

Paul B. Paulus

Prison Crowding: A Psychological Perspective



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With the collaboration of Verne C. Cox and Garvin McCain

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Preface

This volume is a summary of a 15-year effort to determine the effects of prison crowding and their relationship to the broader realm of crowding phenomena and theories. Although the writing of this volume was for the most part a solitary effort, the data and ideas it is based on were mostly the result of a collaborative effort with Verne Cox and Garvin McCain. Their schedules limited their ability to contribute to this volume, but they provided much constructive feedback and assistance. Cox also wrote a preliminary draft of Chapter 3, and both McCain and Cox made major contributions to Chapter 5 and assisted with several other chapters. I am greatly indebted to these two fine scholars for their efforts and support over the course of our joint research endeavors. In recognition of this fact, the pronoun “we” is used throughout this volume.

This research would not have been possible without the cooperation and support of thousands of inmates and hundreds of prison officials. The unconditional support throughout the project from Director Norman Carlson and former regional research director Jerome Mabli, both of the Federal Bureau of Prisons, is also greatly appreciated. Thanks are due to the National Institute of Justice for financial support during various phases of this project. The support of John Spevacek of the Institute was indispensable. Funds were also provided by the Hogg Foundation, U.S. Department of Justice—Civil Rights Division, and the University of Texas at Arlington.

A Visiting Fellowship Award from the National Institute of Justice provided the time and resources necessary to complete the data acquisition and the extensive analyses on which much of this volume is based. Patrick Langan of the Institute was a superb host during that time. Marc Schaeffer provided invaluable assistance in data management and analysis, and Gerald Gaes (U.S. Bureau of Prisons) provided statistical guidance during the Visiting Fellowship period and collaborated in several studies. The Uniformed Services University of the Health Sciences, Department of Medical Psychology, provided an “intellectual home” and much ancillary support. Andrew Baum was instrumental in making the Visiting Fellowship year a rewarding one, both professionally and personally.

In presenting the results of our many research endeavors, an attempt was made not to overwhelm the reader with statistical details. Many of these details can be found in the various reports and publications cited in this volume. The main purpose was to provide a broad psychological perspective on the issue of prison crowding that would be of benefit to both scholars and criminal justice professionals.

Paul B. Paulus

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1

Introduction

This is a book about prisons and about crowding. Most of the research to be discussed was conducted in prisons and is of use in resolving basic questions about prison design and housing. However, the aim in this research was not to understand prisons per se, but the nature and consequences of living in crowded conditions. This was a major concern of a wide array of researchers when we first began our studies. The choice of prisons as a site for research was predicated on a variety of methodological and conceptual grounds. It was felt that characteristics of living conditions in many prisons provided a unique opportunity to examine a variety of issues in the area of crowding. Even though the aim was "basic" research, the research in prisons soon led to involvement in a number of legal battles about the constitutionality of living conditions in prisons. This forced my colleagues and me to address the practical implications of our work as well as its theoretical meaning. In fact, the pressures of carrying out the research and being involved in the various legal proceedings made it difficult to find time for reflective theoretical appraisal of our results. This book represents an attempt to incorporate in one volume the empirical, theoretical, and practical fruits of a 15-year effort. The story is by no means complete. Many empirical, theoretical, and practical questions remain. Yet this work and that of others have at least provided an outline for future endeavors in this area. It is hoped that this outline will stimulate other scholars to fill in many of the gaps that remain.

When this project began in 1970, psychologists were just becoming seriously interested in the issue of crowding. A scattering of sociological studies had existed for some time, but it was a study by Calhoun with rodents that stimulated social and environmental psychologists to action. Calhoun (1962) studied rodents living in crowded conditions and found evidence of disturbances in sexual and maternal behavior as well as increased aggressive behavior and enhanced mortality. Similar results were obtained in other studies with animals (Christian & Davis, 1964), and psychologists began to wonder whether humans might be similarly affected by living in high density conditions. To assess effects of high density condi-

tions in humans, a large series of experimental studies were done. These involved confining small groups of individuals under conditions that varied in spaciousness and size of the group. Some studies found little evidence of negative effects (Freedman, 1975), but others found that temporary conditions of crowding can produce negative feelings and decrements in task performance (Paulus, 1980). While these studies are pertinent for evaluating reactions to short-term and temporary conditions of crowding, they may be of little help in understanding what happens when people live in crowded conditions for long periods of time.

To study real-world, long-term crowding, sociologists had been examining statistics for people living in areas of cities that varied in degree of crowding. Some of these studies obtained dramatic evidence that crowded city living can have detrimental effects on health and the level of socially disruptive behavior (Galle, Gove, & McPherson, 1972). Yet others failed to obtain such dramatic findings (Freedman, Heshka, & Levy, 1975), and this type of research was subjected to criticism on a variety of methodological and statistical grounds (Kirmeyer, 1978). One of the major problems with this research was the fact that people in cities have some degree of choice as to where they live. Thus, it is possible that people who choose to live in or tolerate living in crowded parts of cities are different from those who live in less crowded areas. Also, socioeconomic factors are so closely intertwined with crowding in cities that it may be impossible to separate the effects of each.

To overcome the problems inherent in the laboratory and city studies, some investigators began looking for environments where individuals were housed under crowded conditions for extended periods of time, but did not have a choice as to where they lived. The college dormitory was one environment that met these criteria and was the subject of many interesting and successful studies demonstrating a wide variety of effects of crowded living conditions. However, the crowding experienced in college dormitories is still relatively mild compared with that experienced in other sectors of our society. With all of these considerations in mind, Verne Cox, Garvin McCain, and I surveyed a wide variety of possibilities—homes for aged veterans, offshore oil rigs, junior high schools, apartment complexes, jails, and prisons. Although each of these environments had some features of interest, we were most impressed with the potential of research in prisons. We discovered that prisons come in a wide variety of sizes and shapes. Although we found a number of “classic” prisons that housed inmates in long corridors of small cells, other prisons housed inmates in a broad range of housing types—singles, doubles, multiple-occupant cells with three to nine inmates, open dormitories with 20 to 150 inmates, and dormitories where space was broken up into small segments or individual cubicles.

The amount of space available also varied greatly among the housing types. While some prisons housed a large number of inmates, others were

comparatively small. We quickly realized that prisons provided us with an opportunity to examine a wide variety of aspects of crowded living—the number of people in one's housing unit, the amount of available space, and the population density of the general residential area. Furthermore, in most cases, inmates cannot choose their prison or their living quarters within the prison. They are assigned to their housing by administrative personnel using a wide variety of criteria: nature of the crime, previous criminal history, length of confinement in prison, work or program assignment, etc. Although lack of inmate control over housing assignment overcomes the self-selection problem, the assignment policies may result in different types of inmates being assigned to different types of housing. We dealt with this problem by searching for prisons where this was not the case or where the impact of assignment policy could be evaluated independent of housing type.

One feature of prisons that makes them attractive is the fact that the level of crowding that is found in some prisons is much greater than typically found in the free world. In some cases inmates are housed around the clock in units with 50 or more inmates and less than 20 sq ft of space per person. To approximate this level of crowding in a 1,000 sq ft apartment, it would have to contain 50 or more residents. This would certainly violate community safety codes and be an intolerable situation for its residents. Yet these types of conditions are encountered frequently in prisons and jails.

Although prisons have many characteristics that make them attractive to crowding researchers, they are not without drawbacks as research sites. Probably one such drawback that keeps most researchers away is that they are generally unpleasant and depressing places to visit. They tend to be located in out-of-the-way places, and the atmosphere of tension in prisons and the ever-present danger have taken a toll on our nerves on a number of occasions. In the federal prison system, personnel receive early retirement because they are considered to be on dangerous duty. Yet most federal prisons do not approach the level of tension and violence found in state prisons.

The mechanics of research in prisons are also quite different from those required to do research in other more benign environments. A major part of the process is finding suitable research sites. We consulted various sources that list prisons and their characteristics to locate potential sites of interest. We sought prisons that had a broad range of housing types. Prisons that had primarily one type of housing were eliminated. Initially, we focused on prisons within driving distance, but later funds from a variety of sources allowed us to consider sites in the entire United States.

Once we located prisons of interest, we attempted to get more detailed information from the officials at the prisons. This involved telephone interviews and requests for reports and copies of blueprints. Those prisons

that passed this stage were visited to examine the housing in detail, determine the housing assignment policy, and assess the feasibility of conducting research.

There were two major impediments to our research efforts. The initial work was funded by small sums from our university, but many expenses had to be defrayed by the investigators. This situation was not conducive to an all-out effort. The National Science Foundation turned down a grant proposal due in part to our lack of experience in doing this research. Ironically, at that time, no one else had this experience either. After some initial studies, funding was obtained from the National Institute of Justice for a more comprehensive project. Another problem was getting permission to do research in prisons. This turned out to be no problem at all for the federal prison system since we received strong support from Director Norman Carlson and other officials. They seemed quite interested in learning about the importance of housing in adjustment to prison life. Yet, approval at this level was not sufficient. We still had to elicit cooperation from the wardens and personnel at each potential prison site. Although we were often viewed with some skepticism initially, we inevitably received full cooperation and support. Of course, we still had to convince inmates to participate in the study. This turned out to be the easiest task of all. Most of the inmates were more than happy to participate in a project that might lead to an improvement in their living conditions or provide a break in their dull routine.

At the level of state prisons, cooperation was another matter. Although we made valiant efforts to launch research in a number of state systems, our efforts were thwarted at high levels because of the fear that our research findings might be used in a court of law against the system. The federal prison system apparently was not terribly worried about this, since it was part of the judicial agency involved in most of the court actions against the states. Ironically, later we were able to gather data from several state prisons as a result of our involvement as expert witnesses in a wide variety of cases.

We also found a number of jails that had an interesting variety of housing. In contrast to state prison officials, jail officials were most cooperative in allowing us access to their institutions for research. Since legal proceedings against jails because of overcrowding have been relatively few in number, jail administrators may be less concerned about the potentially adverse impact of our work.

When we began our research in prisons, we had very little idea as to what to expect. The literature at that time was rather confusing and inconsistent, and detailed studies of individuals living in crowded housing were nonexistent. Given the adaptive capacities often attributed to humans, it was possible that inmates in crowded prisons would simply adjust to their unpleasant surroundings. Although Freedman (1975) championed this

type of perspective, no one had examined individuals crowded under conditions as extreme as those found in prisons.

A second question that intrigued us was the relative importance of the amount of space and the number of people in determining housing satisfaction and their impact on health. Most studies had not clearly separated these two factors. Crowding usually involved many people in little space. Yet which of these two factors is important? Prison standards and court cases tended to focus primarily on space per inmate in determining adequacy of housing. Having to contend with many people in one's housing unit might be an important factor as well. To shed light on this issue, we tried to find prisons where the number of people in a housing unit and the amount of space were somewhat independent and an assessment of their separate effects was feasible.

We anticipated that inmates should be unhappy about living in crowded quarters. Yet, a demonstration of this simple fact would have little scientific or societal significance. If crowding really was a significant source of discomfort and stress for inmates, it should have an impact on the health and behavior of inmates. To determine this, we decided to obtain information about inmate visits to the medical clinics and assess their behavior and physiological state in various ways (e.g., blood pressure). Some potentially severe effects of crowding on health and inmate adjustment (e.g., natural deaths and violence) may be of relatively low frequency and require information on large numbers of inmates. So whenever possible, we obtained institutional records about levels of crowding and the incidence of mortality, violence, and psychiatric commitments.

In considering the various features of the different types of housing, we wondered to what extent such features as windows, hallway length, degree of visual privacy, availability of recreational or lounge areas, single versus double bunking, and private versus shared toilets were related to housing satisfaction. Several opportunities to examine the impact of such housing characteristics did arise.

We did not begin our work with strong theoretical ideas or inclinations. We felt that theoretical efforts were premature, given the paucity of data. Accordingly, we resolved to have the data lead us in the path of theory development. We did, however, have some vague theoretical biases. It seemed to us that having to deal with others in a limited housing area was likely to be a more significant problem than the amount of space available—space can't "bite," but people can. We also expected that individuals who lived under crowded conditions for an extended length of time would become somewhat tolerant of these conditions and react less negatively. Thus, throughout our research program, we endeavored to assess crowding tolerance independent of other psychological and health-related reactions.

Although our motivation in doing this research was primarily that of

basic empirical science, we were not insensitive to its pragmatic potential. Court cases contesting crowded conditions in prisons were increasing in number, and our findings would prove to have a bearing on these cases and standards for prison design. We did not anticipate the eventual degree of impact. Not only has our work been cited in numerous cases at all levels of the judiciary, but our personal expertise was sought in many of these cases, including the U.S. Supreme Court. The U.S. Justice Department solicited our assistance in a wide variety of cases and funded various projects to gather more evidence. Public attention was drawn to our work by national television, newspapers, and magazines. Our findings have been the basis for system-wide changes in housing standards and will be used in formulating new public health standards for prisons.

The practical fallout from our work is certainly gratifying. Yet, it is felt that the empirical and theoretical fruits of our work are quite significant in themselves. This volume will present the major results of our studies and our theoretical efforts. This work is of potential significance to a wide variety of disciplines—social psychology, sociology, environmental psychology, and criminal justice.

The first few chapters summarize much of the past research on crowding and our previous published results on prison crowding. The subsequent chapters focus on recently completed analyses of our extensive data sets. One chapter focuses on the influence of gender and race on a person's adjustment to crowded conditions, while another deals with the degree to which various background factors influence reactivity to crowded settings. One chapter evaluates the health-related findings of our studies. The last two chapters deal with the theoretical and practical implications of our work.

This book was not intended to be the final word on the topic of prison crowding. Many important questions remain, and the difficulty, danger, and expense of the research will limit progress on this topic. Yet, much has been accomplished since our tentative beginnings fifteen years ago. It is hoped that future research efforts will be able to build on the foundation laid by our work and that of others.

2

Effects of Crowding in General

Concern with the effects of overcrowding has been expressed for many years. Malthus warned about the danger of overpopulation in terms of natural resources in the 1800s. Benjamin Franklin once stated: "There is in short no bound to the prolific nature of plants or animals but what is made by their crowding and interfering with each other's means of subsistence" (Franklin, 1969). Today we are expressing similar concerns (Russell, 1984). Starvation, water shortages, pollution, and "eternal" traffic jams are just a few of the obvious symptoms of population pressures in our world. Social scientists have warned about the dangers of overcrowding (Calhoun, 1970; Ehrlich & Ehrlich, 1970; Zlutnick & Altman, 1972). Crowding has been blamed for a variety of social ills such as deteriorating quality of life in cities, crime, and the breakdown of families (Zlutnick & Altman, 1972). These concerns were further stimulated by Calhoun's (1962) widely publicized studies with rodents showing a variety of deleterious effects of crowding.

Although the commonly held conceptions about crowding may seem reasonable to most laypersons, social scientists have taken a variety of approaches to determine whether these are warranted. For a number of years, those with a sociological bent have examined the influence of density in cities and countries by means of archival studies. Typically, the density of housing and the surrounding neighborhood was related to various measures of pathology such as delinquency, violence, mental health, and mortality. Other scientists studied the impact of crowding on animals in both field and laboratory settings. In the 1970s, laboratory studies of density with humans became popular. More recently, efforts have been directed at assessing human reactions to density in controlled field studies in settings such as college dormitories and prisons. Each of these approaches has its limitations, but they all have been a source of useful information. We will briefly summarize the major findings of the four different areas of study to provide a context for the research on prison crowding.

In discussing the impact of crowding, a major problem one encounters is the variety of ways in which this concept has been defined. Some studies

employ measures of density that focus on the primary living environment (internal density) such as the number of people per room. Other studies focus on density outside the primary living environment (external density) such as the number of apartments per unit and housing units per acre. Another important distinction is based on whether the density variation is primarily spatial or social. An environment could vary in spaciousness while maintaining a constant number of inhabitants (spatial density), or it could vary in the number of inhabitants but not in the amount of space available for each inhabitant (social density). Another common distinction is made between density as a physical condition and crowding as the subjective experience of density-related discomfort (Stokols, 1972). The term overcrowding is also often used in reference to density problems, but the reference point for this term seems to be the capacity of a setting. If the number of individuals exceeds capacity, it is deemed to be overcrowded. However, neither of these terms are very useful from a scientific standpoint in that they do not clearly specify those conditions under which deleterious effects will occur. A setting may exceed capacity and not evidence density-related effects, while such effects might be observed in environments that are below capacity. Stokols (1972) suggested that the term density be used to describe objective conditions of spatial constriction. The term crowding was to be reserved for those conditions in which an individual experienced limitations of space. We presumed that not all forms of density would have similar effects and that a variety of personal and situational factors would influence the impact of density. These assumptions have been amply supported by the subsequent literature and the data reported here. In this book, the term crowding will be used generically to refer to a wide variety of conditions of physical and social density because of its common usage, without the assumption that these conditions inevitably produce pathology.

Crowding Studies with Animals

Some of the most dramatic findings on crowding have come from animal studies. One frequently cited study by Christian (1963) examined deer on an island that suffered a high mortality rate after experiencing increased density levels. Autopsies revealed enlarged adrenal glands, one common result of stress (Selye, 1956). Calhoun's studies with rodents revealed similar evidence of stress-related effects of overcrowding. In one of his early studies, he noted that rodents stabilize their population at much lower levels than are supportable by the environment (Calhoun, 1962). In a later study, he found that a mouse colony that was allowed unlimited growth and adequate resources declined in population after reaching a level of 2,200 in an area designed for 6,000 or more. The deterioration of maternal

behavior and the high rates of infant mortality led to complete extinction of the colony (Calhoun, 1973).

Similar results have been observed in Calhoun's (1962) experimental laboratory studies. Eighty rats were housed in four connected enclosures in a 10 by 14 ft room. The population was kept at 80 by removing infants who survived weaning. Because of the design of access among the pens, most of the rat population was concentrated in two central pens. The end pens were dominated by a dominant male and his "harem" of females. While those rats in the end pens remained healthy and normal in behavior, those in the central pens began to exhibit various forms of pathology. Males exhibited disturbances in sexual behavior (e.g., hypersexuality), aggressive behavior, withdrawal, and cannibalism. Females' reproductive capacity and maternal behavior deteriorated, which led to low birth survival rates. Calhoun (1962) attributed these various effects to the strain of having to deal with large numbers of rats in a confined space.

The studies by Christian and Calhoun are the best known, but many other studies have found similar evidence of crowding-induced pathology. Susceptibility to infection (Brayton & Brain, 1974), organ damage (Myers, Hale, Mykutowycz, & Hughes, 1971), and increased blood pressure (Henry, Stephens, Axelrod, & Mueller, 1971) have been observed under conditions of high density.

Although the animal studies are quite consistent in showing stress-related effects of high levels of density, many have questioned the relevance of these results for humans. Certainly these findings provide a baseline by which to judge human data, and they may be a basis for furthering theoretical development. However, it is often argued that the unique adaptive capacities of humans make them immune from many of the dramatic effects observed in animal studies (Freedman, 1979). Obviously, this is an empirical question which has been the subject of a large number of studies.

Correlational Studies with Humans

It is often presumed that crowded cities present their residents with many annoyances not associated with less crowded areas. Crowded cities may be characterized by a high density of people in the streets and neighborhoods, noise, traffic jams, pollution, and crime as well as limited space in dwelling units. Sociological studies have attempted to tap these features indirectly in various density measures such as people per census tract, people per acre, people per building, buildings per acre, and individuals per unit. It was presumed that these measures would tap the degree of crowding-related strain experienced by residents and these in turn would be associated with increased levels of pathology such as hospital admission, mortality, and

juvenile delinquency. Although some studies failed to take into account differences in income and socioeconomic levels, for the past 20 years most of the studies have attempted to control for such factors statistically.

A number of the sociological studies have found evidence for a density-pathology relationship for city residents. Schmitt (1966) found relationships between density and death rate, tuberculosis, mental hospital admissions, and juvenile delinquency in Honolulu. Booth and Welch (1973) found density to be related to a variety of different crimes in data from 65 countries. Galle and co-workers (1972) reported relationships between density and mortality, fertility, mental hospital admissions, and juvenile delinquency in Chicago. A study in the Netherlands found evidence for density-related health problems such as mortality and heart disease (Levy & Herzog, 1974), while a study in Germany reported a relationship between density and mortality (Manton & Myers, 1977).

The results of these studies seem to provide strong evidence that urban density may have a variety of negative effects. However, there are a number of studies with results that do not support such a strong conclusion. A study by Winsborough (1965) in Chicago found high levels of density to be related to low levels of mortality, tuberculosis, and public assistance. Freedman and colleagues (1975) found density to be related only to mental hospital terminations. Studies by Levy and Herzog (1974), Cholden and Roneck (1975), and Mitchell (1971) provide similar evidence of either no relationship between density and negative effects, or even positive effects. Some studies have found living alone to be related to increases in usage of stress-reducing drugs, suicides, and admissions to mental hospitals (Galle et al., 1972; Levy & Herzog, 1974; Collette & Webb, 1975).

Thus the evidence for a density-pathology relationship in urban settings is rather mixed. Furthermore, there are a number of problems inherent in the correlational approach employed in these studies (cf. Fischer, Baldassare, & Ofshe, 1975), not the least of which is the uncertainty as to the causal nature of the relationships observed. Even when all of the obvious socioeconomic factors are controlled statistically, many other factors could account for the differences between low and high density areas. Individuals who gravitate toward dense urban areas may have physical or mental health problems, antisocial tendencies, or they may be forced to live there by economic or social pressures. Noise and pollution in crowded areas may account for effects attributed to density, and high crime rates in high density areas may be a significant source of stress in itself. Finally, the various density measures employed may not accurately reflect the degree of crowding experienced by residents. Familiarity with residents, traffic flow, and the arrangement of both internal and external space are likely to influence the experiences.

Given these problems with the approach and the inconsistency of the results, it is not surprising that researchers have increasingly turned to other approaches such as experiments and field studies.