiological consequences (Fleury-Steiner, 2015; Smith, 2006). However, there tends to be a general understanding among most researchers and scholars that this form of imprisonment has the potential to create detrimental health effects (Fleury-Steiner, 2015; Shalev, 2008; Smith, 2006).

In an early study, Gendreau, Freedman, Wilde, and Scott (1972) explored the effects of isolation and sensory deprivation in a randomly selected group of 20 inmates serving time in the Kingston Maximum-Security Penitentiary in Kingston, Ontario. The age range of the inmates in the study was 18 to 45 years old. The initial pool of volunteer inmates was obtained by advertising for inmates' services in the Kingston Maximum-Security Penitentiary. Inmates who had a history of psychiatric or behavioral issues in prison, were determined to be medically unfit, and those with an IQ below 80 were not included in the study. There were two groups, each with 10 inmates. The inmates were randomly selected to be placed in solitary confinement or a control group for 7 days. Skin electrodes were attached individually to each group of inmates to record electro-encephalograph (EEG) responses, which measures electrical brain wave activity and

patterns. EEG data were recorded on the first, fourth, and seventh day. In addition, visual evoked potential (VEP) samples to 50 photic stimuli were gathered and recorded every morning to assess arousal to sensory input. After EEG and VEP testing, the inmates in the control group were returned to their living quarters and were free to do as they pleased, except strenuous activities. The experimental group remained in their confined cells, as one would be in a typical solitary confinement setting.

Results from the study revealed that 1 week spent in solitary confinement produced significant changes in the inmates' EEG frequency and VEP, which paralleled those reported in past studies of sensory deprivation and solitary confinement. Specifically, the results revealed an inverse relationship between EEG frequency and arousal to sensory input as measured by the VEP, as it applies to the solitary confinement setting. In contrast to the EEG habituation tendency, or slowing in EEG response, VEP latency became shorter as isolation lengthened. The slowing of EEG frequency that was recorded was noted to be associated with apathetic and lethargic behavior among the inmates. Gendreau et al. (1972) noted that the shorter VEP latency represented a potential increased readiness to respond to external stimulation as one's time spent in solitary confinement progresses, which can create physiological problems as well as psychological issues, such as severe anxiety. Physically, hypervigilance can take a toll on the body, create fatigue and exhaustion, and lead to heart and cardiovascular problems, particularly if one becomes accustomed to operating in a continued state of hypervigilance (Gendreau et al., 1972).

Although Gendreau et al.'s (1972) study denoted several important findings related to significant changes in EEG frequencies and VEPs in a sample of inmates, there are important limitations to be taken into consideration. For example, the EEG frequency slowing found

among the inmates in the experimental group could have been due to a number of factors, such as adaptation to isolation, resiliency, or an inmate having had previous experience with solitary confinement. In addition, while the study may apply to some prison's utilization of solitary confinement, others may utilize shorter or much longer periods for holding inmates in segregation. According to Gendreau et al., a majority of individuals who are held in solitary confinement have remained in this type of confinement for longer durations than the 7-day period that was employed in this study, which make the results less applicable to the larger population of those who are held in segregation. Further, the sample utilized in the study is small, which further reduces the generalizability of results to the greater population of inmates in solitary confinement.

Two Norwegian studies conducted by Gamman in 1993 and 1995 (as cited in Smith, 2006) documented both physiological and psychological consequences in remand, pretrial prisoners housed in solitary confinement. In 1993 a longitudinal study was conducted to assess the overall functioning of 63 prisoners who were held in isolation pretrial. In his 1993 study, Gamman (as cited in Smith, 2006) excluded inmates with apparent withdrawal symptoms and those considered to be at risk of suffering from psychosis. After only 4 weeks of being in solitary confinement, Gamman found a number of widespread health issues among the 63 inmates. The health problems identified in the inmates included both physical and psychological problems, including anxiety, depression, muscle pain and discomfort, gastrointestinal issues, and reduced ability to concentrate (as cited in Smith, 2006). In 1995, Gamman (as cited in Smith, 2006) conducted a longitudinal follow-up study with a total of 54 prisoners on remand, including one group of 27 inmates in solitary confinement and a control group of 27 inmates not housed in solitary confinement. Gamman's 1995 study (as cited in Smith, 2006) primarily utilized self-

report questionnaires with the exception of the Montgomery-Åsberg Depression Scale (MADRS; Montgomery & Åsberg, 1979), in order to measure the severity of depression. From Gamman's 1995 study (as cited in Smith, 2006), it was found that the inmates in solitary confinement experienced significantly more consequences than the control group, both psychologically and physiologically. Symptoms among the inmates in solitary confinement included sleeplessness, problems with their circadian rhythm, anxiety, depression, physical pain and tension, and concentration difficulties. Further, the isolated prisoners were administered and utilized a much greater amount of medication than the control group (as cited in Smith, 2006).

Although these studies provided information regarding both physical and psychological consequences suffered by inmates on remand in solitary confinement, they are not without limitations. For one, Gamman's earlier 1993 study (as cited in Smith, 2006) did not include a control group, which made it impossible to compare the functioning of the group of inmates on remand in solitary confinement to another group of inmates who were in non-solitary confinement housing. In addition, the study only assessed inmates for a period of 4 weeks and did not specify whether those inmates studied had ever been held in isolation prior to the study or not (as cited in Smith, 2006). In terms of the 1995 study (as cited in Smith, 2006), there were no reported standardized instruments utilized, aside from the MADRS (Montgomery & Åsberg, 1979). In addition, the control group and isolation group that were included in the 1995 study were noted to be different in more ways than solely housing status. For example, the isolation group had more inmates charged with drug offenses and had a higher average age by 5 years than the control group. In addition, it was noted that the group in isolation was healthier, both physically and psychologically, than the control group. Further, Gamman's 1995 study (as cited in Smith, 2006) also excluded those inmates with a known tolerance for solitary confinement,

which ultimately omitted 11 remand inmates who were housed in confinement. Of the 11 excluded, 6 were in solitary confinement and developed psychosis during their time spent in isolation (Gamman, 1995). Limitations that are applicable to both the 1993 and 1995 studies include that they both had small sample sizes of inmates and they both took place in Denmark, which limits the generalizability of these findings to the incarcerated population of solitary confinement inmates in the United States. Further, these studies specifically assessed pretrial inmates who were housed in isolation, which is a specific subset of the incarcerated population and may not easily apply to solitary confinement inmates as a whole.

Due to the numerous difficulties that come with collective quantitative or qualitative data in solitary confinement, there is not any recent research to date that directly provides any information regarding physical health effects and solitary confinement. All of the data related to physical health of solitary confinement inmates comes from early studies and extrapolations, as well as a general understanding from experts in the field that the consequences of segregation, particularly long-term, do not only extend to one's mental well-being. A statement from Dr. Craig Haney in 2008 regarding the physical effects of confinement, stated, "there's new research on a range of effects as a result of reduced access to sunlight, fresh air, exercise, physicality. There's also stress-related illness. The research is still in its early stages, but researchers are looking at whether this is more frequent among people who have been placed in solitary confinement" (Skibba, 2018). Dr. Haney's statement regarding physiological effects highlights the idea that the extreme stress and sensory deprivation aspect of confinement likely impacts one's physical health and well-being. It is important to understand the health impacts of the widespread use of segregation at the population level, in addition to assessing the effect of time spent in solitary confinement on individual health outcomes. However, without more research

that directly examines the physical health of inmates in solitary confinement, it is impossible to fully comprehend the potential physical effects that may stem from segregation.

Gender Differences in Isolation

Gender issues are another important area in the discussion of solitary confinement and its effects on inmates. Men and women are brought to prison with vastly different life experiences and perceptions, especially in terms of interpersonal ties and how they interact with others. As previously discussed, inmates do not begin their incarceration with a blank slate. Rather, they are the products of their prior socialization processes, requiring ongoing social interaction (Arrigo & Bullock, 2007).

Scholars have long noted that the effects of positive social interactions vary by gender (Jiang & Winfree, 2006; Ward & Kassebaum, 1965). An earlier study conducted by Ward and Kassebaum (1965) assessed data on women in prison to see whether there were female prisoner “types” consistent with the reported characteristics of male prisoners. Ward and Kassebaum (1965) intended to better understand the social and sexual behavior of female inmates through inmate records, interviews, and a questionnaire survey. Overall, results revealed that 4 in 10 female inmates reported that missing their families and their place of residence was the most difficult aspect in terms of adjustment to life in prison. The percentage of women reporting this aspect to be most important was higher than for any other answer, providing support for the importance of family and social connection in adjusting to a new environment (Ward & Kassebaum, 1965).

Regarding the social deprivation aspects involved in solitary confinement and how they affect women, anecdotal evidence and a small number of qualitative studies have suggested that women may have greater social connection needs while incarcerated (Shaylor, 1998; Ward &

Kassebaum, 1965). Further, research tends to support the idea that female inmates require more social support from both inside and outside of the prison setting than men do (Pollock, 2002). For instance, Harris (1993) noted that incarcerated women generally hold more traditional values and tend to be more family- and relationship-oriented than incarcerated men. Thus, a woman housed in solitary confinement and deprived of regular social interaction may experience even greater consequences due to social deprivation.

Experts in the field have noted several reasons why women may have a different experience in solitary confinement than men do. For instance, Shaylor (1998) described the conditions of SHU at the Valley State Prison, a women's prison in California, and noted that the conditions were very similar to those found in men's facilities. Shaylor, who worked as an attorney from a non-profit organization, gathered anecdotal evidence from women at the Valley State Prison and suggested that women often face a different set of challenges than do their male counterparts. For instance, Shaylor indicated that female inmates housed in solitary confinement are particularly vulnerable to sexual harassment and abuse by male correctional staff and are more likely to be "triggered" by strip-searches or cell extractions. In addition, Shaylor also noted that women are more likely than men to be sent to solitary confinement for minor violations and punitive reasons, such as being sent to SHU for attempted suicide.

The conditions of solitary confinement are particularly damaging to the mother-child relationship, as prior to incarceration, women are typically more closely linked to the care and upbringing of children than men are (Ward & Kassebaum, 1965). When parents are incarcerated, particularly mothers, the maintenance and well-being of their relationships with children and other family members is greatly dependent on regular visitation (Ward & Kassebaum, 1965). However, as it has been readily discussed, regular visitation is nearly impossible in solitary

confinement. While inmates may be able to write or make limited phone calls, a child's need to communicate with and have physical contact with a parent can only be satisfied through in-person visits. Unfortunately, contact visits are often entirely disallowed in solitary confinement, and if an inmate is allowed limited visitations, a physical barrier is in place to separate the inmate from the visitor (Jiang & Winfree, 2006).

According to a recent American Civil Liberties (ACLU) report, nearly 75% of incarcerated women have a mental illness, which is an even higher percentage than their imprisoned male counterparts (American Civil Liberties Union, 2019). Further, the ACLU noted that incarcerated women with mental illness are held in solitary confinement at alarming rates throughout the United States. For example, in Oregon, 11% of women in the general prison population had serious mental health diagnoses, while 27% of women in solitary confinement had such diagnoses and 84% had mental health diagnoses that required treatment (American Civil Liberties Union, 2019).

As previously discussed, the harsh conditions of solitary confinement, coupled with lack of human interaction, can produce severe deterioration, even in healthy adults. For women with mental illness, who may have experienced trauma in addition to mental illness, the effects can be even stronger and more detrimental. When discussing the harmful effects of solitary confinement, Kupers (2008) noted:

women have more ups and downs emotionally . . . eighty percent of incarcerated women have been sexually or physically abused, so the emotions that everyone has in solitary—anger, depression, anxiety, fear, and paranoia- are going to be much stronger for them. (p. 1001)

Kupers added “in isolation, these emotions will magnify and just keep reverberating with no one to talk to” (pp. 1001).

In 1988, Grassian (as cited in Grassian, 2006) interviewed a small group of less than 10 women housed at the Federal Penitentiary in Kentucky, as part of his involvement as expert witness in a class-action lawsuit. Grassian noted that the women that he interviewed had been convicted of politically-motivated crimes, were all highly educated, of middle to high SES, and had a history of what he deemed to be “relatively strong psychological functioning” (p. 352), prior to their incarceration (as cited in Grassian, 2006). Grassian reported that none of the women developed psychosis or severe confusion, which has been described in previous research (Grassian, 1983; Haney, 1993). However, the women held in solitary confinement demonstrated significant psychopathological reactions to their prolonged isolation, such as perceptual disturbances, heightened anxiety, and panic attacks. In addition, Grassian noted that these women had difficulties in thinking, concentration, and memory. For example, one woman reported that she was only able to exert any mental effort, such as reading or writing, for about the first three hours after waking in the morning (as cited in Grassian, 2006).

Although a small number of studies have examined the effects of solitary confinement on women, it is clear that a better understanding of this population is important. Solitary confinement creates a variety of negative consequences to all inmates; however, women are particularly vulnerable to the conditions of isolation. Further, most professionals and experts tend to agree that not only is solitary confinement detrimental to a woman’s well-being, but it also greatly affects her children and family, as well as a woman’s ability to return successfully to her roles as mother and caretaker (Jiang & Winfree, 2006). As addressed in the previous chapter, socialization plays a major role in both women and men. However, social deprivation may

impact women even more. Because lack of social connection affects the general population of women in such a negative manner, it would be detrimental not to recognize that women housed in solitary confinement who are deprived of almost all quality social connection are certainly even more negatively affected than non-imprisoned females.

Other Incarcerated Populations Who Experience Isolation

Death row inmates. In addition to individuals incarcerated in prison systems, other populations also experience similar, or even more severe, forms of solitary confinement. One such population of inmates who experience social deprivation and segregation from others are inmates on death row (Woodford, 2008). Although the specific conditions of death row differ from solitary confinement in supermaximum facilities, they share certain features, with the most important being isolation and social deprivation.

According to the Death Penalty Information Center (2017), similar to the growing rates of the jail and prison populations, the number of people sentenced to death reached an average of 300 per year throughout most of the 1990s. In 2000, the number of individuals on death row across the United States reached its highest point, with 3,593 inmates awaiting execution. In most states, death row prisoners are housed separately and segregated from the general prison population, with behavior and case factors having little to no impact on housing decisions (Death Penalty Information Center, 2017).

According to Kupers (2018), 32 states and the U.S. government have death rows in their prisons, and the majority of death rows involve solitary confinement within prison facilities. In addition, it has been noted that death row regulations are often more severe than for other segregated inmates (Woodford, 2008). Kupers (2008) described death row at a supermaximum facility in Arizona and reported that the conditions were “strikingly similar” (p. 48) to the SHU

at California's Pelican Bay State Prison. Kupers (2008) noted that the death row inmates were segregated alone in a cell, almost 24 hours per day, with only rare exceptions for medical appointments, limited visits, and showers. He added that cells measured approximately 11½ feet by less than 7 feet across the front with no windows. Kupers (2008) also indicated that the cells contained indestructible Plexiglass-covered skylights that distorted any view of the sky, and all cells faced the same direction, which eliminated any chance of the inmates seeing another human being. Kupers (2008) account of death row at a facility in Arizona likely differs from conditions in other death row units, however it provides a thorough example of the severity of solitary confinement endured by inmates on death row.

Lewis, Pincus, Feldman, Jackson, and Bard (1986) conducted clinical evaluations on 15 death row inmates, including 13 men and two women, sentenced to death in five different states. The inmates who were assessed for the study were chosen due to the imminence of their executions at the time. The psychiatric evaluations were noted to range in duration from 4 to 16 hours. Board-certified psychiatrists conducted mental status examinations and explored the inmates' medical, psychological, neurological, family, social, and educational histories. It was also noted that all of the inmates had histories of head injuries ranging from neurological deficits to indentations of the cranium from a traumatic brain injury. Past psychiatric records were reviewed when applicable. In addition, batteries of psychological measures were administered to eight of the death row inmates, including the Wechsler Adult Intelligence Scale-Revised (WAIS-R; Wechsler, 1981), the Bender-Gestalt Test (Bender, 1938), and the Rorschach (Rorschach, 1921). In three of the cases, results from the Halstead-Reitan Battery of Neuropsychological Tests (HRNB; Halstead, 1947), which is a comprehensive set of neuropsychological measures, were available and, for one inmate, only the results from the Bender-Gestalt and the Draw-A-

Person tests were available. Further, in eight cases, the Woodcock-Johnson Psychoeducational Battery (Woodcock & Johnson, 1977) was able to be administered. It was noted that it was not possible to obtain uniform neurological and psychological data on all 15 inmates due to administrative problems and time constraints. However, Lewis, et al. (1986) noted that despite the absence of clinical data on some individuals, the wealth of information that was obtained in the sample was valuable and that the results were worth reporting.

Results from the evaluations revealed that in 10 cases, psychological and educational testing suggested cognitive dysfunction in specific areas of functioning. All but one of the individuals tested were of Average intelligence. However, results from the WAIS-R verbal subtests revealed scores in the Low Average range for three individuals, scores in the Borderline range for one individual, and scores in the Extremely Low range for one individual. Results from the performance subtests indicated three individuals' scores fell in the Low Average range, one fell in the Borderline range, and one fell within the Extremely Low range. In addition, results from the Bender-Gestalt test revealed reproduction and recall difficulties in four individuals. Within the Woodcock-Johnson battery, eight individuals had particular difficulty with concept formation. Results from the Halstead-Reitan battery that was collected from three cases revealed brain dysfunction and impairments in all three individuals. Results from the WAIS-R, Bender-Gestalt, Halstead-Reitan, and Woodcock-Johnson Battery together provided indicators of Central Nervous System (CNS) dysfunction in the sample of death row inmates.

In addition, six of the inmates were found to suffer from chronic psychotic symptoms at the time of the evaluations, and three were reported to be episodically psychotic. It was noted that their symptoms antedated incarceration, however these individuals demonstrated loose, illogical thought processes, suffered from delusions and hallucinations, and exhibited bizarre

behaviors. Further, two individuals experienced symptoms consistent with the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition* (DSM-III; American Psychiatric Association, 1980) criteria for the diagnosis of a bipolar mood disorder.

Although Lewis et al.'s (1986) evaluations provide some information related to the psychological and neurological status of a group of death row inmates, there are a number of limitations involved. For one, all of the death row inmates who were evaluated had histories of head injuries, which makes this a more specific subset of the death row population. Additionally, Lewis et al. (1986) noted that of the inmates who were found to be chronically psychotic, their histories indicated that their symptoms of psychosis arose prior to incarceration. Thus, one cannot infer that these individuals' symptoms were produced by or exacerbated by the conditions of confinement. Another aspect worth considering is the possibility that the inmates evaluated in the present study were malingering. Because the evaluations were conducted to assess the areas of functioning that may have been overlooked and for clemency appeals, some of the inmates may have been malingering to avoid punishment by death.

Similar to the general population of prison inmates who are housed in solitary confinement, Kupers (2018) reported comparable, and sometimes even more detrimental, psychiatric deterioration for the death row population. Based upon his past research, interviews, experiences as expert witness, and involvement in over 40 legal cases, Kupers noted that some of the symptoms that are widely reported among death row inmates include hypersensitivity to external stimuli, hallucinations and perceptual distortions, impulsivity, fear of persecution, severe depressive symptomology, appetite and weight loss, heart palpitations, apathy, blunting of affect, headaches, difficulty sleeping, nightmares, dizziness, confused thoughts, and social withdrawal. Kupers (2018) noted that the time it takes for these symptoms to begin to arise

varies. However, he relayed that when inmates are housed in solitary confinement for longer periods, such as decades, as are many death row inmates, even more severe and persistent effects are likely (Kupers, 2018). For example, in a redacted report in *Ashker v. Brown* (2014), Kupers denoted that inmates who have resided in solitary confinement for a decade or more reported feeling separated from their emotions and not wanting to engage even in the limited social activities offered. Kuper's report in *Ashker v. Brown* (2014) also suggested that the damage from solitary confinement is generally cumulative, long-lasting, and can create a vast range of difficulties for adjustment post-release for those death row inmates who are released from segregation into a general prison population community setting.

Reviews of the literature and some anecdotal information, coupled with what experts in the field know about the effects of solitary confinement, in general, can aid in future research with death row prisoners. Given the limited research on the death row population, it is difficult to draw any major conclusions related to their overall well-being and socialization needs, and how these needs relate to solitary confinement. Further, it is difficult to ascertain how social deprivation, in particular, affects this population, as other variables such as prior or current mental illness and resiliency factors, such as emotional regulation or self-efficacy, may play a role. Nevertheless, because death row inmates are almost always segregated and exposed to the harshest conditions of solitary confinement, they are a population who are unquestionably more likely to suffer long-lasting consequences of this isolation. In addition, a significant percentage of death row inmates will never be executed, and some will be exonerated and released back into the community (Kupers, 2018). This fact creates an even greater need for research and special attention to this population of inmates who may be segregated and sometimes deprived of most all forms of human interaction for decades.

Prisoners of war. Prisoners taken captive during wars are another important population to consider when examining the research on the impact of isolation and solitary confinement. This specific group of individuals share many of the same experiences of inmates held in solitary confinement in the prison setting. Most prisoners of war (POWs) are held in segregation and isolated from others, are at times blindfolded and handcuffed for months, and are held in small cells under unsanitary conditions. They also experience deprivation of basic needs and deliberate humiliation (Neria, Solomon, & Dekel, 1998).

Sutker, Winstead, Galina, and Allain (1991) conducted a study to describe the long-term psychological symptoms and consequences of a sample of POW survivors involved in the Korean conflict. The study included 22 Korean conflict POW survivors and 22 veterans who had experienced similar combat but were not taken captive. The former POWs included in the study were mandated to undergo medical evaluation and completed the psychological assessments for the study at the same time. It was noted that the former POWs and combat veterans did not differ significantly in age, race, education, socioeconomic status, military rank, marital status, or employment status. The assessment protocol for the POW survivors included a structured clinical interview as well as a battery of psychological measures including the WAIS-R (Wechsler, 1981), the Logical Memory subtest of the Wechsler Memory Scale (Wechsler, 2009), the Minnesota Multiphasic Inventory (Hathaway & McKinley, 1940), the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), the State-Trait Anxiety Inventory (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983) and an adjustment problem checklist that was not specified. In addition, mental health diagnoses were made according to the *DSM-III* criteria, and symptoms of PTSD were evaluated by a psychologist.

Results revealed that although the two groups of individuals were similar in terms of background and personality characteristics, they differed in reported life adjustment difficulties, physical complaints, cognitive deficits, objectively measured personality traits, and assigned mental health diagnoses. Sutker et al. (1991) noted that in comparison to the group of combat veterans' reported symptoms, the POW survivors' impairments were remarkably severe and persistent. In addition to cognitive deficits and bodily discomfort, the most common symptoms reported by POW survivors were suspiciousness, apprehension, confusion, feelings of detachment interpersonally, inner conflict, and hostility. Overall, the results from this study highlight the chronicity and persistence of symptoms in the POW survivors, especially in terms of interpersonal difficulties and internal turmoil (Sutker et al., 1991).

One limitation involved in Sutker et al.'s (1991) study is that the POW survivors used in the study were former captives from the Korean conflict, which was reportedly defined by Chinese indoctrination and included unique aspects of captivity and isolation of captives. Thus, the aspects of isolation experienced by the Korean conflict POW survivors may not be generalizable to other groups of former POWs. In addition, the groups of combat veterans and POW survivors included in the study were individuals who had been seen for 3 years at one specific Veterans Administration (VA) medical center. Although it was noted that the individuals represented more than half of the former POW survivors in their catchment area, it is still a small sample and a sample of individuals from only one VA center in the United States. Additionally, using this sample of individuals from the VA may have created some bias, as they had been attending there for 3 years. Further, the sample of individuals was mandated by Public Law 97-27 to undergo medical evaluations at the time that the psychological portions were completed, as

well, which may have affected the results gathered from the study, as involuntary participation may have impacted responses to psychological tests and interviews.

In 1998, an 18-year follow-up study of Israeli POWs and combat veterans, captured by Syria and Egypt, was conducted to assess the psychological aftermath of war captivity from the 1973 Yom Kippur War (Neria et al., 1998). The study consisted of two groups of former POW survivors, including 163 soldiers who had been captured by Egyptian military and 28 who had been captured by the Syrian military in the war. It was noted that the groups differed in terms of duration of captivity, as those captured by Syrian military were held captive for 8 months, while those imprisoned by Egyptian military were held captive for 6 weeks. Both groups experienced severe isolation and torture that consisted of inducing physical pain and mental pressures. In addition, the POW survivors in both groups were deprived of adequate supplies of food, exercise activities, and normal social interaction. A control group of 280 combat veterans from the same war were sampled from the Israel Defense Forces via computer databases and were matched on a number of variables. Assessment of socioeconomic and demographic status, marital status, and educational background were similar in both the POW and control groups. The instruments utilized in the present study included a variety of standardized measures, including a PTSD inventory, the Impact of Event Scale (Horowitz, Wilner, & Alvarez, 1979), and the Symptom Checklist-90-Revised (SCL-90-R; Derogatis, 1992) to assess psychological symptomology, emotional status and distress, and severity of symptoms. A three-step analysis was conducted to examine whether there were differences between the two groups' current psychological status.

Overall, results revealed that almost two decades after being released from captivity, the former POW survivors continued to experience and suffer from higher rates of trauma-related symptoms, stronger intrusive thoughts and avoidance tendencies, and more severe

psychopathological symptoms compared to the veterans who had not been held prisoner (Neria et al., 1998). These findings are consistent with other studies that have also found that captivity may result in long-term traumatic symptoms, ranging from diagnosis of PTSD to social withdrawal and avoidance behaviors (e.g., Beal, 1995; Kluznik, Speed, Van Valkenberg, & Magraw, 1986; Sutker et al., 1991).

Neria et al. (1998) addressed some of the reasons the experience of captivity may cause more pathology than being in combat. POWs experience multiple forms of trauma, and the experience of captivity is thought to add to the intensity of the traumatic experience and contribute greatly to the development of psychopathology. Another explanation postulated by Neria et al. (1998) is that the trauma of captivity is more personal and occurs within the relationship between the captive and his or her captors, whereas combat is often more impersonal. The torture, isolation, humiliation, and efforts to “tear down” the individual that are often part of captivity are intentional and become personal to the captor.

According to Herman (1992), the kind of ongoing and directed abuse that generally makes up the experience of POWs exposes the individual to extreme feelings of helplessness and loss of control. In addition, Herman noted that the experience of captivity seriously damages one’s sense of self and makes it more difficult to recover the ability to relate successfully to, trust, and interact with others. Herman’s explanation of the often-traumatic experiences surrounding captivity unfortunately almost completely parallel the conditions of solitary confinement. As discussed throughout the current chapter, both have been found to be damaging to the individual long-term, as not only is there hardship and suffering, but being isolated from any positive interactions creates a host of negative symptoms and consequences for one’s overall well-being.

Thus, although the conditions and experiences endured by POWs vary and may be even more severe than the circumstances surrounding solitary confinement within the prison setting, similarities exist between both solitary confinement and POW captivity. The common aspects that comprise the two conditions include extreme isolation and segregation, sensory deprivation, and loss of control of one's daily life. This being said, research related to POW survivors is an important population to consider further when looking at the consequences of isolation for inmates. As with the prison population and solitary confinement, it is difficult to ascertain which aspects of captivity are most detrimental to the POW survivors.

Summation of Research on Isolation in Adults

As discussed in this chapter, solitary confinement poses a number of serious consequences to inmates' psychological and physiological health. Inmates housed in solitary confinement are not only exposed to the severe conditions associated with this type of imprisonment, but they also experience an absence or lack of regular and positive social interaction. This chapter highlighted the available studies that have provided information regarding the psychiatric consequences that arise in solitary confinement, the groups considered to be most vulnerable to isolation, as well as the physiological effects experienced by inmates in segregation.

In addition, some of the gender differences found among inmates in isolation were discussed to emphasize the importance of recognizing the varying needs of prisoners in terms of social interaction and support. This chapter also highlighted other populations of incarcerated individuals who experience isolation, as well as some of the other features involved in solitary confinement. The populations of death row inmates and POWs were included, as these two groups are believed to endure forms of isolation that often involve even more severe conditions

than typical solitary confinement. The findings and conclusions drawn from past research surrounding these populations are important on both a societal and individual level and can likely be extrapolated to the incarcerated population held within solitary confinement.

CHAPTER IV: INTEGRATION AND DISCUSSION

Solitary confinement has been used throughout U.S. prison facilities since the early 19th century. Although solitary confinement has been a controversial topic for decades, it is considered to be one of the most enduring and severe prison practices that has become a widespread method of imprisonment throughout correctional facilities (Shalev, 2008). Despite its long history of use and the opposing viewpoints surrounding solitary confinement, comprehensive empirical research on solitary confinement has been scant. Further, social deprivation, which is one of the main features involved in solitary confinement, and how it affects individuals remains an area of research that is unfortunately quite limited and unexplored.

Socialization is a critical component for individuals across the lifespan. Interacting with other humans, being involved in social relationships, and maintaining connectedness are developmentally significant components from infancy throughout old age (Hartup & Stevens, 1997). Since socialization is a significant aspect of one's overall functioning throughout the entire life course, being deprived socially can result in a number of consequences. This review highlighted some of the main psychological and health-related consequences that are often associated with social deprivation in the general adult population, as well as some of the gender differences involved in the impact of social ties.

Further, this review attempted to extrapolate and expand upon the information related to social deprivation effects in the general adult population in order to fill in the research gaps related to consequences of social isolation in adult inmates. Unlike the general adult population, incarcerated individuals, especially those in solitary confinement, suffer more detrimental consequences related to being socially isolated. Not only is this population often times more

vulnerable to the distress associated with segregation, but they also are exposed to a more severe form of social isolation than the general population is.

Implications of Solitary Confinement

There are various implications of solitary confinement. Important areas to consider are implications for the individual, for society, and for clinicians and professionals working with those who are currently incarcerated in solitary confinement or with those who have experienced solitary confinement or similar forms of isolation.

Implications for the individual. This review focused on the various damaging effects that solitary confinement housing can have for incarcerated individuals. Not surprisingly, the experience of being housed in solitary confinement, especially for those with longer periods of being in confinement, brings about a number of implications for those individuals. Any inmate will face various challenges post-release, however solitary confinement inmates have the potential to face an even greater difficulty when it comes to adjustment after being released.

Unfortunately, a large number of inmates are released directly from solitary confinement back into their communities. According to The Marshall Project (2015), a nonprofit criminal justice organization, there were at least 10,000 individuals across 24 states who were released directly from some type of special housing unit in 2014; however, the actual total is likely higher, as 26 states and the Federal Bureau of Prisons could not provide estimates of how often inmates are released directly from confinement. Some inmates serve most or all of their sentence within solitary confinement, which further complicates their post-release experience. For example, when an inmate is held in solitary confinement and housed there until their release date, they may not receive parole services or additional types of discharge assistances that generally provide a great deal of help with re-entry (Thompson, 2015). Further, those in solitary

confinement who suffer from mental illnesses that were either preexisting and exacerbated or triggered in segregation often are unable to participate in the classes or services offered to other inmates approaching their release dates (Thompson, 2015).

These individuals who reach their release dates while in solitary confinement go from complete isolation one day to complete freedom the next. However, in numerous ways, they are the least equipped to make a successful transition back home. The culmination of being segregated, coupled with sensory deprivation and the possibility of mental illness being exacerbated while in solitary confinement does not make for an easy adjustment, particularly when it comes to successful communication with family, friends, employers, or co-workers.

One of the most significant ways in which the experience of solitary confinement impacts an individual post-release is within their relationships. Family is one of the biggest protective factors and sources of support for inmates, both while they are incarcerated as well as after they are released (Thompson, 2015). Even if an individual has a supportive family network to return to post-release, the transition back is often fraught with difficulties. Newly released individuals will often struggle with communication and normal everyday interactions with others. Thus, the relationships they have with family or friends will consequently be affected, as the adjustment back to regular human interaction and relational functioning may not come back easily. Kupers (2008) indicated that those individuals who have spent time in solitary confinement are often so overwhelmed and fearful of being around others in the outside world that they continue to isolate when they come back home. Kupers (2008) stated, “you take someone and systematically destroy their social skills and their productive capabilities, they just break down” (p. 1011).

Finding and maintaining employment is another challenge for anyone who has served time in a correctional facility, partially due to the low number of companies and employers who

are willing to hire individuals with criminal backgrounds. However, for those individuals who have been isolated and are released from solitary confinement, finding a job is even more difficult. Often times, inmates housed in the general population may have the ability to hold a job within the prison facility they are at or take classes that teach them a trade. Those in solitary confinement generally are not given this option. Thus, many who have spent long periods of time with minimal human contact lose the basic prosocial skills needed to maintain a job. If one considers the environment that makes up solitary confinement, it is not surprising to acknowledge the extremely difficult transition inherent in going from living alone in isolation to suddenly being around all types of people and being expected to behave and interact in a socially acceptable manner.

Societal implications. To some degree, the prison system and criminal justice system are interlocked with other components of society that are ultimately impacted by the utilization of solitary confinement. As such, the housing of inmates in solitary confinement does not just affect the individual or the family. It affects all who live in a society in which people of all different races and socioeconomic backgrounds are criminalized and isolated in correctional facilities for the sake of another's security and prosperity.

Many will argue that solitary confinement keeps the prison system as well as the outside world safe. While this may be a valid point to some degree, those who argue for the utilization of solitary confinement must also understand the societal issues that arise when individuals are eventually released. Prisoners who go straight from solitary confinement back into the outside world may indeed pose a danger to public safety. Analysts for the Texas Legislative Board, for example, found that in 2014, over 60 percent of state prisoners who were released from solitary confinement directly were incarcerated again within 3 years, as compared to 49 percent of the

overall prison population releases (Spada & Hawkins, 2015). In addition, according to the American Legislative Exchange Council, in Washington and California, similar studies found that people released directly from a special housing unit had recidivism rates approximately 35 percent higher than those released from the general population (Spada & Hawkins, 2015). These statistics alone speak to the societal consequences involved when inmates are released directly from solitary confinement back into their communities. The higher recidivism rates for these inmates could be due to a number of factors. However, it is without a doubt that both the safety of the general public as well as the welfare of the released inmate is threatened. Consequently, as the data suggests, these inmates often times re-offend, which becomes problematic for the smaller community as well as the greater society.

In addition, often times those who make the transition from confinement to the community can easily end up jobless or homeless, which creates further societal implications. Homelessness, for example, comes at a very high cost to individuals, smaller communities, systems of care, and greater society. Numerous studies have demonstrated that communities save money by providing permanent supportive housing to individuals experiencing homelessness (Thoeni, 2015). In addition, homeless persons are more likely to suffer from chronic medical conditions and complications due to housing instability. In addition, emergency rooms, crisis response and public safety systems are often utilized at a much higher rate by homeless individuals (Thoeni, 2015).

Furthermore, housing inmates in solitary confinement is a costly form of imprisonment. One reason in which confinement is expensive is due to the added staffing costs for the correctional facility. According to a study by the Urban Institute (as cited in Ross, 2007), the average cost per cell of housing an inmate in solitary confinement was estimated to be \$75,000,

as opposed to \$25,000 for an inmate in the general population. In addition to higher operating costs, supermaximum prisons and special housing units have increased construction costs than other types of facilities, due to the materials needed for the physical structure of the units. The high cost of solitary confinement is evident for the correctional facilities that utilize them, as well as for society. In sum, it is important to not only consider the implications that solitary confinement absolutely has for the individual and their family, but how it also affects communities and society as a whole.

Implications for Clinical Practice

As discussed throughout this review, the practice of solitary confinement has countless implications for not only the many individuals who are incarcerated, but also for clinicians. Within correctional facilities, psychologists and mental health staff play vital roles in terms of providing therapeutic and rehabilitative services and being an advocate for the incarcerated inmates. Often times, mental health staff are some of the only personnel providing direct care to inmates, which places them in an even more crucial role.

As discussed previously, inmates held in solitary confinement have little to no visitation or social interaction with others, and the interactions they do have are often negative. Thus, mental health clinicians can apply the information provided in this review in order to inform their clinical practice and ensure that their one-on-one care with inmates includes positive and constructive interactions. It has also been previously noted throughout this review that solitary confinement inmates who are eventually transferred back into the general prison population or released into the community struggle in a number of ways, particularly socially and relationally. Keeping this in mind, mental health staff can provide therapeutic services to inmates in solitary

confinement with a focus on maintenance of social skills and rehabilitation, as approximately 93% of inmates are eventually released from prison (U.S. GAO, 2013).

In addition, mental health clinicians as well as all direct care staff, should take into consideration the information regarding vulnerable populations that was provided in this review. Psychologists are encouraged to always take individual differences into consideration, however this becomes even more important when working with solitary confinement inmates. As noted in the current review, individuals with preexisting mental illness are considered to be some of the most sensitive to the harsh conditions of solitary confinement. When working with inmates with mental health problems, it is of utmost importance to consider not only their symptoms and diagnosis, but also to pay special attention to the ways in which social deprivation may be impacting them as individuals, including the impact on their mental health status.

Further, although it is not the focus of this review, mental health staff should also be aware of the special needs of children and young adults in solitary confinement. Due to their development and socialization needs, clinicians should aim to model appropriate social exchanges and rehabilitate social skills with these groups of individuals whenever possible. The final group discussed in this review as being particularly vulnerable to solitary confinement is pretrial detainees. It has been reported that this population is more likely to engage in self-injurious behaviors and commit suicide, which directly applies to the services provided by mental health clinicians (Andersen et al., 2000). Pretrial detainees are a unique group of individuals, as their complete mental health, behavioral, and incarceration history may not be known at the time of custody. Thus, clinicians should take special care in assessing their mental health status, especially in terms of suicidality, as isolation may exacerbate feelings of hopelessness for these individuals.

Recommendations for Reform of Solitary Confinement

The existing research on the consequences of solitary confinement proposes a number of recommendations for the reform of special housing and supermaximum custody (Arrigo & Bullock, 2007; Mears, 2005; Toch, 2018). Human Rights activists and advocates as well as current professionals, academics, and psychologists in the field have advocated for limiting, if not eliminating, the use of solitary confinement practices. While some states have implemented laws that outlaw the use of complete solitary isolation and limit the use of segregated housing, others continue to utilize this harsh form of imprisonment. Some states incarcerate more individuals, but limit the use of isolation, while some states do the opposite. In addition, federal facilities often differ from state facilities in how they utilize solitary confinement, which further complicates the issue of the nation as a whole decreasing the rates of individuals held in solitary confinement.

The following recommendations are important suggestions that should be considered by correctional facilities across the nation that continue to utilize any type of special housing. The recommendations that will be discussed are realistic proposals with the awareness that safety is the primary goal of correctional facilities. The total abolishment of solitary confinement in the U.S. remains a challenging and controversial idea, even to this day. Thus, the recommendations proposed in this review are meant to be pragmatic ideas that could potentially reduce the numerous negative consequences of isolation and facilitate some type of positive change within correctional facilities throughout the U.S.

One of the key recommendations that should guide reform is that prisoners with current mental illness or psychiatric histories should be altogether excluded from this type of segregated, punitive isolation, a policy supported by the American Psychiatric Association (American

Psychiatric Association, 2012). Inmates who are deemed to be a danger or behavioral disturbance to themselves, staff, or the prison population should be managed and treated in a secure unit that is specifically designed for the treatment of those suffering from mental illness. This review highlighted the primary psychiatric consequences that can arise from solitary confinement, which should be taken into account when considering the housing of inmates with mental illnesses. Prisoners with current or preexisting mental illness are vulnerable to the trauma involved in the experience of isolation and are more likely to psychologically deteriorate. Therefore, mentally ill prisoners should not be placed in these types of confinement units.

One recommendation that would reduce, if not eliminate, the unintentional placement of an inmate in segregation with a current or past psychiatric history, is the use of thorough, standardized assessment instruments to screen offenders. Inmates who are entering into any type of special housing unit should be required to undergo comprehensive evaluation by a competent mental health clinician. A careful screening assessment and brief clinical interview conducted by a qualified clinician would greatly enhance the ability to identify inmates who are more vulnerable or are currently suffering psychological symptoms prior to placement in isolation. Further, in the cases in which it is deemed necessary for an inmate to be housed in a special housing unit, these inmates should be closely monitored and regularly examined in order to ensure that they are not developing psychological symptoms, such as suicidal and self-injurious ideations. If an inmate is found to be decompensating in solitary confinement, they should be immediately removed from isolation and offered appropriate psychiatric treatment.

Another important recommendation for correctional facilities across the U.S. is to strictly monitor and thus avoid the occurrence of any type of abuse or maltreatment by staff. Past research has suggested that some of the adverse consequences of solitary confinement are related

to the way in which correctional staff treat and interact with the inmates (Cloud, Drucker, Browne, & Parsons, 2015). Thus, it is recommended that correctional staff, especially officers who are in more frequent contact with inmates, undergo mandatory training and supervision to ensure they are interacting with these inmates in a positive and constructive manner. Further, more specific training and education in conflict resolution, de-escalation, and overall treatment of individuals with mental illness would be beneficial in order to aid staff in learning how to employ techniques designed to calmly resolve disputes and aggression in a respectful and helpful manner. Those staff assigned to work in solitary confinement should be required to undergo specialized training that not only addresses the signs of suicidal ideation, but also educates and provides them information related to the consequences involved when an individual is deprived of social interaction in order to hopefully encourage more regular interactions. More consistent, positive communication and exchanges from staff may become an important aspect of assisting in the transition back into the community, particularly for those prisoners who have been isolated from long periods of time or who have had limited or no familial visits.

An additional recommendation that would likely reduce the harmful effects from solitary confinement would be to ensure that these units maintain humane physical conditions. Solitary confinement inmates should not be housed in cells that are sensory deprived, as this causes even further complications for them. In addition, they should be able to have the ability to control the light in their own individual cells, instead of being exposed to bright lighting that, in turn, affects their sleep cycles. Thus, inmates should be housed in cells that are not only clean and sanitary, but well ventilated and exposed to natural light. Furthermore, inmates should have more access to reading materials and other appropriate personal belongings. Having these materials and being able to keep themselves engaged will provide a more consistent level of stimulation, which may

aid in their cognitive and overall mental health functioning. Inmates housed in solitary confinement should also be given sufficient space for physical activity and the opportunity to engage in regular exercise. Maintaining a higher level of physical activity and engaging in regular exercise should be encouraged by correctional staff, as this would likely assist inmates in keeping with a scheduled routine and staying physically and mentally healthy.

Another recommendation, overall, is that solitary confinement inmates should be offered more opportunities to engage in consistent and regular social interaction with other humans. It is of utmost importance that these inmates be given the option for normal, congregate activity, as deemed appropriate. Being around others for some activities such as exercise, dining, educational activities, or religious services would at least allow for some type of social interaction throughout the day. This type of consistent social interaction and engagement may also enable inmates to engage in reality testing that is necessary for maintaining mental health. In addition, being involved in such activities would provide a more appropriate level of sensory stimulation. Another aspect of socialization that should be permitted and encouraged is frequent contact with their families or other visitors under safe conditions that facilitate positive communication. Consistent visits and communication with family members are of primary importance in terms of aiding these offenders in making a successful transition from prison into the community post-release.

It is of course difficult, and most likely impossible, to identify the minimum level of social contact needed to avoid the negative effects of solitary confinement. Existing research posits that such a breaking point would likely be very individual and on a case-by-case basis. Regardless, it seems reasonable to conclude that 1 or 2 hours of out-of-cell time, even including some social contact, is not enough for anyone. Whether 3, 4, 5, or 6 hours would suffice to

eliminate the disparities between isolation and non-isolation is unknown at this point, however even 3 hours of out-of-cell time including social interaction would most likely create much better and overall mentally healthier conditions for these inmates.

Limitations and Directions for Future Research

As mentioned throughout this review, there are obvious limitations involved in the research surrounding solitary confinement. For the purposes of this review, there are several limitations worth noting. One such limitation that was identified while compiling research for the present review is the difficulty in defining and identifying how solitary confinement is utilized. For example, as noted in the previous chapters, solitary confinement is known by many different names throughout the United States and across state and federal facilities. Thus, how solitary confinement is defined across the nation tends to vary, which brings about a major drawback to research and overall understanding for professionals in the field as well as for the general public. Without a solid definition outlining solitary confinement, research and accurate information about inmates in isolation becomes limited and difficult to fully comprehend.

An additional limitation that was identified is the lack of direct research on solitary confinement inmates. There are obviously numerous difficulties in conducting comprehensive research with this population, as incarcerated persons, particularly those in special housing, are a protected population. Simply gaining access to a correctional facility can become difficult for researchers. Additionally, the consent process involved with the incarcerated population is often more challenging, as policies and regulations require that participation is not only voluntary, but that it will not affect parole or correctional programming decisions (Bulman, Garcia, & Herson, 2012). Thus, as seen in previous chapters of this review, some of the most useful information gathered from solitary confinement inmates comes from those researchers in the field that have

been utilized as expert witness for legal cases that required court-mandated assessments.

Although this has provided useful information, most is anecdotal, based upon self-report, and qualitative in nature, which eliminates the ability to draw any sound associations or conclusions.

Further, gathering an appropriate and large enough sample size is complicated within correctional settings for many reasons. A majority of recent studies are comprised of small and non-representative samples or volunteers in a laboratory setting. Thus, the data is difficult to apply to the larger population of inmates in confinement. In addition, research is often lacking in robustness and comprehensiveness, as it is difficult to implement rigorous evaluation designs that could isolate and control for confounding factors. Consequently, it is almost impossible to locate completely comparable groups of inmates for a study, such as randomized trials. In addition, a great deal of the research does not distinguish between inmates solely under close observation or restrictions versus those who are actually housed in isolation and devoid of any social interaction. Without this clear distinction, researchers are unable to fully study and understand the group of inmates who are around others versus those that are isolated.

Another issue with a majority of the research that was utilized for the purpose of this review is that the negative effects of solitary confinement are vast and individualized. Thus, it is challenging to make conclusions that apply to the entire population of inmates housed in solitary confinement. In addition, inmates included in past research likely have different levels of insight into their mental health problems, varying degrees of resiliency and vulnerability, and may overreport or underreport symptoms and harmful effects in order to avoid perceived negative consequences. Therefore, future research needs to provide assessment that includes validated and reliable instruments specifically designed to capture individual differences.

A number of gaps remain in the research surrounding solitary confinement's negative effects. A major area that future research should focus on are the consequences involved in long-term versus short-term solitary confinement. Although some research included in this review defined the amount of time inmates had spent in confinement, prolonged and short-term segregation have not been directly compared. Much of the information regarding the lengths of time spent in confinement are based upon hypotheses and inferences made from research. Most experts and researchers tend to believe that prolonged isolation creates an even greater potential for harmful, long-lasting effects, however this cannot be definitively concluded without comparison studies assessing the long-term effects of short versus long-term solitary confinement.

An additional limitation that was noted in the critiques of the studies included in this review are that a majority of the studies assessing solitary confinement inmates are cross-sectional and do not examine offenders over a period of time. This obviously limits generalizability or the ability to draw any direct conclusions, as these studies only provide information about these inmates from one specific period of time. Thus, while cross-sectional studies are likely easier and more realistic within the prison setting, this type of data does not allow researchers to assess the full range of symptoms that may develop over time. As previously noted, due to the individual differences involved in the development of psychopathological symptoms, cross-sectional data may not provide an overall accurate depiction of the mental health status of solitary confinement inmates, particularly regarding how they fare long-term.

In addition, most of the solitary confinement research takes place within one particular correctional institution and in one state within the United States. While it is likely difficult to provide information from multiple states together or to gather data across a variety of prison

systems, obtaining information from only one particular area greatly limits generalizability. As previously noted, solitary confinement and segregation varies throughout the United States and across jurisdictions. Thus, information gathered from one or even two states in the country does not necessarily apply to other institutions, due to varying conditions and degrees of restriction across the prison system. Further, the studies included that take places in other countries provide a great deal of information related to the negative consequences of isolation, however the information can only be applied with caution, as the special housing units in other countries are based upon and governed by a different set of rules and regulations that those within the United States.

In terms of accurate assessment, most of the research on solitary confinement is lacking thorough assessment of psychological and emotional symptoms. A majority of studies utilize self-reports or structured interviews due to ease of administration and time restraints. However, lack of administration of a full battery limits the accuracy of information gathered from inmates and calls into question validity and reliability. In addition, self-report surveys and questionnaires are not sensitive to over or under-reporting unless validity scales are included, and thus they provide only face-valid data.

In the absence of strong empirical support, much of the dispute over the effect of solitary confinement is based upon extrapolations and generalizations. The lack of replication in solitary confinement research indicates there is a need for further research before sound conclusions can be reached and recommendations for useful policies can be made. Barriers to research need to be further identified, understood, and addressed in order to develop a strategy for researchers to be able to conduct more thorough and comprehensive studies.

In addition, future research should focus on the development and implementation of a psychological screening battery that would aim to identify those who are mentally ill or particularly vulnerable to isolation. Developing and researching such an assessment method in correctional settings could inform policy and hopefully reduce the utilization of solitary confinement, especially of those who are already unstable or deemed vulnerable to isolation. Whatever side one may be on in the issue of solitary confinement should not be an issue when considering the utilization of a screening battery, as this would be beneficial on an individual, institutional, and societal level.

Future research should also aim to focus on continuing to develop realistic and more humane alternatives to the ways in which solitary confinement is implemented. In addition, consistent with the aim of this review and given what is known about the damaging effects of isolation, changes should be made to include aspects of socialization for solitary confinement inmates. Whether with trained correctional staff or other inmates, offenders held in solitary confinement would benefit from integration of social interaction with other individuals. Future research should examine the frequency and length of social interaction that is most beneficial for reducing the negative psychological and physical impacts of isolation to the benefit of the incarcerated individual, but also ultimately to the benefit of society.

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