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Understanding how police officers think about mental/emotional disturbance calls

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ABSTRACT

Police officers frequently respond to calls involving persons with mental illnesses and in doing so, they are key gatekeepers of access to mental health treatment as well as entry into the criminal justice system. Programs such as Crisis Intervention Teams (CIT) are being implemented across the United States and elsewhere to train officers to respond more effectively and facilitate access to mental health services when appropriate. These programs would benefit from a thorough understanding of these encounters from the perspective of police officers. We take as a premise that officers develop frames of reference or "schema" for understanding and responding to these encounters that are shaped by socialization, training, and their experience as police officers. In this study, we examine police officer schema of mental/emotional disturbance (M/EDP) calls. Qualitative interviews provided the foundation to develop the Needs on the Street Interview (NOSI) to tap officer schema of four types of M/EDP scenarios. The NOSI was administered to 147 officers in Chicago and Philadelphia. Latent Class Analysis (LCA) was conducted separately for each scenario to examine groups of officers with different schema as well as predictors of schema group. For three of the four scenarios, officers were classified into a two category or schema model, for the fourth (crime reported) a three category model was supported. Schema groups tended to be differentiated by ratings of level of resistance/threat and substance use. Contrary to our expectations, CIT and law enforcement experience did not predict officer schema group. While the CIT model emphasizes de-escalation skills to reduce resistance and the need for officers to use force, CIT and other training programs may want to consider increasing content related to factors such as co-occurring substance use and managing resistance.

1. Introduction

Police officers encounter persons experiencing mental health problems in a variety of circumstances and must make decisions in the moment about how to best respond. They must quickly assess a situation, often with little background information, and select from a variety of options on how to control and resolve the encounter. The choices officers make have important implications for the immediate safety of all involved, as well as longer term outcomes related to mental health and criminal justice system involvement for persons with mental illnesses.

Some advocates argue that police could respond more safely and effectively facilitate access to mental health services, as opposed to entry into the criminal justice system, if they were more informed about mental illnesses and effective response strategies (Teller, Munetz, Gil, & Ritter, 2006) and confident that appropriate resources are available to them (Steadman et al., 2001). Jurisdictions across the country are implementing training and other interventions designed to address these goals — and there is emerging evidence that some of these approaches are impacting outcomes of interest (e.g. safety and linkage — maybe diversion) (Compton, Bahora, Watson, & Oliva, 2008). These efforts would benefit from a more thorough understanding of these encounters from the perspective of police officers, the accountable decision makers.

In this paper, we briefly review the literature on police response to persons with mental illnesses. This literature focuses primarily on objective call outcomes and use of force. In order to gain insight into what precedes these outcomes, or how officers actually think about these encounters, we then apply schema theory to examine how officers interpret situations involving persons with mental illnesses. We take as a premise that officers develop frames of reference or "schema" for understanding and responding to these encounters that are shaped by socialization, training, and their experience as police officers and explore the nature of police officers' schema of several types of mental/emotional disturbance (MD/EDP) calls.

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1.1. Police response to persons with mental illnesses

There is a broad range of situations in which police encounter people with mental illnesses. These encounters may involve domestic disturbances that occur in a private home, mental health crises, reports of victimization, street stops for identification check, response to significant criminal behavior, or public disturbances/disorderly conduct (Watson, Angell, Morabito, & Robinson, 2008). Officers have several options for resolving these encounters. They may arrest the individual; refer to mental health services or transport the person for an involuntary psychiatric evaluation; resolve the situation informally, for example, asking the individual to leave the scene; or if the individual is a crime victim, take a report and provide assistance.

Bittner (1967), one of the first researchers to examine police interactions with individuals with mental illnesses, found that community level factors, subject characteristics, officer characteristics, and dynamics on the scene all impacted how a situation was resolved. He found that most interactions were resolved in an informal manner. He noted that the involuntary commitment process could be quite time consuming and so police limited their referrals to a few select situations, such as when the subject had attempted suicide, when signs of mental illness were accompanied by violent acts, and when signs of mental illness were accompanied by signs the subject was not able to care for him or herself. Additionally police were more likely to make a referral if the interaction occurred in a public setting. More recent research confirms that police officers tend to favor informal approaches over arrest and transports for involuntary psychiatric evaluation (Green, 1997; Teplin & Pruett, 1992.

While arrest is a relatively rare event across all types of police encounters, research conducted in the late 1970s indicated that people with mental illnesses were more likely to be arrested than those without mental illnesses (Teplin, 1984). More recent research however, suggests that the presence of mental illness actually decreases risk of arrest (Engel & Silver, 2001; Green, 1997). However being under the influence of drugs and being perceived as homeless, both of which are associated with mental illness, were found to increase the risk of arrest (Engel & Silver, 2001). Other factors increasing the risk of arrest in general (not just for persons with mental illnesses) include being young, being a person of color, and having a hostile demeanor (Kochel, Wilson, & Mastrofski, 2011).

1.1.1. Dangerousness and use of force

Focusing solely on outcomes of MD/EDP calls ignores important dynamics related to safety that may occur during the police interaction. Police officers tend to perceive persons with mental illnesses as particularly dangerous (Ruiz, 1993), and there is some evidence that calls involving persons with mental illnesses may be more likely to result in injuries to officers or the person with mental illness (Cordner, 2006). Ruiz (1993) suggests that this expectation of heightened danger on the part of officers may cause them to approach in a manner that contributes to the escalation of violence in the encounter and the need to respond with physical force.

While police rarely resort to physical force (Engel, Sobol, & Worden, 2000; Garner, Maxwell, & Heraux, 2002), it is particularly important to understand its use in interactions with persons with mental illness due to the potential implications for safety of all parties involved. Klahm and Tillyer's (2010) recent literature review of police use of force studies found that subject resistance was one of the most consistent predictors of police use of force. Morabito et al. (2012) also found that resistance was the greatest predictor of use of force in interactions involving people with mental illnesses. When subjects physically resisted, police officers were 20 times more likely to use force. If the resistance was verbal, police were still 4 times more likely to use force than if the subject did not resist at all. Johnson (2011), who conducted one of the few recent studies to examine the relationship between subject mental illness and police use of force, noted that subjects with mental illnesses were more likely to resist by striking officers than those without mental illnesses. He found that when subjects resisted by striking the officer, police officers were 4 times more likely to use force. Therefore, because of their increased tendency to resist arrest, people with mental illnesses may experience higher levels of police force. Johnson (2011) also found that subjects with mental illnesses were more likely to possess a weapon than subjects without apparent mental illnesses (42.9% v. 4.9%). It is possible that when a person has a mental illness, police officers may be more likely to view common objects, such as a chair, as a potential weapon. Regardless, the presence of a weapon presents perhaps the highest level of threat and may increase the likelihood that officers will use force to control the situation.

While perceived mental instability appears to have little impact on the use of force and findings related to alcohol intoxication are mixed, when police perceive that an individual is on drugs there is a higher likelihood that they will use force to resolve a situation (Garner, Maxwell and Heraux, 2002; Johnson, 2011; Kaminski, Digiovanni, & Downs, 2004; Klahm & Tillyer, 2010; Lawton, 2007; Paoline & Terrill, 2004; Terrill, 2005). Given the high rates of co-occurring mental illness and substance use disorders, it is important to examine how the co-occurrence of these issues might impact how officers think about and make decisions in these calls.

1.1.2. Improving police response—CIT

Police departments across the United States and elsewhere have recognized the challenge that responding to calls involving persons with mental illnesses presents. Many have enhanced training on mental health issues and are implementing strategies to improve safety and reduce arrests in these calls. The Crisis Intervention Team (CIT) model is currently the most widely recognized and disseminated model, with over 1000 departments implementing CIT in the United States (Compton, Broussard, Munitz, Oliva, & Watson, 2011). CIT combines police training with improved system coordination between police and mental health services in order to improve safety, increase police referrals to psychiatric treatment and decrease arrests of people with mental illnesses (Steadman, Deane, Borum, & Morrissey, 2000).

To date, there is some evidence that CIT may reduce the use of force with more resistant call subjects (Morabito et al., 2012). Additionally, research suggests that CIT increases referrals to the psychiatric treatment (Teller, Munetz, Gil and Ritter, 2006; Watson et al., 2010). However, there is scant empirical support at this time for the assertion that CIT decreases the arrest rate for this population (Watson et al., 2010). In addition to emerging evidence of CITs' impact on the use of force and some call outcomes, CIT training has been found to increase officer knowledge about mental illness and treatment, decrease mental illness stigma, and increase comfort and self-efficacy for responding to mental health related calls (Compton, Bahora, Watson and Oliva, 2008). Thus, CIT officers may think about and respond differently to MD/EDP calls than their non-CIT trained peers. However, research has yet to examine how CIT may shape the schema officers develop for MD/EDP calls.

1.2. Schema theory

Schema theory suggests that people use complex cognitive structures, schemas, to organize knowledge about events, people, and systems and describes how the context of situations determines which schemas are accessed to interpret and respond to specific situations. Schemas are "interconnected in long term memory and allow for greater cognitive efficiency (Lurigio & Stalans, 1990)." Once activated in a situational context, schemas provide a framework for interpreting events, people, and situations. In addition to guiding the encoding and retrieval of information from memory, schemas provide a basis for filling in information gaps and short cuts for problem solving (Taylor & Crocker, 1981). For any given situation, a person may have more than one applicable schema. In that case, the schema used is the one most easily retrieved from memory (Bruner, 1957). Factors that influence accessibility include

frequency of use, recency, and emotion (Fiske & Taylor, 1991; Nabi, 2003).

Schema theory has been previously used to explain how legal officials make decisions (Finn & Stalans, 2002; Lurigio & Carroll, 1985; Robinson, 2000; Stalans & Finn, 1995; Stalans & Lurigio, 1990) and provides a useful framework for understanding how officers assess and respond to situations involving persons with mental/emotional disturbances. Of particular interest in this study are the event and person schemas of police officers. Event schemas (Fiske & Dyer, 1985), or scripts, are stored knowledge structures about event sequences and the players and context involved. People use scripts to guide their expectations regarding how events are likely to play out. Once activated, event schemas provide information about what is happening, what to expect, and what to do (Greenberg, Wescott, & Bailey, 1998). Person schemas have loosely been called prototypes (Fiske & Dyer, 1985). Prototypes are conceptualized as "averaged" representations of a category across attributes. Person schemas are higher level abstractions about groups or types of people (Hilton & vonHippel, 1996). People may have person schemas of police officers that include both physical and personality features of what members of the group are like. These two types of schemas provide useful conceptual tools for understanding police interactions with persons with mental illnesses because they direct us to examine the thinking officers are applying to MD/EDP calls.

The content knowledge contained in schema provides descriptive information on categories of events, people, or systems (Rumelhart, 1984). This knowledge is developed and modified through socialization and experience (Wyer, 1980). Schemas are dynamic, changing over time in response to experience and training. Thus, we would expect to find differences between new, inexperienced officers; seasoned officers with years of experience; and CIT officers who have completed specialized training.

1.2.1. Schema methods

While numerous studies have applied schema theory to examine how people interpret situations and make decisions, only a handful have actually attempted to measure schema. Studies that have measured schema have used qualitative methods initially to identify schema domain and elements. Several have used traditional *prototype methodology*, asking respondents to picture a type of person/situation in their mind and then describe characteristics of the person/situation in detail (Skeem & Golding, 2001; Weiner, Richmond, Seib, Rauch, & Hackney, 2002). *Thought-listing techniques*, another approach to identifying cognitive structures (Cacciopo, von Hippel, & Ernst, 1997) ask respondents to list their thoughts about a real or hypothetical experience or anticipated event. This approach has been used to study a variety of cognitive structures and processes, including police officers' schema of domestic violence calls (Finn & Stalans, 2002; Stalans & Finn, 1995).

Once schema content is identified, researchers have used sorting and rating techniques to identify consensual schema and variations across groups of people. For example, after conducting qualitative interviews to establish categories of probationers, Lurigio and Carroll (1985) used an information sorting exercise and cluster analysis to validate schemas. Sorting exercises such as the one used by Lurigio and Carroll (1985) have been found to be useful in measuring cognitive representations of policy options (Schlesinger & Lau, 2000) and health conditions (Brewer, Dull, & Lui, 1981).

Rating procedures also have been used. Here, researchers define a possible range of schema elements in a variety of domains and have respondents rate each element in terms of its relevance to their particular schematic representations of persons, events, or systems. Ratings may be dichotomous (present or not) or on Likert type scales. The overall pattern of responses reveals how respondents structure information. Conover and Feldman (1984) used this method to examine how people organize political beliefs and found support for both a schematic model of political beliefs and their strategy for studying schematic knowledge. Studies have applied *cluster analysis* (Lurigio & Carroll, 1985; Skeem & Golding, 2001; Weiner, Richmond, Seib, Rauch & Hackney, 2002) and/or *factor analytic techniques* (Conover & Feldman, 1984; Skeem & Golding, 2001) to rated item data to identify and compare cognitive representations across groups of people. The evidence here suggests that groups of people with more shared and repeated experiences of a subculture (Harris, 1994), such as probation officers (Lurigio & Carroll, 1985), have more efficient coalescence in categories of schema than in a broader population with a more diffuse and limited experience base, such as jurors (Skeem & Golding, 2001).

In this study, schema theory and methods will be used to identify the different cognitive frameworks (schemas) that officers apply to MD/EDP calls and examine factors hypothesized to influence these frameworks. We will examine whether we can classify officers based on their most accessible person/event schema for several common MD/EDP scenarios and consider the influence of law enforcement experience (Stalans & Finn, 1995), training on mental illness, officer demographics and local environmental conditions (Harris, 1994). Additional analysis examining call outcomes, use of force, decision frames and empathy will be reported elsewhere due to space constraints.

2. Methods

2.1. Subjects

Our sample included probationary police officers (novice = <18 months on the job), CIT trained officers (expert), and non-CIT trained non-probationary officers (experienced) from Philadelphia and Chicago Police Departments. In order to be able to include probationary officers, we sampled in all five designated training districts in Chicago and the two training districts in Philadelphia. Officers were randomly selected from Department personnel lists for the study, stratifying for experience level, CIT status, and shift.

Selected officers were sent a letter introducing the study and informing them that we wanted to meet with them to further discuss the study and if they were willing, complete the interview. The letters contained a phone number that officers could call to indicate they did not want to be further contacted about the study. If they did not opt out of the study by phone, we asked their watch commander to arrange a time when we could meet with the officers during duty hours to discuss the study and if they were willing, complete consent procedures and the interview. We did not report to watch commanders or anyone else whether the officers decided to participate or not.

2.2. Materials

Qualitative interviews provided the foundation to develop the Needs on the Street Interview (NOSI) to capture police officer schema, decision frames and confidence in the mental health resources available for resolving five types of MD/EDP scenarios (call to home-adult, call to home-juvenile, call to residential facility, street disturbance, and crime reported). Thirty-three qualitative interviews were conducted with officers from Chicago (n = 17) and Philadelphia (n = 16). We sampled novice (<18 months on the job), expert (CIT trained) and experienced (nonCIT trained) officers. Interviews began with a thought-listing exercise in which officers were asked to talk about what comes to mind when they think about MD/EDP calls. They were then asked to describe a typical MD/EDP call that comes to mind. After they described a typical call, they were asked about other "types" of MD/EDP calls. If they had difficulty coming up with call types, they were instructed to think about different calls they have responded to and describe those. For each call type, they were probed for call subject characteristics, situational elements, and how they would make decisions about how to handle the call. Officers were also asked to discuss their perception of mental health services in the area that they work.

Interview data was analyzed in terms of call types and call elements. We identified five MD/EDP call types and created brief two to three

sentence scenarios and a list of potential elements for each. These became the basis for the draft NOSI, which contained the five brief scenarios, each followed by a list of subject and situational characteristics, items about how the call would be handled and a six item empathy measure asking officers to respond on a seven point scale how sympathetic, softhearted, warm, compassionate, tender and moved they felt toward the call subject (Batson, 1991). The NOSI also contained a series of five items based on Finn and Stalans (2002) asking officers to rate their perceptions, confidence, and use of MH resources in the community as options for resolving to MD/EDP calls (e.g. the MH system in my area adequately/efficiently handles referrals from police) and officer demographics. The draft NOSI was piloted with nine officers (four from Philadelphia and five from Chicago). Based on the pilot administration, we decided to reduce the number of scenarios to four to decrease officer burden and revised a number of call element items and skip patterns. The call to a residential facility scenario was dropped, as it was the least often mentioned of the five call types in the qualitative interviews.

2.2.1. Final NOSI

The revised NOSI contains four very brief scenarios (see Table 1). For each, the officer is asked to read the scenario, imagine a call of this type and then rate the presence or absence (yes or no) of characteristics and behaviors of the call subject, characteristics of the situation and scene, how the officer approaches and what the officer does to control the scene and subject, how officer resolves call and officer perceptions of mental health system response if used. For each scenario, officers were asked to respond to the six item empathy scale (Batson, 1991). Officers were also asked to complete the five items pertaining to their perceptions of mental health services and a demographic survey.

2.3. Procedure

Following informed consent, participants were presented with one NOSI scenario at a time, in counterbalanced order, and asked to rate the scenario elements. Once they completed one scenario and returned it to the researcher, they were given the next scenario. While the officer completed the next scenario, the researcher checked the preceding one for missing responses. If officers left items blank, they were encouraged to try to answer the best they could or confirm they meant to leave the item blank. This process was repeated until all scenarios were completed. After the final scenario, officers were asked to complete the demographic and perceptions about mental health services items.

2.4. Analysis

Latent class analysis (LCA; Hagenaars & McCutcheon, 2002) was used to identify subgroups of officers with different schemas for each of the broader call MD/EDP call types. LCA uses observed data to group participants by their response patterns into two of more groups referred to as latent classes because they are unobserved but thought to underlie the heterogeneity in the observed response patterns. In this case, the latent classes were interpreted as indicating a common response set (i.e., schema) to the MD/EDP call types. Officers rated subject characteristics, subject behavior and situation characteristics. These ratings were used as class indicators for the LCA models. Officers with similar patterns of ratings are assigned to the same class based on posterior membership probabilities. LCA was conducted using Mplus version 6.20 (Muthén & Muthén, 2012).

To determine the number of latent classes for each MD/EDP call type, we used standard model fit indices such as the Bayesian Information Criterion (BIC) and the Vuong–Lo–Mendell–Rubin likelihood ratio chi-square test (LMR-LR), available as optional output through Mplus. Where the fit indices disagreed, we relied more heavily on the BIC as well as substantive interpretation of the resulting latent classes (Nylund, Asparouhov, & Muthén, 2007). We also examined another statistical measure available for LCA models, entropy, which indicates the degree of ambiguity in how well the model classifies participants but which is not used to determine the optimum number of model classes. Entropy scores range in value from 0 to 1, with higher values indicating better (i.e., less ambiguous) classification results. In the analyses presented below, the entropy scores for the selected latent class models ranged from .87 to .96, indicating that across all scenarios, participants could be assigned to a particular latent class with a high degree of certainty.

Once the optimum number of classes had been determined, we added a set of covariate predictors to test for associations with latent class assignment. Specifically, we included the following covariates: officer race (white or nonwhite), gender, age (older than 36 years old), experience level (novice, expert, experienced), city (Chicago or Philadelphia), whether they had someone in their personal life with a mental illness, and perception of mental health services. The Mplus program uses multinomial or binomial logistic regression to regress the latent classes on the polytomous or dichotomous predictor variable respectively. The effects of the covariates were incorporated into the model estimation step and were not done a posteriori after class assignment to account for the probabilistic nature of the latent class assignment. Conducting the analyses in a single step accounts for the probabilistic nature of the latent class assignment. Statistically significant covariates were interpreted as increasing or decreasing the likelihood of class membership for a given schema class in the LCA model.

3. Results

Our sample of 147 officers included 101 from Chicago and 46 from Philadelphia. The majority, 106 (72%) were male. In terms of race, 65 (45%) identified as White, 48 (33%) as African American, 4 (2.8%) as Asian, and 27 (19%) as "other." Thirty-seven (25%) identified as Hispanic/Latino. In terms of experience level, 25 (17%) were novice officers, 65 (44%) were experienced officers and 57 (39%) were expert officers. The majority of the sample (109, 75.2%) was between the ages of 26 and 45 years old. However, nine (6.2%) were younger than 26 and 27 (18.6%) were age 46 or older. The five items related to perceptions of the mental health system were summed and divided

Table 1
NOSI scenarios.

Please read the scenario below and take a moment to imagine a typical call like the one described. While we understand that there is a lot of variation in the calls that you respond to, do your best to think of what this type of call would typically be like. This could be a hypothetical call or an actual call that you have been involved in that comes to mind and represents a typical call.
Scenario A: Call to home adult. Imagine that you have a call where someone reports that their adult family member is causing a disturbance in their home. You have reason to believe this person has a mental illness.
Scenario B: Call to home juvenile. Imagine that you respond to a call at a residence involving a juvenile. By juvenile, we mean a person who 17 years old or younger. You have reason to believe the juvenile has a mental illness.
Scenario C: Public disturbance. Imagine you respond to a situation involving an adult yelling and banging on things. The adult is causing a disturbance. While there is no one on the scene that can provide you with any information on the subject, you have reason to believe the person has a mental illness.
Scenario D: Repeat crime report. Imagine you respond to a call made by an adult who reports a crime. You know from past experiences that this person has a mental illness and has made similar calls.

by five so the score could be interpreted on the original one to four scale with higher scores indicating more positive perceptions. The mean, 2.89 (sd .59; alpha .862) indicates that on average, officers leaned toward agreeing with positive statements about mental health resources in their districts.

The BIC, Adjusted BIC and LMR-LR and entropy statistics for the four sets of models are listed in Table 2. Latent class and conditional response probabilities by class for all four scenario types are listed in Table 3. The response probabilities shown indicate the probability of endorsing a specific item conditional on membership in the identified latent class. Bolded text indicates differences in the conditional probabilities between classes greater than .20. We used this somewhat arbitrary difference as suggesting a substantive difference in response probabilities between the identified latent classes. Results are described separately for each scenario below. While Mplus accounts for missing data on latent class indicator variables using full information maximum likelihood estimation (Muthén & Muthén, 2012), it does not account for missing data on covariates. Thus, seven officers with missing data on covariates were removed from the sample for analysis purposes.

3.1. Scenario A: call to home-adult

The LCA of the 27 scenario ratings yielded a two-class solution as optimal. Class 1 was characterized by higher probabilities of the subject having poor hygiene and inappropriate dress; being under the influence of drugs or alcohol; and behaving in threatening, resistant, odd and unpredictable manner. Officers in this class where also more likely to indicate that family members present were disruptive; that the cause of the subject's behavior was drugs or alcohol; and that they were concerned about safety in this encounter. Based on their observed response patterns, 62% of the sample was assigned with a maximum probability to class 1. Class 2 was characterized by higher probabilities of the subject being on psychiatric medication, cooperative and the officer indicating that he/she would be able to communicate with the subject. Thirty-eight percent of the sample was assigned to class 2 with maximum probability. None of the covariates hypothesized as predictors of latent class were significant.

3.2. Scenario B: call to home-juvenile

The LCA of the 27 scenario ratings suggests the optimal number of latent classes is two. Class 1 was characterized by higher probabilities of the subject having poor hygiene and inappropriate dress; being under the influence of drugs or alcohol and behaving in a resistant, threatening, odd and unpredictable manner. There was a higher likelihood of family members being rated as helpful. Officers in class 1 had higher probabilities of indicating that they would approach with higher alertness and feel anxious. They also had higher probabilities of attributing the youth's behavior to drug and alcohol use. Class 2 was characterized by higher probabilities that the youth was cooperative and that the officer indicated that he/she would be able to communicate with the youth. Based on the observed response patterns, 47% of the sample was assigned to class 1 and 53% was assigned to class 2 with maximum probability. None of the covariates hypothesized as predictors of latent class were significant.

Table 2
Latent class analysis model fit statistics.

Model tested	BIC	Adjusted BIC	Adjusted LRT	p-Value Adj LRT	Entropy
Scenario A n = 140					
2-Class	4164.79	3952.81	251.29	ns (0.0855)	0.87
3-Class	4180.14	3873.25	136.93	ns	0.96
Scenario B n = 140					
2-Class	4003.4	3804.08	243.87	*	0.84
3-Class	4029.8	3741.93	118.96	ns	0.91
Scenario C n = 140					
2-Class	3657.78	3464.79	229.38	*	0.96
3-Class	3723.56	3419.83	106.56	ns	0.87
Scenario D n = 140					
2-Class	3762.03	3562.71	331.93	***	0.90
3-Class	3769.72	3456.50	169.26	*	0.97
4-Class	3851.83	3424.71	95.25	ns	0.98

ns p>.05, *p.<.05, ***p.<.001.

3.3. Model results: scenario C street disturbance

The LCA of the 24 ratings for scenario C suggests that the optimal number of latent classes is two. Class 1 was characterized by higher probabilities of the subject having poor hygiene and inappropriate dress; being under the influence of drugs or alcohol; and behaving in threatening and resistant manner. Officers in this class had higher probabilities of attributing the subject's behavior to drug and alcohol use and indicating that they would feel anxious approaching the subject. Class 2 was characterized by a higher likelihood of the subject being female, on psychiatric medication and cooperative. Based on the observed response patterns, 60% of the sample was assigned to class 1 and 40% was assigned to class 2 with maximum probability. Two covariates were significantly associated with latent class. Female officers were (OR 3.46, 95% CI, 1.23–8.21, p. < .05) more likely to be in class 2 relative to class 1. Officers over the age of 36 were less likely (OR .31, 95% CI 0.10–0.95, p. < .05) to be in class 2 relative to class 1.

3.4. Model results: scenario D—repeat crime report

The LCA of the 25 ratings for scenario D suggests that the optimal number of classes is three. Class 1 is characterized by a higher probability of the subject being dressed inappropriately and having poor hygiene; being under the influence of drugs or alcohol; and behaving in a threatening, resistant, odd and unpredictable manner. Officers in this class have higher probabilities of attributing the subject's behavior to drug and alcohol use and indicating that they would be concerned about safety, anxious, and more alert. Class 2 is characterized by higher probabilities of the subject being female and behaving in a cooperative manner. Officers in this class also had higher probabilities of indicating that family members are present and helpful and that they would be able to communicate. Class 3 is characterized by higher probabilities of the subject being older (>age 46), female, and cooperative. Officers in this class were more likely to indicate that they would be able to communicate with the subject. Based on the observed response patterns, 23% of the sample was assigned to class 1, 28% assigned to class 2, and 49% to class 3 with maximum probability. Only one covariate was significantly associated with latent class: officers from Philadelphia were less likely to be in class 2 relative to class three (OR 0.27, 95% CI .08–.85, p. < 05).

4. Discussion

Across the four call types, a relatively consistent pattern of schema categories emerged. For the call to home-adult, call to home-juvenile and the street disturbance, a two class solution provided the best fit. The first classes were primarily distinguished by threatening and resistant behavior on the part of the subject, the presence of substance abuse, and poor hygiene and inappropriate dress. The second class was distinguished by the absence of those elements and the presence of cooperative behavior from the subject and the officer indicating he or she would be able to communicate with the subject. For the repeat crime report call, these two classes emerged, along with a third class in which the subject was older, more likely female, and cooperative.

In other words, it appears that officers think about MD/EDP calls in terms of the level of danger and difficulty involved. Substance use and visual cues that officers may use to judge the presence of mental illness and perhaps a more decompensated state (poor hygiene and inappropriate

Table 3
Estimated conditional & marginal probabilities.

	A: Call to home adult		B: Call to home juvenile		C: Street disturbance		D: Repeat crime report		
	LC1	LC2	LC1	LC2	LC1	LC2	LC1	LC2	LC3
Cluster size	0.62	0.38	0.47	0.53	0.6	0.4	0.23	0.28	0.49
Subject characteristics									
Age									
<13	–	–	0.155	0.134	–	–	–	–	–
13–17	–	–	0.845	0.866	–	–	–	–	–
18–25	0.396	0.22	–	–	0.153	0.235	0.194	0.13	0.03
26–35	0.289	0.43	–	–	0.317	0.217	0.289	0.319	0.102
36–45	0.15	0.197	–	–	0.381	0.435	0.351	0.239	0.339
≥46	0.165	0.153	–	–	0.149	0.113	0.166	0.312	*0.529*
Military veteran	0.076	0.086	–	–	0.154	0.2	0.166	0.128	0.103
Female	0.11	0.211	0.278	0.206	0.063	**0.274**	0.182	**0.433**	**0.471**
Race									
White	0.083	0.172	0.123	0.052	0.168	0.177	0.065	0.178	0.217
Hispanic/Latino	0.119	0.047	0.154	0.065	0.071	0.036	0.097	0	0.028
Inappropriate dress	**0.481**	0.166	**0.405**	0.115	**0.675**	0.425	**0.614**	0.227	0.248
Poor hygiene	**0.706**	0.366	**0.501**	0.221	**0.911**	0.653	**0.863**	0.298	0.477
On psychiatric medication	0.571	**0.789**	0.748	0.676	0.452	**0.687**	0.636	0.741	0.591
Under influence drugs/alcohol	**0.627**	0.152	**0.374**	0	**1**	0.023	**0.732**	0.191	0.189
Call subject behavior									
Cooperative	0.123	**0.78**	0.101	**0.406**	0.112	**0.33**	0.155	**0.738**	**0.812**
Threatening	**0.895**	0.193	**0.922**	0.328	**0.824**	0.568	**0.839**	0.24	0.059
Resistant	**0.819**	0.144	**0.852**	0.377	**0.788**	0.491	**0.75**	0.18	0.014
Odd	**0.93**	0.699	**0.969**	0.561	0.964	0.927	**1**	0.687	0.811
Unpredictable	**0.953**	0.739	**1**	0.602	**0.928**	0.8	**1**	0.542	0.58
Situation characteristics									
Family present	0.954	0.981	1	0.849	–	–	0.573	**1**	0
Family helpful	0.689	0.848	**0.868**	0.577	–	–	0.464	**0.899**	0
Family disruptive	**0.355**	0.1	0.205	0.263	–	–	0.187	0.155	0
Aware MH issue before arriving	0.709	0.755	0.86	0.661	0.378	0.544	–	–	–
Received call from dispatch	–	–	–	–	0.929	0.926	–	–	–
Parent/family made call	0.717	0.699	0.971	0.823			–	–	–
Subject has weapon	0.121	0.019	0.121	0.07	0.199	0.074	0.067	0	0
Evidence a crime has occurred	–	–	–	–	–	–	**0.302**	0.076	0.072
Officer dealt w/subject before	0.861	0.717	0.722	0.539	0.725	0.623	–	–	–
Officer attributions and approach									
Cause behavior mental illness	0.907	0.981	0.946	0.814	0.798	0.981	0.935	0.975	0.985
Cause behavior drugs/alcohol	**0.614**	0.205	**0.327**	0.028	**0.928**	0.092	**0.73**	0.217	0.188
Parents use police to control	–	–	0.369	0.537	–	–	–	–	–
Approaches w/higher alertness	0.783	0.659	**0.812**	0.526	0.761	0.765	**0.93**	0.391	0.393
Officer concerned safety	**0.832**	0.535	0.722	0.539	0.833	0.693	**0.965**	0.349	0.349
Officer anxious	0.434	0.308	**0.463**	0.252	**0.511**	0.294	**0.631**	0.166	0.189
Officer able to communicate	0.599	**0.942**	0.498	**0.817**	0.493	0.601	0.544	**0.896**	**0.87**

Bold type indicates >.20 difference in marginal probabilities.

dress) also define the more dangerous/difficult call schema. This contrasts with the less dangerous/easier call schema involving a more cooperative subject that the officer feels he/she can communicate with. This "easier" call may involve a female subject that is taking psychiatric medication and does not have a co-occurring substance use disorder.

This pattern of schema is consistent with factors the literature indicates are associated with violence and use of force by police. Substance use, gender (male) and younger age are predictors of violence in people with and without mental illnesses (Corrigan & Watson, 2005; Swanson, Holzer, Ganju, & Jono, 1990). (While mental illness itself presents only a small increase in the risk of violence, co-occurring substance use appears to significantly increase this risk (Steadman et al., 1998).) These characteristics, as well as resistance, hostile demeanor and the presence of a weapon on the part of subjects of police encounters with or without mental illnesses have been associated with greater likelihood of use of force by police officers (Johnson, 2011; Klahm & Tillyer, 2010). Additionally, there is some evidence that persons with mental illnesses may be more likely to be resistant and possess a weapon during police encounters (Johnson, 2011).

For the repeat crime report call type, the dangerous/difficult schema emerged similar to the other scenarios. However, two different less dangerous/easier call schemas emerged. One was a younger (<46) female who was cooperative with helpful family members present. The other, and largest category, was an older (>45) cooperative female. In our earlier qualitative interviews with officers, many talked about repeated calls from older adults who lived alone and may have been showing signs of cognitive decline. These individuals called police to report crimes they believed had occurred (e.g. thefts of misplaced items). However, upon investigation, there was no evidence of said crimes. Officers reported that they were often able to contact family members or senior services agencies to provide follow-up support.

Police officers likely have more than one schema for different general call types. What we may have captured here is not their only schema for each scenario type, but rather, their most accessible schema for each scenario type. A number of factors influence the specific schema accessed for a particular type of event. The frequency of encounters that fit a particular schema may make it more accessible—thus officers may have rated a scenario based on what they have encountered most often. Likewise, recency may increase accessibility—with officers rating the scenario based on the schema that fit their most recent call of that type. Emotion also influences accessibility—with schema associated with more emotion (fear, sympathy, disgust) being more accessible. Thus, one really dangerous call could make the dangerous/difficult call schema more accessible even if the less dangerous/easier call schema is more frequent and recent. This could explain why for the call to

home-adult and the street disturbance call types 24 and 20% more officers respectively were in the more dangerous/difficult call schema groups than the less dangerous/easier schema groups. Perhaps a more dangerous call schema remains more accessible, whether it is more frequent or not due to the emotion (fear, anger) involved.

While the literature suggests that schema develop over time with experience and training, we did not find that officer experience levels predicted schema group for any of the call types. Given our limited sample size, we did not have the power to assess model fit separately for the experience groups (novice, experienced, expert). Only a few of the other covariates were significantly associated with schema group. Female and older officers were more likely to be in the less dangerous/easier schema group for the street disturbance call and Philadelphia officers were more likely to be in the older less dangerous/easier schema group than their Chicago counterparts. The few significant covariates of schema group that we did find may be related to factors that influence schema accessibility that may vary by officer gender, age or community context. For example, in our qualitative interviews, Philadelphia officers frequently discussed repeat calls from older adults. These were mentioned by Chicago officers, but less frequently. This could represent differences in policing between cities that broadly, or more likely, reflect differences in the characteristics of the population of the specific training districts in each city.

4.1. Limitations

Findings from this study must be considered in the context of a number of limitations. First, as indicated above, our sample size limited our ability to more fully examine differences in model fit by experience groups. While our analysis did not suggest that officer level of experience predicted schema groups, we were unable to test models separately for each group to determine if somewhat different patterns emerged. Second, while our sample included officers from two cities, the generalizability of our findings may be limited by the selection of study districts in each city. In order to include a large enough sample of novice officers, we included only training districts, which are only small subsample of all districts in each city that may be different from other police districts in important ways. Thus, findings may not be generalizable beyond those districts or to other cities. Third, it is likely that officers have multiple schemas for each broad call type and what we captured was the most accessible schema at the time of data collection. A variety of factors likely influenced the schema they accessed at that moment. We can only guess at what may have influenced the accessibility of the particular schema. Fourth police encounters are very complex interactions. We determined general call types and elements to include based on qualitative interviews in each city. However, we may have inadvertently excluded call types or call elements important to officer schema of mental health related calls. Finally, we did not examine schema of nonMD/EDP calls. It is quite likely that dangerousness and threat play a key role in officer schema of calls not involving persons with mental illnesses. This would have been a useful and informative comparison.

4.1.1. Implications for future research

Our findings provide an initial glimpse into officer schema of and how they think about MD/EDP calls. Our ongoing research will examine the influence of MD/EDP call schema on the use of force and the decisions officers make regarding how to resolve the call. Future research with larger samples of officers is needed to better examine if there are differences in call schema between officers with different levels of training and experience and if so, whether this results in different approaches and outcomes in MD/EDP calls. The role of co-occurring substance use is clearly important to how officers think about these calls. Research that examines how officers determine a person has a mental illness, substance use disorder, or both and how this determination influences their response will be important to further our understanding of these calls.

4.1.2. Implications for police training

Our findings suggest that subject resistance and substance use are central to officer schema of MD/EDP calls. CIT training programs focus on teaching de-escalation skills to reduce resistance and generally include some information on co-occurring disorders. Given the key role that substance use played in the dangerous/difficult schema, additional attention may be warranted. An analysis of content on co-occurring disorders in existing CIT training curricula as well as assessments of officer knowledge and skill needs in this area is warranted to ensure that we are providing officers with the best tools possible to respond to calls involving persons with co-occurring disorders. Extending training related to de-escalation skills and co-occurring disorders beyond the CIT program may also be useful for preparing all officers to more safely respond to these calls.

4.2. Conclusions

Gaining a better understanding of officer schema, or the mindsets they apply to MD/EDP calls, provides a foundation for considering approaches to improve police response to persons with mental illnesses. While there is growing literature on how police officers respond to MD/EDP calls and response models to improve police response, our findings allow us to take a step back to better understand these calls from the perspective of police officers. Not surprisingly, call elements pertaining to safety are key to how officers think about these calls. Additional research is needed to fully develop our understanding of officer schema and factors that may influence schema. However, our findings point to the importance assessing the adequacy of existing police training and procedure for managing subject resistance and co-occurring substance use.

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