



Rethinking Research on Forming Typologies of Homelessness

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In homelessness research and policymaking, it seems to be axiomatic that single adults experience 3 temporally based types of homelessness: chronic, episodic, and transitional. We discuss problems with the theorization of this typology and with the research design, data analysis, and time-aggregated conceptualization and measurement of temporality in the empirical work supporting the typology. To address the latter, we suggest a time-patterned approach to temporality and report a 10-group typology that differs significantly from the more familiar 3-group typology. We argue that which approach is used—and how typologies are developed more generally—should be based on theory and the uses to which typologies are put rather than on claims to being more true. (*Am J Public Health*. 2011;101:596–601. doi:10.2105/AJPH.2010.300074)

IN RESEARCH AND POLICY-making on homelessness, adults unaccompanied by children axiomatically experience 3 temporal kinds of homelessness: chronic, episodic, and transitional. Kuhn and Culhane extracted this typology from the research literature and provided initial empirical support for it.¹ In research, this typology has subsequently been employed by Kertesz et al. to show that episodic or chronic

homelessness is linked to worse mental health than is transitional homelessness,² by Goering et al. to suggest that the problems faced by first-time homeless people are similar to those faced by people who are chronically homeless,³ and by Caton et al. to identify risk factors for chronic homelessness.⁴ Culhane et al. also used this typology to analyze family homelessness and found the same 3 categories among homeless families.⁵

In policymaking, this 3-category typology has been employed by the federal government to focus on chronic homelessness and especially to encourage localities to develop 10-year plans to end chronic homelessness,^{6–8} by the National Alliance to End Homelessness to urge a “housing first” approach to chronic homelessness,⁹ and by the Urban Institute to specify steps for preventing and ending homelessness in general.¹⁰ Although other typologies of homelessness among single adults combine temporal and nontemporal information^{11,12} or employ only temporal information (as do Kuhn and Culhane),¹³ these other typologies have not been used as extensively in research and policymaking as has the one analyzed by Kuhn and Culhane. Jahiel and Babor provided a more general review of typologizing homelessness.¹⁴

Despite its extensive research and policy influence, the initial theorization of and supporting research for this typology have flaws

that undermine its utility. This work has been a useful starting point for better incorporating the temporal character of homeless people’s lives into research and policymaking, but it should not be the end point.

In this article, we describe problems with the logic of how this typology was theorized as well as with the design, analysis, and analytic approach of the initial empirical research supporting that theorization. As part of this critique, we outline an alternative approach to categorizing temporality and cite evidence that uses that approach to identify a typology structurally and substantively different from the prevailing 3-category typology. Based on this evidence, we conclude that other temporal and nontemporal typologies may be useful both for constructing theories of homelessness and for policymaking. We also contend that no single correct typology exists¹⁵; rather, we argue for constructing typologies based on theorizing, policymaking, and other uses to which they are put.

THEORIZAION

To form a homelessness typology in terms of temporal features, Kuhn and Culhane¹ drew from the literature 3 kinds of temporally based homelessness and characterized these categories in terms of shelter use. Transitionally

homeless people “are forced to spend a short time in a homeless shelter before making a transition into a more stable housing arrangement, and in most cases they do not return to homelessness.” Episodically homeless people “frequently shuttle in and out of homelessness. . . . [They] often find their way back to the shelters.” Chronically homeless people “are likely to be entrenched in the shelter system, [and for these individuals] shelters are more like long-term housing than an emergency arrangement.”^{1(p211)}

To test this hypothesis, Kuhn and Culhane translated these descriptions into 2 dimensions, frequency of homelessness and duration of homelessness, and measured these dimensions according to the number of times (frequency) and the overall length of time (duration) people lived in homeless shelters over a given observation period. Transitional homelessness is of low frequency and short duration (1 or at most a pair of homeless episodes for a very brief time overall), episodic homelessness is of high frequency but short duration (many episodes and little time overall), and chronic homelessness is of low frequency and long duration (very few episodes for a very long time overall). Table 1 shows how these 3 types of homelessness result from the association between the 2 dimensions of Kuhn and Culhane’s analysis.



One problem is clear immediately: a category implied by this way of forming typologies (i.e., as an interaction effect¹⁶) and, specifically, by the dimensions used by Kuhn and Culhane is not included (high frequency and long duration). It is not discussed by and is perhaps not known to authors using this theorization. The category is not conceptually illogical and is not necessarily empirically empty. For example, even the local administrative shelter data analyzed by Kuhn and Culhane over their brief (3-year) observation period yielded people who populated this category. Note that although this high frequency–long duration category can be conceptualized as chronic homelessness, this is not how Kuhn and Culhane measured chronic homelessness.

Using statistics reported by Kuhn and Culhane,¹ we calculated that, on average, 1 to 2 shelter stays characterized low frequency and fewer than 250 to 300 shelter days characterized short duration in their data set. We then analyzed data comparable with but historically more recent than Kuhn and Culhane's and excluded people below these thresholds. Based on these parameters we estimated that

4.0% of the population could be grouped in the undescribed (high frequency–long duration) cell, with an average of 3.6 shelter stays and 513 total shelter days. These estimates seem plausible because the average high frequency in Kuhn and Culhane's analysis was 4.7 stays (episodic), and the average long duration was 638 days spent in shelters (chronic).¹ In addition, as a result of the way shelter stays were recorded in the database used by Kuhn and Culhane, the number of days people did not experience shelter was probably overestimated and the frequency of stays was probably underestimated (as discussed subsequently). Thus, the logic and the empirical evidence undermine the argument for a 3-category typology.

A second issue is that because the high frequency–long duration cell remains untheorized and thus unanalyzed, the episodic category can be understood as a residual category: it is whatever is not low frequency. The problem with a residual category, of course, is that it contains people with a hodgepodge of values on the dimension or dimensions of interest. Such a category is deeply problematic for typology creation, which aims to identify homogeneous groups

on the relevant dimensions.¹⁷ Our contention is supported by the large variation observed by Kuhn and Culhane in the number of shelter stays (3–14) and number of days in shelters (1–895) in the episodic group.¹ Also, using Kuhn and Culhane's method and shelter data similar to theirs, we found that a heterogeneity measure (the average within-group sum-of-squared difference from the cluster mean) was essentially the same for the episodic group (31.6) as it was for the data set as a whole (31.3) and 3 times greater for the episodic group as it was for the transient group (10.6).¹⁸

RESEARCH DESIGN

To test the 3-category theory, Kuhn and Culhane used administrative information from the New York City shelter system database, the Single Client Information Management System (SCIMS).¹ This database records when people first enter shelters as well as when they leave and reenter. For their analysis, Kuhn and Culhane selected people first entering a shelter between January 1, 1988, and September 30, 1992, and allowed each person the possibility of remaining in or reentering a shelter for 3 years from the date of initial entry. They measured frequency by the number of shelter episodes over the 3 years and duration by the total amount of time spent in shelters over the same period. Cluster analysis of where people fell on these dimensions allowed Kuhn and Culhane to empirically identify a 3-group typology.

Thus, their design was a cohort design from the perspective of the shelter system. A group of

people were identified entering a certain status (becoming sheltered) for the first time and within the same few years and were followed for a particular length of time. Such a design may be useful for policymakers and for people running a shelter, in that it provides information about people the shelter has to deal with at a moment in time. Knowing that current shelter residents have 3 different kinds of shelter histories, and perhaps knowing what kinds of people are likely to be in which group, may allow policymakers and shelter operators to better design rules, provide services, allocate resources, and take other actions to achieve their goals.

However, this design does not address the theory extracted by Kuhn and Culhane, which concerned people's temporal histories of homelessness over their lifetime. Their empirical analysis looked at just 3 years of those lives, and those years occurred at varying points in people's lives. For example, people in the transitional category with 1 or 2 short shelter stays may have had a more episodic or chronic shelter history after the 3-year observation period. This possibility is supported by Kuhn and Culhane's evidence showing that transitional homeless people are younger and chronic homeless people are older than are the other homeless groups,¹ as well as by other evidence showing that even a single homeless spell is an important predictor of homelessness recurrence.¹⁹

As a result, one of Kuhn and Culhane's major findings—the comparably large size of the transitional group (representing 81% of

TABLE 1—Implicit Theorization of the Prevailing Typology of Homelessness

Frequency	Duration	
	Short	Long
High	Episodic	... ^a
Low	Transient	Chronic

^aNot described in the typology.



of the population)—may have to be rethought. A more useful design for examining the theory they analyzed would be an age-cohort or an age-cohort–sequential design in which a young cohort or a series of age-defined cohorts are followed over relatively long periods of time. Such designs can be analyzed with SCIMS.

A further design problem is that Kuhn and Culhane used a data set that did not include information on whether people were homeless when they were not sheltered. This problem has been noted previously²⁰ and is not specific to forming typologies or to Kuhn and Culhane's analysis. To be sure, collecting data on people's experiences of street homelessness, doubling up, and other kinds of nonshelter homelessness over time is very difficult. However, the danger in using administrative data is that theorization and analysis aimed at explaining how the general conditions of people's lives produce different kinds of homeless histories²¹ will effectively, but imperceptibly, become theorization and analysis of how shelters interact with people's lives to produce different shelter histories. The data set used by Kuhn and Culhane can provide only an ambiguous, and ultimately inadequate, test of theorizing homelessness more generally.

A final design concern is that a person is required to remain outside New York City's shelter system for at least 30 days if SCIMS is to consider the departure as an exit and the return as reentrance. This means that SCIMS misses those leaving and returning to shelters (and doing so multiple

times) within a period of several days (but less than 30 days); that is, it does not identify people with frequent stays that sum to long total durations. These people are identified by the undescribed cell in Table 1. Other authors have theorized such a category and found people described by it.²²

DATA ANALYSIS

We focused on whether the 3-group solution identified by Kuhn and Culhane adequately represents the data. Choosing the appropriate number of groups produced by a cluster analysis can be difficult. As Kuhn and Culhane observed, more or fewer groups can be technically valid.¹ Also, as Gelman and Rubin argue, even models that are not technically valid can justifiably be selected to support a theory.²³ We have 2 concerns with Kuhn and Culhane's data analysis. These concerns suggest different numbers and kinds of groups may be found that are fruitful for research or for policymaking.

By definition, we want typological categories to contain people (or whatever the unit of analysis) who are homogeneous on the dimensions combined to form the typology.¹⁷ However, within-group heterogeneity seems high in 2 of Kuhn and Culhane's 3 groups. They themselves observed that the episodic and chronic groups are heterogeneous with respect to frequency and duration, respectively.¹

To further test for group heterogeneity, we replicated the Kuhn and Culhane analysis. We used SCIMS data comparable with

but more recent than their data and employed more direct measures of within-group homogeneity. We found that these measures of within-group heterogeneity for the episodic and chronic groups were 5 and 4 times greater, respectively, than they were for the transitional group.¹⁸ These findings suggested further analysis to determine whether a larger number of groups would reduce heterogeneity sufficiently to warrant choosing such solutions. Our cluster analysis showed that a technically optimal 6-group solution reduced within-group heterogeneity by 50% relative to the prevailing 3-group solution.¹⁸

This solution does not fundamentally change the 3 categories described by Kuhn and Culhane. Rather, it produces 2 subgroups within each of the 3 categories that yield a more refined picture of how each kind of homelessness is expressed. The 2 transitional subgroups averaged 1.0 and 2.2 shelter stays and 35 and 79 shelter days, respectively; the episodic subgroups averaged 2.4 and 4.7 shelter stays and 244 and 499 shelter days, respectively; and the chronic subgroups averaged 1.0 and 1.5 shelter stays and 379 and 838 shelter days, respectively. These results support Kuhn and Culhane's empirical backing for the initially theorized typology. However, this is at least partly a result of the vagueness of the theorizing, as previously discussed. In this context, a 6-group solution may help improve theorizing and policymaking, because it greatly improves within-group homogeneity. This homogeneity allows theories to be more precise

and policies to better target and fit particular kinds of people.

TIME-AGGREGATED AND TIME-PATTERNED APPROACHES

Recent technical developments in analyzing temporal sequences make it possible to build a typology incorporating more temporal information than Kuhn and Culhane used.^{24–26} Doing so results in a substantively different typology from the one they affirmed.

Kuhn and Culhane used a “time-aggregated” approach. For each person, they summed how many shelter stays and how many nights sheltered the person had over the observation period. These are commonly accepted ways of measuring homelessness frequency and duration and were the measures Kuhn and Culhane cluster analyzed to support the 3-category typology.

Aggregation, however, results in the loss of potentially important temporal information about the timing and duration of each shelter and out-of-shelter episode. A “time-patterned” approach does not require such aggregating. It allows us to capture the sequencing and timing of shelter and nonshelter spells and thus measure their frequency and duration as they unfold over time. It does so by initially comparing, for all dyads in the data set, the sequence of people's sheltered and not sheltered episodes, when each episode happened, and how long each lasted and then grouping together people whose histories are relatively most similar (this roughly describes optimal



matching analysis,^{24,27} although other methods accomplish similar ends^{25,26,28}).

To show how incorporating this temporal information can affect categorization, we performed time-patterned and time-aggregated analyses of the SCIMS data set. We extracted the same kind of information as did Kuhn and Culhane for similar lengths of time, but our data were more recent. We then compared the results of the 2 analyses. (Note that our using the same data source as Kuhn and Culhane to compare the 2 approaches is not inconsistent with our citing problems with this data source. In contrast to their work testing a theory, we were only comparing 2 approaches to incorporating temporality.)

The time-aggregated analysis reproduced the initial Kuhn and Culhane 3-group findings with respect to duration, frequency, and group size, although the episodic and chronic groups were somewhat smaller and larger, respectively. By contrast, our time-patterned analysis identified a

10-group typology with significantly less within-group heterogeneity than a 3-group time-patterned typology and identified patterns substantively different from those articulated by Kuhn and Culhane.¹⁸

Table 2 shows a schematic version of this 10-category typology. It reports shelter histories over 3 years (36 time periods, each 30 days long) organized into 4 sets of patterns and displays people who are typical of each category. For each 30-day period, dashes indicate any time spent in a shelter (1–30 days) and blank cells indicate no time in a shelter (note that typical people do not necessarily have precisely the same history as the other members of their category). The 4 sets of patterns can be described as follows:

- a *temporary* pattern consisting of 1 group whose members enter shelters once, for less than 30 days, and do not return;
- a *structured–continuous* pattern consisting of 6 groups whose members stay continuously sheltered for progressively greater lengths of time after first

entering and then return sporadically for very brief periods, if they do return;

- a *structured–intermittent* pattern consisting of 2 groups distinguished by their members entering and leaving shelters for different lengths of time and at different points in the observation period; and
- an *unstructured–intermittent* pattern consisting of 1 group whose members enter and leave shelters sporadically but in no coherent manner and stay for very brief periods.

As Table 2 clearly demonstrates, the key distinguishing feature of this typology, relative to the prevailing one, is that it groups together people who move between being sheltered and not being sheltered at similar points after experiencing similar durations of each. By incorporating all of this temporal information, we discern a typology substantively different from the prevailing one.

As suggested earlier, typologies should be assessed according to

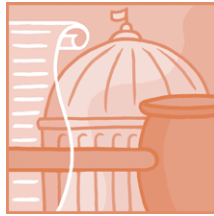
their utility. An example of the analytic utility of homelessness typologies formed by a time-patterned approach is that such typologies make explicit the kinds and structure of transitions in homeless people’s lives. This explicitness can foster theorizing how and why such changes occur and can allow us to test those theories. Consider the typology just presented. We can theorize precisely how changes in shelter use patterns result from particular combinations of individual traits (e.g., mental health or substance abuse problems) and structural conditions faced by people with those traits (e.g., the rules and policies of mental health or criminal justice systems). Such theorizing moves us away from a common emphasis on the causality of individual traits in understanding homelessness and toward focusing on the conditions in which homeless people live.

This example also reveals how empirical findings based on the time-patterned approach may be useful for policymaking. Often, policymaking focuses on reducing

TABLE 2—Schematic Illustration of the 10-Group Time-Patterned Typology of Homelessness

Patterns	Thirty-day Time Periods																																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	
Temporary	–																																				
Structured–continuous	–	–	–	–	–								–	–											–	–											
	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Structured–intermittent	–	–	–	–											–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Unstructured–intermittent	–					–										–	–																			–	

Note. People were followed for 1,080 days (approximately 3 years). This was divided into time periods of 30 consecutive days, yielding 36 time periods, each 30 days in length. Dashes represent time spent in a shelter (1–30 days) for each 30-day period. For the first 3 sets of patterns, cases presented are typical of people in each group. For the unstructured–intermittent pattern, however, we did not find that cases had typical patterns in their timing, sequencing, and duration, and so we present a case drawn at random from this group. This person’s sporadic use of shelters is similar to others in this group, but the specific nature of that sporadic use is not common across cases.



or limiting shelter size. Briefly, achieving these goals means changing the number of entrants, the rate at which shelter users leave, or both.²⁹ To affect these parameters, policymakers can adopt policies that address the temporal structure of how people enter, leave, and reenter shelters (i.e., adopt policies that address the intersection of the particular kinds of people in each category and the conditions under which these people live).

For instance, the structured–intermittent and unstructured–intermittent groups in the 10-category typology have very different histories of shelter departure, reentrance, and subsequent departure. These different histories may result, as an example, from the combination of the structured–intermittent group having different health and mental health problems from the unstructured–intermittent group and from the health and criminal justice systems responding differently to these different problems. Thus, to decrease the number of people reentering shelters or to increase the exit rate, policymakers could change the systems' responses in different ways depending on the group of people whose behavior they seek to affect.

Furthermore, the time-patterned approach may have clinical utility. For instance, it allows service programs to focus on patterns of behavior over time as people respond to an intervention rather than to glimpse people's situations at static points in time, as evaluations commonly do. If certain kinds of people are associated with particular patterns, programs can direct

resources to those expected to change problematically or to specific problematic postintervention moments. In the 10-group typology, for example, shelter operators may identify which kinds of people fall into the 2 structured–intermittent groups and develop initiatives that could prevent them from reentering shelters at months 9 and 21 after shelter entrance.

We intend this discussion only to illustrate the analytic, clinical, and policymaking utility of the time-patterned approach. We are not arguing for this specific 10-category typology. That would require specific theorizing that we have not developed. Moreover, the typology is not without problems. Some categories contain much within-category variation, and the typology suffers from some of the data source problems mentioned earlier. In the context of rethinking typologies of homelessness, however, it does suggest how a time-patterned approach can produce typologies that contrast strongly with the prevailing one.

CONCLUSIONS

We have argued that the most commonly used categorization of people's temporal histories of homelessness should be reexamined. Kuhn and Culhane's study was a useful start in better describing the temporal character of homelessness. For the field, however, the start seems to have become an end. As noted, the 3-group typology has become commonplace in research and

policymaking, and current research is using the same approach to categorize family homelessness.⁵ If we think it useful to identify temporally based types of homelessness, then we need to carry out age-cohort studies, measure out-of-shelter homelessness, locate typological categories in a better articulated set of relationships, and perhaps use more temporal information in a time-patterned approach.

Our perspective contrasts with a common critique of Kuhn and Culhane, one that holds that forming a true or accurate typology of homelessness requires taking into account factors other than time.^{11,15} But typological categories are concepts in an implied or explicit theory. As such, they are only more or less useful for explaining whatever the theory seeks to explain (e.g., homeless people's mental health or physical disability) or for designing policies or programs aimed at, for instance, particular problems of homeless people. Factors other than time may be important in such theories, or they may not be. If they are, we should incorporate time into the formation of typologies; if not, we should not. That is, we should construct typologies based on temporal or non-temporal information or from some combination of these kinds of information depending on the uses to which the typologies are put.

For example, suppose the goal is to explain health outcomes of shelter users. To invoke one way of creating typologies,¹⁶ if shelter users' health outcomes are the result of whether they have a structured–continuous (good health) or structured–intermittent (poor

health) shelter history, then the typology requires only the kind of temporal information captured in these 2 categories. By contrast, if health outcomes are explained only by people's gender and not by their histories of shelter use, we should not create a temporally based typology of any kind to explain these outcomes. However, if health outcomes are explained by an interaction effect between these categories and an individual trait, then we need a typology that combines this trait and these temporally based categories.

To be specific, suppose that women are more predisposed than men to seek medical help. Suppose further that being continuously (rather than intermittently) sheltered makes it easier to access medical help. Then we might expect that women with a structured–continuous shelter history would be more likely to be in good health than would people in categories combining other gender–shelter histories. Thus, in this situation, we should form a typology composed of a female structured–continuous category and categories formed by the remaining gender–shelter history combinations.

Therefore, we do not agree that only time-based typologies of homelessness should be constructed. This concern is our final one with Kuhn and Culhane's analysis. They argued that incorporating dimensions other than time makes it impossible to analyze whether values on these dimensions result from or are caused by the temporal character of homelessness.¹ This argument is logical, of course, and if we are interested only in the effects or



causes of the temporal character of homelessness, their logic is correct. However, if theorizing, policymaking, or other concerns suggest the typological importance of nontemporal information in explaining particular aspects of homeless people's lives, typologies should include such information.³⁰ In short, we have different typologies for different purposes,¹⁴ and they should be judged by their utility for those purposes. ■

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Contributors

W. McAllister led the writing and analysis, but all authors originated to both. All of the authors jointly originated the idea and content of the article.

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