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Disorder and Decline: The State of Research

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Abstract

Objectives: A significant and diverse body of research has built up during the 30+ years since the publication of Wilson and Kelling's seminal "broken windows" article. They affected research, policy, and politics around the world. This article summarizes some of the main strands of research that have since sprung up around these and other claims. *Results:* This article discusses approaches to conceptualizing and measuring disorder and weighs the strengths and weaknesses of various measurement modalities. It summarizes what this research has revealed about the apparent causes and effects of disorder. *Conclusion:* Research documents that disorder has broad implications for public health and safety and that it is deeply implicated in the dynamics of neighborhood stability and change. Further, there is evidence that—directly and via its impact on other features of community life— disorder stimulates conventional crime.

Keywords

communities and crime, social disorganization, criminological theory, urban crime, fear of crime

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A significant and diverse body of research has built up during the 30+ years since the publication of Wilson and Kelling's (1982) seminal "broken windows" article. They affected research, policy, and politics around the world. They viewed disorder as a major engine of neighborhood change, one that directly undermined the ability of communities to control their environment and thus encouraged crime by creating opportunities for homegrown crime and attracting troublemakers from the outside. This essay summarizes some of the main strands of research that have since sprung up around these and other claims, including the growing role that disorder plays in areas outside the field of criminology. It discusses approaches to conceptualizing and measuring disorder and weighs the strengths and weaknesses of various measurement modalities. It summarizes what this research has revealed about the apparent causes and effects of disorder. It concludes that disorder has broad implications for public health and safety and that it is deeply implicated in the dynamics of neighborhood stability and change. Further, there is evidence that—directly and via its impact on other features of community life—disorder stimulates conventional crime.

Defining Disorder

This essay highlights two key definitional conclusions. First, the concept of disorder has many meanings. Second, these meanings depend on the purpose of any particular piece of research, and the role disorder is to play in issues of policy concern. Sampson and Raudenbush observed, "By social disorder, observers commonly mean behavior involving strangers and considered potentially threatening . . . ." They also note that physical disorder "usually refers to the deterioration of the urban landscape" (Sampson and Raudenbush 1999:603). Earlier, Skogan wrote that disorder violates norms that "prescribe how people should behave in relation to their neighbors or while passing through a community" (Skogan 1990:4). He noted that these norms constituted an untidy list of rules, because they were uncodified, large in number and amorphously bounded. However, in Britain, antisocial behavior was codified when it became a quasi-criminal offense in 1998. The overarching rationale that tied together the list of disorders presented in a Home Office circular was that they involved "acting in a manner which caused or was likely to cause harassment, alarm or distress to one or more persons not of the same household" (Home Office 2004:3). The list of proscribed behaviors included 65 activities classified in 16 subcategories (for more on this, see subsequently).

Table 1. Indicators of Social Disorder.

Squeegee men (auto windshield cleaners) looking for tips	Threatening telephone calls
Dumpster divers in search of dinner	Excessive noise
Street preachers with bullhorns	Panhandling
"Urban campers" living in parks under cardboard tents	Loitering
People with a "street lifestyle"; seemingly homeless	Flash mobs
Sexually oriented establishments	Open gambling
Street harassment/cat-calling women	Truant youth
Recreational violence in pubs and clubs	Curfew violations
Bicycling/skateboarding in pedestrian areas	Fighting or arguing
Running over the tops of cars, and thru traffic	Street drug sales
Congregations of idle men	Street prostitution
Bands of youths in apparently gang-related apparel	Public drinking
Density of liquor stores and bars	Public urination
Sleeping in the open under hot-air vents/layers of cardboard	Apparently mentally ill people
Additional British Antisocial Behaviors	
Draining car radiators and oil pans at the kerb	False fire alarms
Nuisance neighbors	Letting down tires
Yobbish behavior	Setting vehicles on fire
Sending nasty/offensive letters	Indecent exposure
Games in restricted/inappropriate areas	Shouting and swearing
Menacing gestures	Voyeurism
	Following people

Note. Examples of additional British antisocial behaviors are listed in last row of the table, see text.

A result of the untidiness that characterizes research on disorder is that it encompasses a very wide range of phenomena. The list of specific events and conditions that have been used to measure the extent of disorder is a long one. A conventional distinction is between social and physical disorder. By and large, physical disorders present relatively enduring visible conditions, while many social disorders are brief, if sometimes frequent, incidents or events. Table 1 presents an inventory of activities that researchers have cast in the social disorder category. Table 1 also includes a selection of additional disorders on the British list, which also includes many of the above-the-line activities listed there. Gau and Pratt (2010) observed that many forms of disorder are also crimes and that can be seen in Table 1. However, the list of researched activities presented there also includes Constitutionally protected behavior (street preaching), regulated activities that might be in line with code (density of liquor

Table 2. Indicators of Physical Disorder.

Burned, abandoned, or boarded-up buildings	Litter and trash
Lack of exterior maintenance; unkept yards	Flyposting
Abandoned, stripped, and burned-out cars	Fly dumping
Collapsing garages	Rats in the alley
Broken streetlights	Packs of wild dogs
Junk-filled and unmown vacant lots	Broken steps
Overgrown trees and shrubs	Condoms on sidewalk
Garbage strewn alleys	Needles/syringes on sidewalk
Alcohol and tobacco advertising	Gang graffiti; graffiti painted over
Cigarettes or cigars in the street or gutter	Political message graffiti
Empty beer bottles visible in the street	Broken windows
Deteriorated recreational facilities	Dog excrement
Vandalism, criminal damage to property	Poor lighting

stores), actions that might or might not constitute breaches of public order (fighting), and others that are usually private matters (arguing and sending nasty letters). Other items, in Table 1, are everyday activities that "offenders" might not recognize as legally sanctionable at all (skateboarding and working on their cars). Also prominent on the list are a number of activities commonly associated with homelessness (panhandling, sleeping rough, and searching dumpsters for food) which are as lawful as the state of being homeless itself.

Table 2 7lists a number of indicators used in research on physical disorder. Some items on this list probably violate civil health and safety codes (dumping), and others could constitute misdemeanors (graffiti and vandalism). However, many are seemingly not subject to any regulatory regime. Instead, they could be the consequence of negligence (unmown lots), underinvestment (poor maintenance), economic collapse (abandoned buildings), and a lack of regard for others (litter and dog excrement). Sampson and Raudenbush (1999) counted alcohol and tobacco ads along the streets of Chicago as disorder, even though commercial advertising is protected speech.

It is of interest that a number of disorders on both lists are not by any practical standard the responsibility of the police or the criminal justice system. Several of the physical disorders listed in Table 2 reflect nonfeasance on the part of municipal agencies responsible for routinely dealing with them. These include the presence of rats, wild dogs, loose garbage in alleyways, broken streetlights, and accumulated litter. Municipal ordinances may provide remedies for abandoned or excessively dilapidated buildings and other unsafe conditions. Private legal action might provide

relief from some of the remainder (excessive noise and harassment). Other disorders provide police with opportunities to respond to public concern by imposing order (curfew and truancy violations, public drinking). It is often noted that criminal disorders are generally relatively minor in seriousness. This is largely true for the lists in Tables 1 and 2, and this may be cause for the criminal justice system to look past even those falling in their jurisdiction. Others involve protected rights that are immune from infringement. After revision in 2014, action on many disorders in Britain is to be initiated in response to repeated public complaints; these are called "The Community Trigger." Their resolution is to involve local councils, health agencies, and public housing providers as well as the police. Actual low-level crimes become a police responsibility, but when appropriate they are encouraged to use their authority to facilitate mediation, agreed-upon "behavior contracts," written apologies and voluntary community service in lieu of prosecution, and then to fall back on formal cautions and court-imposed civil orders (Home Office 2014). The diversity of issues that are subsumed under the concept "disorder" ensures that there is no one-size-fits-all response, including something labeled "broken windows policing." Rather, addressing disorder requires a box of policy tools and the tailored, problem-solving application of each to a particular problem.

It is also apparent that careful language is required in describing this research, because disorder has been taken to mean many things. For example, Ross and Mirowsky (1999) examined the distinguishing measurement properties of survey measures of the extent of "disorder" and "decay." In this study, the former included items assessing the perceived extent of crime, fear of crime, and police effectiveness, along with "people watching out." In Body-Gendrot's (2014) review of research on "public disorders," she examines riots, hooligan gangs, radical groups, occupy movements, and skinhead rituals. She views these coordinated group efforts as harbingers of social change contributing to institutional disruption and perhaps regime change. Both lists are disorders that are not included among those presented in Tables 1 and 2.

Operationalizing Disorder

Given this diversity of possible content, how should the concept of disorder be operationalized? As Gau and Pratt (2010) point out, this will vary; it should be determined by the purposes of each study, the setting in which it is being conducted, and the policy issues that might be addressed.

Research concepts are not right or wrong; rather, they are either useful or not useful.

Evaluation research projects focus on the specific programs that are being scrutinized and the resources that communities have on hand to address local problems. For example, Chicago's community policing program was designed from the beginning to coordinate the delivery of a broad spectrum of city services (Skogan 2006). These services primarily addressed issues falling in the physical disorder category. As a result of this emphasis, evaluation surveys conducted there included questions about abandoned cars, deteriorating buildings, vacant lots filled with trash and junk, rats running free in the alleys, and graffiti. These were all problems that the program envisioned tackling through coordinated service delivery. Of course, the city's community policing program focused on traditional crime problems as well, but—in line with research—its leaders believed that visible neighborhood decay also undermined community morale and was an important source of fear of crime. They also knew that neighborhood residents would come to community policing meetings armed with a long list of concerns and that civilians would have no patience with the response that their issues were "not police problems." So they literally took on broken windows (Skogan 2008).

Disorder selection can be theory driven, and similar measures have been interpreted differently in differing theoretical contexts. Public health studies have characterized neighborhood disorder as an important form of psychosocial stress that has consequences even at the cellular level. At the biological level, neighborhood physical disorder (measured via an inexpensive observational checklist) proved three times more important than concentrated disadvantage, or any personal characteristic, in predicting salivary telomere length. This is a biological stress marker that researchers extract from subjects' DNA (Theall et al. 2013). Other health studies have interpreted disorder as flagging normlessness. In a study of community-level determinants of gonorrhea infections, Cohen et al. (2000) theorized that physical disorders " . . . may be a signal that there are no rules and that no one cares" and that "there are no traditional standards that might be tarnished. An uncared-for environment may indicate that self-care is not a priority" (Cohen et al. 2000:234). This study combined health records on gonorrhea infection with observational measures of disorder gathered by walking the study areas counting graffiti, abandoned cars, piles of garbage in the alleys, and buildings with structural damage. In a multivariate model, their measure of observed disorder was the strongest predictor of neighborhood gonorrhea rates, outweighing the impact of measures of

income, education, unemployment, alcohol sales, and marriage rates. Studies have also viewed disorderly environments as an impediment to freely enjoying public spaces. They have examined links between disorder (and fear of crime) and reduced physical activity, less self-reported outdoor exercise (Branas et al. 2011), and avoiding walking to school.

Disorder Mechanisms

Disorder can be a dependent or independent variable in a particular project. For policy, the questions of where disorder is concentrated and why it is there can be of great interest. Policy interest is frequently disorder-specific, as in the case of building dilapidation and abandonment. These became significant national issues in the wake of the Great Recession of 2007 and the attendant collapse of the housing market (Raleigh and Galster 2014). In the housing sector, Owens (2013) examined the impact of demolishing many thousands of Chicago public housing units on perceptions of disorder. In a two-wave longitudinal survey, reports of disorderly conditions dropped distinctively in the teardown areas, in contrast to those which had no public housing and other areas where public housing remained intact. Further, the rate at which voucher-holding former residents of public housing moved into other areas did not increase the perceived level of disorder among residents of destination tracts. Surveys of the displaced themselves found they reported less disorder in the places they moved to (Popkin and Price 2010). These results were broadly similar to those of a parallel study conducted in Boston (Owens 2013).

Studies of fear of crime incorporate disorder among the independent variables. These have included perceptions of youths hanging about and public drinking. Brunton-Smith and Sturgis (2011) examined the impact of disorder on fear using an observational measure of disorder. Interviewers rated the extent of litter, vandalism, graffiti, and run-down property in the vicinity of sample addresses in a survey they were conducting. These visual indicators of disorder had about the same impact on fear as the extent of police recorded crime in the area. Female respondents were more affected by disorder than were males. Research on the most appropriate causal ordering between fear and disorder—does disorder cause fear by signaling risk or does fear cause people to see more risk in disorderly situations in their environment?—finds the best model is that disorder drives fear; see Brunton-Smith (2011) for a three-wave cross-lagged panel analysis of the causal order issue. In another study in which disorder was an independent variable, an evaluation of a project that cleared debris

and planted grass and trees on 4,436 vacant lots in Philadelphia compared cleaned-up areas with matched vacant lots in their "natural" (i.e., largely uncared-for and trash-strewn) condition. This quasi experiment found that gun-related assaults declined significantly (measured before and after, relative to control areas) in communities around lots that had been greened. Recorded vandalism also significantly declined, and residents interviewed in a subsample of study areas around newly converted green spaces reported feeling less stress and getting more exercise. The authors saw this is a test of "the broken windows hypothesis" (Branas et al. 2011:7).

There has been relatively little research on the *perpetrators* of various disorders, but it suggests that they are not always casual mischief makers. Taylor, Marais, and Cottman (2011) gathered the offending histories of hundreds of persons arrested for graffiti in Western Australia. They found that the majority were recidivist offenders involved in multiple crimes, most prominently burglary (among younger arrestees) and violent and drug offenses (among older offenders). About 25 percent of them could be classified as "prolific," and more could be considered "sporadic" offenders along a spectrum of offenses. Importantly for the broken windows thesis, there has been no research directly addressing the Wilson and Kelling's claim regarding offender mobility, that disorderly neighborhoods attract outside predators that are drawn there because they offer unchecked opportunities for crime. Routine activity theory stresses the importance of "capable guardians" in providing surveillance and even intervening to thwart crime (Felson and Boba 2010), and Wilson and Kelling claimed that disorder undermined neighborhood capacity in this regard. Subsequent research has documented that disorder could contribute to declining guardianship through its negative effects on going out after dark, neighboring, and participation in neighborhood organizations (see subsequently). However, the literature on offender mobility seems to have overlooked the claim that disorderly neighborhoods attract perpetrators and often reports instead that most tend to stay close to areas where they spend most of their time (Johnson and Summers 2014). Any effects of disorder on potential offenders may be strictly local.

Finally, interest in disorder can be driven by politics and ideology. In broad strokes, Beckett and Herbert (2008) attribute policymakers' contemporary interest in disorder reduction to the ascendance of neoliberal global capitalism and the restructuring of urban political economies around the world. The resulting competition between cities to create the most hospitable environment for corporate headquartering, luxury living and high-end tourism has led to the intensification of urban social control efforts aimed

at keeping center-city public spaces crime and nuisance free. Policy in turn can drive, or make use of, social measurement. Government-sponsored reports used the British Crime Survey to track individual social and physical disorders that were on the list of antisocial behaviors, including abandoned cars, noisy neighbors, drunkenness, drug use, youth nuisance, litter, vandalism, and graffiti (see, e.g., Ipsos/MORI 2007). To be fair, these items are used throughout the world to assess neighborhood conditions, and a few were included in earlier versions of the crime survey. Also, while the results of the survey were used to highlight reductions in disorder, the findings of the British Crime Survey did not always trend in ways that made government policy look effective (Tonry and Bildsten 2011). Interestingly (and perhaps contrary to the Beckett and Herbert view), antisocial behavior reduction measures were put in place by the New Labor party in Britain, who represent low-income communities that are often victims of these behaviors.

Data Sources

A key feature of disorder research is the wide variety of data sources to which researchers may turn in order to measure it. Each measurement modality is fallible, introducing error. Each carries a different mix of costs and benefits. Some work better for particular disorders, while other disorders seem to be robustly represented regardless of method. Some data are very cheap; others can be very expensive. This section briefly discusses some features of each measurement modality, then moves to a discussion of the strengths and weaknesses of each, in comparative perspective.

Complaints to the police via telephone hotlines or emergency numbers provide a useful window into the extent and distribution of disorder. Of course, these complaints are filtered by the view that a problem is a public matter, important enough to warrant making a complaint and suitable for involving the police. Problems that pass those hurdles are "things about which something needs to be done," which was Egon Bittner's (1967:703) definition of the police mandate. A recent study in Reno, Nevada, measured overtime trends in disorder using complaints regarding "intoxicated, unwanted, or undesirable persons, graffiti, abandoned vehicles, litter, illegal dumping, and suspicious persons, vehicles, and circumstances" (Boggess and Maskaly 2014:173). They concluded that disorder led to subsequent crime, and at the same time crime led (more modestly) to subsequent disorder. Call data stream in 24 hours a day, and they can include usefully specific location information and a time-and-date stamp.

Unlike any others, these data can be used to examine (or control for) seasonal and day–night differences in the distribution of disorder. They are useful for evaluating programs because they are independent of whether police decide an actionable offense has taken place, and they can accommodate calculating season and time trends when comparing specific program and comparison areas. Finally, they are cheap, spilling as they do out of routinely updated databases.

In survey interviews, neighborhood respondents are asked to rate the extent or seriousness of a list of events and conditions on a disorder list. Surveys draw upon the awareness of local knowledgeables, people who live in the area, and rely on them as observers of the local scene. Survey responses usually display a great deal of consistency at the individual and neighborhood levels. Respondents who live in the same neighborhood usually give relatively consistent high or low ratings to the problems that are described to them, indicating that they have experienced them (or not) in similar fashion. These ratings are stable over time (Sampson 2012). Ratings can vary widely across communities, yielding a great deal of variance to be explained (this research is summarized in Skogan 2012). Survey measures of social disorder in particular have a relatively high between-neighborhood, as opposed to between-individuals within-neighborhood, component (Sampson and Raudenbush 1999). Of course, even people living in the same area do not always agree on conditions there. Research on why views of the same area differ finds that a lot of it is due to differences in exposure (see Hipp 2010). It is not older people who are less tolerant of deviance and more often unsettled by things going on around them; disorder is more frequently reported by younger respondents, who are more exposed than their neighbors, and by female respondents, who also report more crime and fear (Sampson and Raudenbush 2004). Hipp (2010) found the independent effects of income and education on perceptions of disorder to be small relative to shared context, but that Whites perceive more disorder than do Hispanics or African Americans living in the same small neighborhoods (this is also reported by Wickes et al. 2013). A feature of surveys is that reports of disorderly conditions are not dispassionate; they can incorporate meanings that observers attach to them, which are in turn affected by neighborhood context.

Surveys can be costly. Large numbers of samples are required to produce neighborhood-level data sets with appropriate statistical power. The best estimates of the extent of disorder require a focus on very small areas, for many disorders are firmly fixed in place (rather than moving around, like a neighborhood burglar), and their impact is quite local. Hipp (2007)

found that decreasing the size of the area being referenced increased the correspondence between survey and independent measures of neighborhood disorder. The reports of respondents reporting on smaller areas were less influenced by systematic error due to personal as opposed to contextual factors.

Administrative records can also yield data on selected disorders. One important records category is licensing. For example, cities keep records on (and collect special taxes from) establishments that sell alcohol, or they register them as "places of amusement" when (for another example) performers dance unclothed. Fire fighters keep track of false alarms. Combinations of public complaints and routine inspections generate reports on rat infestation, building code violations, and vacant and abandoned buildings, all measures utilized in disorder research. These data are generally easy to access and can be assembled retrospectively and over a long period of time. The public health studies discussed earlier indicate how indicators of the hypothesized health consequences of disorder can be extracted from administrative records, yielding valuable insights into the epidemiology of significant social problems.

Systematic observation is an appealing measurement tool. The most impressive observational study to date was reported by Raudenbush and Sampson (1999) for Chicago. For their project, researchers drove vehicles loaded with pairs of video recorders documenting activities and the physical features of both sides of a large sample of city blocks, at random time points during the day and early evening. Observers sitting next to the cameras also recorded their observations and judgments, based on what they could see and interpret at the moment. Later, all of this material was reviewed and coded by teams of independent raters. This study assessed the level and distribution of almost two dozen physical disorders, plus social disorders that included adults loitering or congregating, public drinking, people fighting or arguing in a hostile manner, visible drug sales, and street prostitution.

A limitation of the observation procedures employed in the Chicago project is that they were labor-intensive and very costly. Lower tech, less expensive checklist measures that can be completed while walking or driving through a community are much more widely employed to assess disorder at the block face or neighborhood level. In fact, outside of criminology they are the norm for measuring disorder. As noted previously, studies have trained interviewers to make observations from the doorsteps of sample households while they were conducting surveys. This was recommended by Sampson, Morenoff, and Gannon-Rowley (2002) as a cost-effective way to combine survey and observational data collection. Reliable and validated

observational checklists for measuring disorder, such as the Neighborhood Inventory for Environmental Typology, have wide currency in the public health field. For example, a neighborhood disorder measure generated by this form was a strong predictor of variations in children taking risky strategies in a computer-based simulation involving popping balloons (Furr-Holden et al. 2012). The gonorrhea project discussed previously (Cohen et al. 2000) observed the extent of major structural damage to local buildings, and block faces evidencing graffiti, accumulated garbage, and abandoned vehicles. The Caughy, O'Campo, and Patterson (2001) observational checklist calls for two-person teams to walk the streets counting graffiti, vacant and burned-out buildings, litter, and poorly maintained buildings and grounds. They also observe the presence of territorial markers such as neighborhood name signs, security bars and fences, "no trespassing" warnings, and children playing, and they note when residents react to their presence. Geographic information system coordinates can be attached to records (and photos) of each individually observed disorder, facilitating later mapping, and data analysis (Doran and Lees 2005). Checklist observational counts are proven to have acceptable interobserver reliabilities, and they demonstrate substantial between-neighborhood variance (Furr-Holden et al. 2010).

Strengths and Weaknesses of Disorder Measures

As noted previously, each of these approaches to measuring disorder is fallible, and the best method is the best a project can afford. Table 3 summarizes the principle strengths and weaknesses of the four data sources considered here. It suggests that there can be *trade-offs between scale and precision*. Complaints data or administrative records, for example, may not exactly fit the researcher's conceptual categories, but their high volume and continuous flow come easily, and they can be used to characterize many small areas and span seasons. Surveys can yield tailored measures of theoretical import, but usually the budget limits the number of areas that can be included. Data sources also vary in the *width of the temporal window* they provide on neighborhood conditions. Complaint registers and administrative records can provide data for long periods of time and for specific time segments, and they may support time-series statistical analyses that can be important in evaluating interventions. They yield data on nighttime events when systematic observation is impractical. *Retrospectivity* is a very important feature of data as well. Researchers may not know that they need data of a sort until well into a project, and the ability to extract them from the past

Table 3. Strengths and Weaknesses of Selected Measurement Modalities.

	Positives/Strengths	Negatives/Weaknesses
Complaints via 911 or hotlines	Continuous data stream; can smooth/de-season $24 \times 7 \times 365$ coverage Retrospective; cheap Specific locations, times, dates High volume allows small area/ overtime data	Callers must think relevant to police Callers think police could help Calling filtered by views of police Call based on expectation of response Must fit into call-system categories
Systematic observation	Intersubjectively reliable Vary a great deal across communities Can be relatively cheap; student labor Conditions can be photographed, geo-referenced	Limited to daylight hours Seasonal data collection widow Some events no public observables Events can be infrequent Can be observer safety considerations
Resident surveys	Knowledgeable observers Measures average replies of many observers High internal consistency Include unobservable and unreported issues Yields measures of explanatory variables	Expensive; not available retrospectively Should focus on very small areas May need many areas Yields vague locations; no times or dates Very little (to date) on perpetrators
Administrative records	Cheap, continuous, retrospective High volume allows small area/ overtime data Specific locations, dates, problems, and costs Can track follow-ups, problem resolution	Complaints requires public motivation Must fit into agency categories

out of administrative and complaints databases can be handy. This also means that, while policymakers may have to wait awhile for post-intervention data points to accumulate in order to evaluate a program, pre-intervention measures may be on hand already. Surveys and observations, on the other hand,

reflect conditions only during a finite period, and have no retrospectivity. Further, some data sources can be *more theory rich* than others. Surveys (and to a lesser extent, observation) have the very important advantage of yielding measures of a host of theory-relevant variables, to link disorder and other dependent variables. Survey respondents can tell us otherwise unobservable things, such as whether they want to move out of the neighborhood or if they have worked with their neighbors to address local problems. Finally, there are *cost* implications everywhere in Table 3. Cheaper data generally provide a looser fit with our theoretical constructs, but they lend themselves to overtime, retrospective, and many neighborhood studies. Surveys and observations cost more, especially as the number of communities that need to be characterized mounts.

Methodological work on the properties of disorder measures has been confined to survey and observational projects. A recurring question in the survey methods literature is whether disorder indicators measure something different from conventional crime. This has been posed as a discriminant validity question, and typically the test has been whether conventional crime and disorder questions load on separate factors (Armstrong and Katz 2010; Gau and Pratt 2008; Worrall 2006). The results have been mixed. Physical decay measures typically form distinct clusters, while items addressing social disorder sometimes evidence overlap with measures of conventional crime, and sometimes do not. Gau and Pratt (2010) addressed the issue of whether survey measures of neighborhood crime and disorder are differentiated enough to talk about them separately, or whether they are both just subcomponents of a larger condition of concentrated disadvantage. They did so using a two-wave survey that enabled them to assess *changes* in assessments of crime and disorder overtime. In the first wave, they had found scales measuring perceived crime and disorder to be distinct, if very highly correlated (Gau and Pratt 2008). Based on the change data, they found that respondents initially living in orderly neighborhoods did not differentiate between disorder and crime and that the two measures rose and fell together. On the other hand, respondents initially reporting above average disorder did differentiate between crime and disorder at wave 2. In other words, beyond a threshold tipping point, residents began making finer distinctions among the problems facing their communities (Gau and Pratt 2010).

In addition, many of the studies cited here document in one way or another that disorder is linked to outcome measures of interest *independently* of the effects of crime, as measured by competing survey questions and (increasingly) official measures of violent crime and perceptions of

local conventional crime. Recall the Brunton-Smith and Sturgis (2011) finding discussed previously, that observer measured disorder had about the same impact on respondents' fear as the extent of police recorded crime in their area. Observational studies in the health domain have also controlled for recorded crime, with the same result. These are also tests of the discriminant validity of the measures. Further, a few studies have gathered both survey and observational measures of disorder on the same blocks. These are few in number because they are expensive to conduct, but they have shown reasonable levels of overlap between the two approaches (the evidence is cited in Brunton-Smith and Sturgis 2011).

The Correlates and Consequences of Disorder

Disorder is a frequent topic of research because it has demonstrated broad-ranging consequences for individuals, families, and communities. Research in the health domain provides many examples of the role of disorder in exacerbating social problems. For example, disorder has been shown to stimulate unhealthy behavior, including risky sex (Cohen et al. 2000). It has been linked to poor mental health (Geis and Ross 1998; Ross 2011), heavy drinking (Hill and Angel 2005), obesity (Branas et al. 2011; Burdette, Wadden, and Whitaker 2006), and bad physical health (Ross and Mirowsky 2001).

In domains outside of residential neighborhoods, school characteristics, and policies (including discipline) affect the extent of in-school disorder (Cook, Gottfredson, and Na 2010). When students perceive the neighborhood surrounding their school as disorderly, they fear victimization at school. Inside schools, gangs and bullying were the most important factors (May and Runaway 2000). Disorder in turn incites fear among students and erodes school attendance (Mijanovich and Weitzman 2003). Nonresidential land use (Sampson and Raudenbush 1999) and commercial uses (Wilcox et al. 2004) encourage higher levels of disorder. In turn, business uses stimulate some forms of crime (Wilcox et al. 2004).

In residential areas, disorder may attract and encourage victimizing crime. This contention, which lies at the heart of the broken windows thesis, may be the least well-documented claim in the literature. Ironically, one reason for this is that research rarely identifies high- disorder but low-crime neighborhoods, or their opposites. The two go together very strongly and share many of the same social and economic correlates, including poverty and racial exclusion. It was this close association that led some to question whether they were distinguishable phenomena. Two

bodies of research address the question of the relationship between disorder and conventional crime.

The first set of studies provide inferential evidence regarding the crime–disorder link. Almost 80 years of research have documented the relationship between neighborhood factors and crime. These in turn are undermined by social and physical disorder. Disorder is widely cited as undercutting natural processes of informal social control, by encouraging disengagement from community life. For example, Markowitz et al. (2001) demonstrated that disorder, fear, and social cohesion are reciprocally related, locked in a feedback loop via that communities potentially can spiral out of control. Other research indicates that disorder erodes house prices and discourages investment, and it undermines satisfaction with neighborhood life and triggers plans to move away (Hipp 2009). A study of adolescents found that disorder weakened their attachment to family, decreased church and school attendance, and encouraged more association with drug-using peers (Jang and Johnson 2001). As noted earlier, many studies have documented a strong link between disorder and fear of crime, in places as diverse as Chicago (Skogan 2006) and Sweden (Mellgren, Pauwels, and Levander 2010). Another very large body of research then documents that fear of crime has an independent, destabilizing effect on neighborhoods. Brunton-Smith, Jackson, and Sutherland (2014) report that disorder has a direct effect on fear of crime in addition to its effects on the strength of informal social control and collective efficacy, both of which it independently undermined. The relationship between disorder and collective efficacy has not been as extensively examined, but net of other factors, collective efficacy is higher in low-disorder communities (Sampson 2012). Steenbeek and Hipp (2011) assembled 10 years of neighborhood data for a sophisticated panel analysis of community stability and change. They concluded:

> [T]he results suggest a cyclical model in which neighborhoods have relatively stable levels of disorder overtime, and the processes that lead to disorderly neighborhoods are difficult to turn around. Neighborhoods with high levels of disorder cause more people to move out, and higher residential instability leads to a lower percentage of people taking action to improve the livability and safety of the neighborhood. Neighborhood disorder thus has cumulative effects over and above the direct effect on residential instability by reinforcing itself via a weakening of community processes of social control. (Steenbeek and Hipp 2011:864)

A second set of studies examine the direct relationship between disorder and crime. This research has grown in sophistication and the depth of the data on which it can draw. Skogan (1990) presented simple path diagrams that controlled for neighborhood structural characteristics for 40 neighborhoods in a number of cities. He found linkages consistent with a disorder–causes–crime model, as well as evidence that disorder undercut neighborhood satisfaction and encouraged people to move away. A few years later, Rountree, Land, and Miethe (1994) reported a strong contextual (level 2) effect of neighborhood disorder on risk of violent victimization and burglary, using a one-wave survey of Seattle. This was one of the first applications of multilevel modeling to this issue. Almost a decade later, Markowitz et al. (2001) used three repeated surveys spaced four years apart in several hundred neighborhoods to tease out the reciprocal causal ordering of disorder, fear of crime, neighborhood social cohesion, and burglary. As noted earlier, they found that disorder affected burglary through its impact on fear and cohesion, plus a feedback loop via which this diminished cohesion encouraged further disorder. The findings of overtime studies are not always consistent. Taylor (2001) found that earlier observed block-level disorder predicted only some types of violent crime years later and then only weakly. However, it did predict later fear of crime and a desire to move out of the neighborhood. More research is required on this issue, and it is apparent that overtime neighborhood panel studies would provide the most compelling evidence concerning the crime-disorder nexus.

Conclusion

Disorder research has grown to encompass a broad variety of phenomena and has made use of a diverse collection of sample surveys, citizen complaints, administrative records, and observations in the field in order to assess the distribution of disorder across neighborhoods. There is broad agreement regarding the findings of much of this research, across method, place, and time. The list of reasons to be concerned about disorder is long and broad enough to justify paying serious attention to it, even as there remain unresolved questions. Disorder has implications for human stress, health, and public behavior. Working backward from such concerns led researchers to expand the range of disorder research to include conditions and events distant from the criminal process. Further, disorder is deeply implicated in the dynamics of neighborhood stability and change. Disorder, independently but always in tandem with conventional crime, plays

a role in undermining the stability of urban neighborhoods, undercutting natural processes of informal social control, discouraging community stability, and stimulating fear of crime. These findings are all consonant with aspects of Wilson and Kelling's (1982) "broken windows" argument. Directly and inferentially, there is evidence that it plays an independent role in generating conventional crime, although there is an absence of evidence regarding Wilson and Kelling's assertion that disorderly neighborhoods attract malevolents from outside the community.

Little of the research addressed here speaks to what is to be done about disorder. As the discussion around Tables 1 and 2 regarding the varieties of disorder suggested, that is a very large question. It involves a quite different and less well-developed body of research. The range of concerns that have been addressed in disorder research is quite large, and they do not lend themselves to any narrow range of strategies. Many would call for coordinated responses by several branches of government. Others would be best addressed by nonprofits and community organizations. Some could at most be targeted using education and persuasion. The criminal justice system could provide stopgap responses to some, but probably to no long-term avail.

Declaration of Conflicting Interests

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