



## New windows into a broken construct: A multilevel factor analysis and DIF assessment of perceived incivilities



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### ARTICLE INFO

#### Keywords:

Incivilities  
Disorder  
Neighborhood  
Broken windows  
Differential item functioning  
Multilevel CFA  
Multilevel MIMIC

### ABSTRACT

**Objectives:** (1) To determine whether perceived physical and social incivilities are distinguishable at the individual and/or neighborhood levels and, if so, whether there are differences in effects on fear of crime. (2) To identify, characterize, and account for differential item functioning (DIF) to understand differences in subjective perceptions of incivilities across demographic groups.

**Methods:** This study uses data from a probability sample of 1622 residents nested within 66 ecologically valid neighborhoods and employs multilevel SEM to identify factor structure, assess DIF, and examine structural relations at individual and neighborhood levels.

**Results:** Physical and social incivilities are distinguishable at the individual level but not at the neighborhood level. Three physical incivilities items exhibit DIF for race and three social incivilities items exhibit DIF for age. Residents in neighborhoods with higher concentrations of African Americans report greater levels of combined incivilities, but, within neighborhoods, African Americans perceive lower levels of physical and social incivility. Within neighborhoods, social incivilities link to fear of crime.

**Conclusions:** Demographic factors affect how individuals use response categories for gauging perceived incivilities in their locale. Discriminability of underlying separate physical and social components only at the individual level points to needed areas of theoretical elaboration in incivilities models.

### 1. Introduction

Over forty years of scholarship has found that resident perceptions of incivilities (disorder) link with a number of adverse outcomes, including heightened crime risk perceptions, fear, health issues, and withdrawal from active outdoor activity (Gallagher et al., 2010; Perkins, Brown, & Taylor, 1996; Wyant, 2008). At the community level, incivilities are argued to facilitate the decline of entire neighborhoods (Skogan, 1992). The fundamental idea that signs of incivility that remain unchecked reflect (Hunter, 1978) or pave the way for more serious crime (see Skogan, 1992; Wilson & Kelling, 1982) serves as the theoretical underpinning of several policing initiatives (Kelling, 2015).<sup>1</sup> Public officials often attribute crime reduction—such as that seen in New York City in the 1990s—to the eradication of uncivil behavior. Scholars have contributed by demonstrating that community and problem-solving strategies focusing on disorder reduction may account for some of these declines (Braga, Welsh, & Schnell, 2015). Other research

shows, however, that the incivilities-crime connection—if the two constructs are fundamentally distinct (Gau & Pratt, 2008)—is relatively weak (Sampson & Raudenbush, 2004; Taylor, 2001). Given the importance of investigating the validity of the incivilities thesis to inform cost-effective community enhancement and crime reduction strategies, recent calls have been made to reexamine the broken windows thesis; Kubrin (2008), p. 204 has argued incisively that “the most important step in this process is to reevaluate the central concept of disorder itself”.

There are core, unresolved conceptual and measurement issues hampering research on incivilities, and therefore hindering clarity on possible implications for crime and for individual and community quality of life (Gau & Pratt, 2008; Kubrin, 2008; see also Taylor, 1999). Specifically, Kubrin (2008), extending a list of concerns previously discussed (Taylor, 1999, 2001), notes widespread variation across studies and a lack of consensus on terminology (e.g., disorder vs. incivilities), conceptualization (e.g., distinction between physical and

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<sup>1</sup> The broken windows idea has been used to support alternative policing strategies, including broken windows scholars' preferred approaches (e.g., community policing) and other approaches (e.g., zero tolerance policing; or stop, question, and frisk) as well. Scholars have questioned (Kelling, 2015) how well these latter strategies align with broken windows theorists' intentions.

social incivilities; the subjectivity of incivilities perceptions and their context-dependent nature; conceptual overlap with crime and other constructs) and measurement (e.g., discord between subjective and objective assessments of incivilities).<sup>2</sup> The current study focuses on three key interrelated issues, the second of which has not been a focus in criminology: (1) whether physical and social incivilities are empirically distinct; (2) the subjectivity of incivilities perceptions by examining whether individuals of different demographic backgrounds use certain item response categories similarly when they share the same underlying level of the incivilities perceptions (i.e., are certain incivilities indicators biased and, if so, is this due to item-wording or definitional issues in the construct across groups?); and (3) the multi-level nature of the incivilities construct and similarities and/or differences in measurement and structural relations across levels. Building on a rich body of research that has addressed some of these issues individually, the present work provides critical new insights and advances the literature by recognizing the important *interconnectedness* of these issues which, for example, leads us to investigate whether physical and social incivilities factors emerge at neither, one, or two levels of analysis.

To do so, we exploit a probability sample of 1622 residents nested within 66 Baltimore neighborhoods and employ multilevel structural equation modeling. Specifically, we use multilevel confirmatory factor analysis (MLCFA) models to explore whether incivilities constitute one (i.e., combined) or two (i.e., physical and social) constructs at both the individual and neighborhood levels of analysis, the degree to which each indicator is reflective of individual vis-à-vis neighborhood incivilities, and how pure or strong indicators are of factors at each level of analysis. We further build on the MLCFA models by incorporating covariates to examine differential item functioning (DIF) using Multi-Level Multiple Indicators and Multiple Causes (MLMIMIC) models. This approach allows us to identify and characterize items that may be functioning differently across key demographics including age, gender, and/or race. In performing our item analysis, we also obtain insights into how precisely the incivilities indicators are measuring individuals' perceptions across the latent continuum of incivilities factor(s) at both levels of analysis. Finally, we put all the pieces together in a multilevel structural equation model to examine associations between covariates, fear of crime, and the incivilities construct(s) across each level of analysis, while accounting for DIF in items. To explicate the motivation behind our research, we begin by reviewing studies examining incivilities constructs (with attention paid to distinctions between physical and social indicators), the subjective nature of incivilities perceptions and whether demographics influence how they are perceived, and multi-level analyses.

## 2. Distinguishability of social and physical incivilities

By the early 1980s, scholars were distinguishing different types of incivilities, and separating the social from the physical (Skogan & Maxfield, 1981; Taylor, Shumaker, & Gottfredson, 1985, p. 263). Generalizing this distinction, Skogan (1992, p.4) suggested that “physical disorder refers to ongoing conditions” which includes things such as unkempt lawns, trash-filled lots, and abandoned buildings, whereas “social disorder appears as a series of more-or-less episodic events” which includes behaviors that can be witnessed or experienced, such as seeing teens hanging out on street corners and public drunkards or experiencing insults, rowdy neighbors, or sexual harassment. To be fair, however, there

<sup>2</sup> We have chosen to call visible social and physical indicators of neighborhood problems in line with Broken Windows as “incivilities.” This is based on Hunter’s (1978) scholarship showing that “disorder” is a broader social condition of some neighborhoods that can manifest incivilities. Recent scholarship, however, has used incivilities, disorder, and neighborhood problems interchangeably. “Incivilities” is used over “disorder” in this study because it is less ambiguous given Hunter’s work. The one exception is that we use the term disorder when reviewing others’ work that uses the disorder terminology.

are statements in the literature that invite confusion. For instance, Skogan (1992) discussed graffiti and vandalism as evidence of social disorder. The actual acts of vandalism and graffiti themselves itself could be considered a social disorder but, unlike catcalling or insulting remarks by neighbors, there are clear physical signs of disorder left behind from vandalism and graffiti. It has been argued that drawing the distinction is important because social and physical disorder may have different causes and variable effects (Matthews, 1992; Skogan, 1986, 1992; Skogan & Maxfield, 1981; Taylor & Hale, 1986; Taylor & Schumaker, 1990). Empirical work in this area, however, is mixed; some studies found support for separating the two constructs in empirical models (Ross & Mirowsky, 1999; Taylor, 1999), while others argued that both types load onto one broader, underlying assessed incivilities construct at the streetblock level (Taylor et al., 1985) or underlying perceived disorder construct at the individual level (Ross & Mirowsky, 1999; Xu, Fiedler, & Flaming, 2005).

Taylor (1999) relied on data from Baltimore to examine changes in survey-based physical and social incivilities between 1982 and 1994. Aggregated to the neighborhood level (30 neighborhoods), Taylor employed exploratory principal components analysis and found both physical and social incivilities components.<sup>3</sup> Other scholars, however, take issue with the concept of distinct physical and social incivilities factors. These arguments are both theoretical and empirical. For example, Xu et al. (2005), in their study of community policing of crime and disorder in Colorado, conflated physical and social disorders in their measurement model and made a conceptual case for doing so. They argued that blending the two constructs makes sense since a broader measure of disorder captures perceived global health of a community, as a community may show signs of particular indicators but not be in decline overall.<sup>4</sup> This logic, however, obfuscates the theoretical importance of measuring distinct facets of disorder and their potential impacts on outcomes ranging from increased fear, crime, reduced outdoor activity and consequently worsened health. As an illustration, using data from the Project on Human Development in Chicago Neighborhoods (PHDCN), Molnar, Gortmaker, Bull, and Buka (2004) found that social disorder, such as public substance use, was associated with significant reduced physical outdoor activity among children and adolescents but the same was not found with physical disorder. Theoretically, this seems tenable as parents’ may be more concerned about their children playing outdoors in the presence of drug users than they would be in the presence of properties with unkempt lawns. In short, blending the two types of indicators may lead to empirical models where significant associations may be masked and, thus, inefficient policy recommendations may be advanced. Of course, a concern with all studies using PHDCN data is that those neighborhoods, defined by identifying clusters of demographically similar census units, ignore extant neighborhood boundaries in the locale. It seems worth exploring neighborhood patterns for these items using neighborhoods that instead are grounded in local history and organizations. We will do that here.

Using a probability sample from the 1995 Survey of Community, Crime, and Health, Ross and Mirowsky (1999, p. 424) tested the distinctions between types of neighborhood disorder and concluded:

“On the whole, social and physical aspects of perceived disorder indicate one underlying concept. Many of the physical aspects of a neighborhood, such as graffiti, noise, vandalism, dirt, and grime, are indicators of the breakdown of social control. They are clear cues to residents that people are involved. Thus the distinction between social and physical disorder is not clear-cut.”

Their empirical tests indicated two underlying concepts related to disorder: disorder and physical decay. In the first analysis, they conducted a unidimensional factor analytic model that contained fifteen items related to disorder, including social and physical incivilities, crime, and items related

<sup>3</sup> Though the vandalism indicator is theoretically categorized as a physical incivility, empirically it showed to have moderate loadings on both components.

<sup>4</sup> Empirical analyses, offered as a secondary justification for their combined measure, found inadequate discriminant validity between the physical and social dimensions (Xu et al., 2005, p. 163).

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