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Managing patient aggression in healthcare: Initial testing of a communication accommodation theory intervention

Patient-perpetrated workplace violence (WPV) in healthcare is common. Although communication skills trainings are helpful, they may be strengthened by having a theoretical framework to improve replicability across contexts. This study developed and conducted an initial test of a training framed by Communication Accommodation Theory (CAT) using longitudinal mixed-methods surveys of healthcare professionals in an American primary care clinic to increase their self-efficacy, patient cooperation, and use of CAT strategies to de-escalate patient aggression. Results of the intervention indicate that the CAT training significantly increased professionals' efficacy and reported patient cooperation over time. Findings showed that those who reported using more of the five CAT strategies also reported situations that they were able to de-escalate effectively. This initial test of a CAT training to prevent WPV demonstrates promise for the applicability of CAT strategies to de-escalate patient aggression, and the need to scale and test these trainings in settings that experience high WPV levels.

Key words: communication accommodation theory, workplace violence, de-escalation, healthcare, intervention

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Psychological processes attending language use and communicative phenomena are critical for effective healthcare communication. One particular healthcare interaction where effective communication is vital is in the provider and aggressive patient situation. Indeed, patient-perpetrated workplace violence (WPV) by means of verbal and physical attacks against a healthcare professional (HP) is common in healthcare settings across the world, often occurring daily, and is largely underreported (Stephens, 2019). Although many definitions of WPV exist in the literature, the current study refers to it as "any incidents where staff are abused, threatened or assaulted in circumstances relating to their work…involving an explicit or implicit challenge to their safety, well-being or health" (Mayhew & Chappell, 2005, p. 346). This definition is sufficiently broad to include all types of aggression and violence committed against HPs by any person receiving services in the healthcare setting. A broad definition is appropriate because the most common type of aggression experienced by HPs is verbal in nature.

Despite the prevalence of WPV, little has been done to understand the language and psychological processes in these interactions, let alone to intervene to improve the situation. In addition, over time, the prevalence of WPV has increased. Indeed, Stephens (2019) referred to WPV in nursing as "a rising epidemic". Blank and Mascitti-Mazur (1991) found that 25% of teaching hospitals in Pennsylvania, USA, in their sample reported at least one incident of verbal aggression per day, and one threat of physical aggression with a weapon per month. A 2017 review of violence against emergency medical personnel compared the nonfatal injury rates of HPs in emergency departments as similar to, or higher than, that experienced by police and firefighters. This indicates that the injury rate of HPs in emergency departments is higher than the national US average of all occupations (Maguire et al., 2017; Maguire & Smith, 2013). One study in Florida, USA, reported that 100% of nurses in the emergency department had experienced WPV in the last year (May & Grubb, 2002), often occurring within the first hour of a patient's visit (Crilly et al., 2004; see Nyberg et al., 2021 for a review). The current study addressed this lack of progress by reframing WPV training to include a strong applied communication theory component that historically has been omitted in staff training.

WPV has negative consequences for HPs in terms of feeling anger, burnout, low self-efficacy, and helplessness (Chambers, 1998). For patients, it also means the use of restraints, expensive antipsychotic drugs, and dissatisfactory care (Coburn & Mycyk, 2009), and for the organization itself it means increased HP absenteeism, turnover, and early retirement (e.g., Hastings et al., 2012). Previous research has documented that interpersonal communication skills training (see Burleson & Greene, 2003), including de-escalation and limit-setting, can equip HPs to successfully negotiate and reduce aggressive interactions in ways that can be mutually beneficial to all parties. De-escalation refers to the use of communication skills to redirect the patient to a calmer personal state to prevent

and diffuse WPV, while limit-setting refers to setting boundaries of acceptable behavior for patients in that setting (Cowin et al., 2003; Roberton et al., 2012). Previous communication skills training approaches have demonstrated benefits such as increasing staff self-efficacy in managing patient aggression (Pines et al., 2020). However, skills trainings have used scripted phrases that are specific to each type of encounter for each type of HP, thereby decreasing the replicability of trainings across contexts (Frazier et al., 2014; Roberton et al., 2012). As such, skills approaches would benefit from having a robust theoretical framework to improve replicability across contexts.

Communication Accommodation Theory and Health Communication Research

A training framed by theory allows for predicting and explaining behaviors across contexts rather than offering disparate skills that vary widely by type and context. Our study invokes Communication Accommodation Theory (CAT; e.g., Giles, 2016; Zhang & Pitts, 2019) to develop and initially test a training intervention to assist HPs interacting with aggressive patients in an outpatient primary care setting. "CAT is one of the most well-developed, widely recognized, and influential theories of interpersonal adjustment" (Gasiorek, 2019, p. 191; see also Gasiorek, 2016a) and, given its applicability across many disciplines, languages, and cultures, it is "one of the most influential behavioral theories of communication" (Littlejohn & Foss, 2005, p. 147). CAT positions social identity and personal identity as major motivators of interpersonal adjustment (Soliz & Giles, 2014). Thus, CAT addresses both individual and group level interactions and adjustments (Dragojevic & Giles, 2014). With four decades of work since its inception, invoking a panoply of quantitative and qualitative methods (see, for example, Giles, 2016), it has increased our understanding of many applied and institutional contexts, including health ones (see Watson & Soliz, 2019). Given the enormity of its scope, we detail below only the significant features relevant for the health setting of the current study.

In the healthcare context, the group identities that are salient are HP (and the varying subgroups therein, such as nurse, physician, administrative staff, allied health) and patient. A variety of group-level patient characteristics may also become salient in an interaction such as age, gender identity, or ethnicity, if they are discordant from their provider. In addition, previous research has demonstrated robust associations between accommodative behaviors and outcomes of interest such as increased well-being (e.g., self-efficacy, life satisfaction, and mental health), compliance (e.g., message agreement and persuasiveness), quality of contact (e.g., communication satisfaction and evaluation of the conversation), and relational solidarity (e.g., relational satisfaction, closeness, common ingroup identity, and intimacy; Soliz & Bergquist, 2016). Accommodation has been associated with the receiver feeling a reciprocal sense of trust and openness, self-control, and uncertainty reduction (Williams et al., 1990). These findings

underscore the utility and appropriateness of developing an intervention to lessen WPV that is framed by CAT for all HPs, including varying types of providers and administrative staff.

CAT posits that interlocutors can adjust their communication behaviors toward (convergence) or away from (divergence) their interaction partner to maintain a desired social identity and achieve communication goals (Giles, 2016; for other CAT tactics, see below). Interlocutors may use accommodation (Pitts & Harwood, 2015) or nonaccommodation, consciously or nonconsciously, to converge or diverge, respectively, as they pursue one or more conversational goals (Wilson, 2019). Nonaccommodation can emerge, for example, because of inappropriate adjustments to another, disaffiliation, or dissimilarity with one's interaction partner (Gasiorek, 2016b). Nonaccommodation may have cognitive and behavioral consequences, such as miscommunication, misunderstanding, communication breakdown, and hostility. It can lead to undesirable outcomes for the recipients in terms of less positive evaluations of the speaker, a dissatisfying interaction, as well as lowered relational solidarity (see Colaner et al., 2014). Accommodation is beneficial for achieving the opposite effects.

Hence, CAT can provide a theoretical framework to assist HPs in understanding their reactions to, and the patient's possible motivations for, WPV. Indeed, CAT considers the interlocutors' initial orientations toward their conversation partner(s) and takes into account the role of interpersonal attitudes, interpersonal history, and the sociocultural context within which the interaction is situated (Gallois et al., 2005). Examining initial orientation and increasing knowledge of how to accommodate appropriately enables HPs to respond to patient aggression using behaviors that better fit the specific context. Thus, it is not only communication skills per se, but the understanding of self and other that can change the WPV outcome (see Watson, 2020). To assist HPs in having the necessary repertoire and appropriate approach to patient aggression and achieve de-escalation, the current study aimed to test a new training of effective communication accommodation behaviors developed for HPs to prevent WPV.

Using Training to Improve Healthcare Professionals' Communication with Patients

It cannot be assumed that people have the requisite knowledge to make the appropriate interpersonal and accommodative communication adjustments. Across applied settings and in several countries, researchers have invoked CAT to develop intervention trainings to improve interactions and outcomes, such as in learning a foreign language (e.g., Weizheng, 2019) and in classroom education (e.g., Parcha, 2014). In healthcare, CAT was used to develop an intervention training for junior pharmacists in the final stages of their medical education. The researcher, who was also a trained pharmacist, delivered a lecture on CAT (Chevalier et al., 2020), which was followed by the junior pharmacists

practicing strategies with one another. Participants completed a patient-centered communication survey three times: prior to the training, after participating in three CAT tutorials, and six to twelve months into their internship (post-graduation). The training changed pharmacist communication behaviors with patients. Specifically, they demonstrated their awareness of applying CAT strategies. These changes were maintained or increased over time.

Most, if not all, CAT intervention trainings teach participants five main communication strategies that can be used to adjust toward or away from a speaker (see, Dragojevic et al., 2016). First, *approximation* strategies are verbal and nonverbal shifts away or toward an interlocutor (e.g., increasing/decreasing speech rate, increasing/decreasing volume, adopting similar terms as the patient). Next, *interpretability* strategies are related to increasing or decreasing the level of comprehensibility (e.g., a doctor using medical jargon or everyday language). *Discourse management* strategies focus on the macroconversation, such as turn-taking, inviting questions from the other speaker, and selecting appropriate topics (e.g., an HP allowing the patient sufficient time in the conversation to speak, voice their concerns, and ask questions). *Interpersonal control* strategies refer to any moves that highlight the status and role of the other interlocutor in the conversation, such as the use of interruptions, directives, or honorifics (e.g., the HP informing the patient what they are going to do and directing the course of the visit). Lastly, *emotional expression* refers to the extent to which the speaker accommodates their interlocutor (or not) in terms of their emotional states. This occurs through legitimizing and acknowledging the other person's feelings, which can signal empathy (e.g., verbally validating a patient's fears, concerns and frustrations; Watson & Gallois, 1998; Williams et al., 1990). Generally, the recipient feels a sense of reciprocal trust and openness, self-control, and uncertainty reduction when accommodated to by these means.

In healthcare domains, an appropriate blend of the above strategies is required to achieve patient trust and satisfaction that would constitute effective accommodation. Previous research has shown that patients prefer to be accommodated to especially along the dimensions of interpersonal control, discourse management, and emotional expression (Watson & Gallois, 2002). Indeed, strategy use in a conversation is dynamic in that one communicative behavior may function as several strategies simultaneously (Gallois et al., 2016).

Unfortunately, even though previous healthcare intervention trainings – a few of which used CAT – have improved healthcare communication, improvements may not be lasting over a longer period. For example, some improvements due to communication intervention training have included more effective communication between pharmacists and patients with respect to appropriate approximation, emotional expression, and discourse management. These findings may assist in increasing patient compliance with medication use (Chevalier et al., 2020). For example, one study tested the effectiveness of training care nurses to improve their communication with nursing home patients by decreasing their patronizing

(over-accommodative) talk (Williams & Jones, 2006). Despite finding that the intervention was successful immediately following the training, effects dissipated after two months.

Given the detrimental effects of experiencing WPV for medical staff, including diminished self-efficacy and increased absenteeism, it would be beneficial to be able to increase patient cooperation and understand what CAT strategies medical staff use to do so. As such, to learn more about what combination of strategies HPs use in the HP-aggressive patient interaction, the ways it is associated with outcomes of interest, and how effects of a CAT training may last over months, this study posed the following research question and hypothesis, based on the research cited above:

RQ: What accommodation processes do HPs describe themselves using when (a) effectively and (b) ineffectively de-escalating encounters with aggressive patients before training and three months later?

H: Training HPs in communication accommodation strategies will increase (a) HP self-efficacy and (b) perceived patient cooperation.

The paper will describe the methods including the content, delivery, participants, and measurement of efficacy of the intervention. Then, the results will be presented, followed by a discussion summarizing the main findings with a commentary on the strengths and limitations of the study before concluding.

Method

Participants

One hundred and fifty-five HPs from an organization with seven clinic locations attended a training at their monthly all-staff meeting (June 2019) that lasted approximately one hour. The final sample consisted of 43 participants across four clinics[1]. Of them, 88.6% identified as female, had a mean age of 32.38 years, (SD = 10.12) worked at their healthcare organization for an average of 41 months (SD = 46.86), and 91% were full-time employees. When asked if they had taken a de-escalation training before, 72.73% reported no prior training, and 22.73% reported receiving training previously. Participants were employed across 11 unique positions at the clinic, including medical assistants, phlebotomists, nurse practitioners, dentists, dental assistants, social workers, and administrative personnel. Of them, 35% were administrative personnel such as front desk employees and those who assist with billing and referrals. All participants interacted with patients in the clinic on a daily basis. In addition to any medical interactions performed by HPs at the clinic, such as discussing diagnoses and medical complaints and understanding health history,

1 Due to insufficient time in staff meetings, three of the seven clinics did not complete the three-month follow-up survey, thereby contributing to high attrition rates.

administrative staff discussed appointment scheduling with patients, registered them upon their arrival, assisted with insurance and payment discussions, and placed and explained referrals.

Procedures

To prepare for the training and increase buy-in from key stakeholders at the clinics, the first author spent a day at each clinic where she had informal conversations with clinic staff about their experiences with patient aggression and, at times, shadowed clinicians. Having HPs provide input while developing the training was essential not only because they shared important knowledge that was incorporated, but because it also meant that they understood the training was not limited to explaining a *soft skill*, a term to describe communication in medicine (Jelphs, 2006), which could be viewed as less important than other training.

When participants arrived for the training, they were each directed to sit at a table (4-7 persons per table) where their specialty was named (physicians, front desk staff, etc.). They received a packet containing the consent form and the surveys. Before beginning the training, the first author presented information about the training and related research study. The first author stated that the training aimed to improve their communication accommodativeness to prevent WPV[2]. Participants completed a baseline survey with closed- and open-ended questions gauging their knowledge about, attitudes toward, and use of communication behaviors in interactions with aggressive patients. Next, one participant per table engaged in a role play with a third-party trained volunteer. Volunteers were not HPs, and were not being trained to prevent WPV. Instead, volunteers were directed to role-play an aggressive patient that represented the types of patients those HPs had reported they encountered in the clinic in the past[3]. The other participants at each table observed the interaction. All tables engaged in the role play at the same time. It is common for all HPs to engage in role-plays through their medical education and organizational training.

Following the role play, the first author delivered a 20-minute lecture framed by CAT which was similar to the one in Chevalier et al. (2020). The lecture contained information about effective ways for approaching patient aggression, including making external attributions for patient aggression (Pines et al., 2020), and how to use the five CAT strategies (outlined above) in an interaction. Participants then engaged in a second round of role play. In this round, participants at each table chose a different person to be the HP, and were paired with a different trained volunteer. The remaining participants at the table observed the role play. All tables completed the role play simultaneously to practice their new communication

2 Staff could choose to attend the training and not participate in the research study by simply not filling out the surveys before and after the training.

3 Scenarios were developed based on observations while the first author was in the clinics and informal interviews with key informants at each clinic. Those informants were invited to review and edit the scenarios prior to the training to ensure relevance. Scenarios used are available from the first author upon request.

accommodation strategies. Participants then completed a post-survey before leaving for the day.

Three months after the training, the HPs received a follow-up survey either through email or by a member of the research team visiting each clinic once during their monthly meeting. In sum, data were collected at three time points: prior to the training, immediately following the training, and three months later.

Measures

Mixed-methods data were collected to understand rich, in-depth information about the HPs' experiences. In addition, variables were measured in the following way:

Experience of Workplace Violence

Participants listed, in an open-ended manner, the number of WPV events they had experienced, both at pre-training, and three months later. Experience of WPV was not asked at post-training, as this would not have changed within the one hour of the training. Participants described how they managed patient aggression. They were provided with the following definition of WPV to read prior to responding: "any incidents where staff are abused, threatened or assaulted in circumstances relating to their work…involving an explicit or implicit challenge to their safety, well-being or health" (Mayhew & Chappell, 2005, p. 346). The question prompt then read: "With that in mind, how many experiences of workplace violence have you experienced? Please describe what happened in the most memorable of these interactions. Try to include quotations of things you and the patient said to one another, and the way you both communicated using your body language." This variable was measured again at three months later, with the prompt adding: "Since the training, how many experiences of workplace violence …"

Self-Efficacy

Participants completed an adapted four-item scale to probe how confident they felt about communicating with an aggressive patient (see Afifi & Afifi, 2009). An example item is "I can communicate with an aggressive patient to de-escalate the interaction." Items were measured on a five-point Likert-type scale from 1 (*strongly disagree*) to 5 (*strongly agree*). This variable was measured at pre-training, post-training and three months later (pre-training $\alpha = .78$; post-training $\alpha = .81$; follow-up $\alpha = .75$).

Patient Cooperation

Participants responded to the following question: "When a patient is aggressive, I am usually able to make the patient cooperate enough to complete my job tasks." This variable was measured on a five-point Likert-type scale from 1 (*strongly disagree*) to 5 (*strongly agree*) at pretraining and three months later.

Accommodation

Nine accommodation items were included in the three-month follow-up survey to assess use of the five communication accommodation strategies following the training. This scale was adapted from Chevalier et al. (2020). Sample items included: "I avoided the use of medical terms that the patient wouldn't understand [Interpretability strategy]" and "I spoke to the patient in a respectful and courteous manner [Interpersonal control strategy]" ($\alpha = .88$). Accommodation was also coded deductively by the first author in the open-ended responses where participants wrote about their experience of WPV at pre-training and three months later.

Demographic Variables

Other variables were explored for their impact on effectiveness of managing patient aggression, including the department that the HP worked in, months of working at the clinic, gender identity, age, and having received prior de-escalation training.

Analysis

To answer the research question concerning the accommodation processes, HPs described interactions they had in which they (a) effectively and (b) ineffectively de-escalated encounters with aggressive patients before the training and at the three-month follow-up. The first author coded the open-ended participant responses for CAT strategies using Atlas.ti 8.4.4. Responses were coded deductively by identifying any instances of the presence of one of the five CAT strategies (i.e., approximation, interpretability, discourse management, emotional expression, interpersonal control). Instances were coded as more than one strategy when appropriate. Data analysis was conducted in consultation with the second and third authors.

To test the hypothesis, data were analyzed using SPSS 26 to conduct repeated-measures analyses. Composite scores were created for each variable and used for analysis after assessing variable reliability. Self-efficacy data were subjected to a repeated-measures analysis of covariance (ANCOVA). Upon review of the following possible continuous covariates and categorical between-subjects variables, none were significant. Therefore, they were excluded from the analysis: department, $F(12, 70) = .84$, $p = .61$, partial $\eta^2 = .13$; length of working at the clinic, $F(2, 38) = .2.09$, $p = .14$, partial $\eta^2 = .10$; gender identity, $F(2, 39) = 1.67$, $p = .20$, partial $\eta^2 = .08$; and having received prior de-escalation training, $F(2, 38) = .44$, $p = .65$, partial $\eta^2 = .02$. However, age was a significant covariate, $F(2, 38) = 3.84$, $p = .03$, partial $\eta^2 = .17$, and was included in the analysis.

Results

The data provided important contextual information about the nature of WPV at this organization. Specifically, participants reported generally low experiences of WPV. At pre-training, 24.68% reported no experiences of WPV. Participants reported having experienced 1.27 instances of WPV on average (*SD* = .80), with the majority of participants reporting one experience of WPV (40.26%). However, others (20.78%) reported experiencing "multiple," "many" or "several" experiences of WPV. One participant said, "too numerous to count, where do I start?!" (Licensed Clinical Social Worker). The majority of experiences were about times when a patient did not get what they were requesting, such as an appointment time or narcotic pain medication. This resulted in experiences where patients used profanity or "foul language," and the HP perceived the patient to be trying to physically intimidate them. One person explained that a patient "ended up backing me into a corner and using his size/volume/body language etc. to dominate over me" (Dentistry). The majority of responses regarded verbal attacks, ranging in intensity from suggesting HP incompetence, like "Does anyone know anything around here?" (Medical Staff), to serious threats, like patients bringing guns with them to the clinic. One HP described the following experience: "A psychotic patient threatened to kill me and my family. It was like he was reading a script, totally deadpan" (Medical Staff). The most common location where WPV occurred was at the front desk waiting area (33.33%). Given this, the baseline for experiencing WPV was low and mostly verbal at pre-training.

Research Question: Accommodation Processes in Workplace Violence Experiences Across Time

The research question asked about the accommodation strategies HPs described in their experiences of WPV over time (i.e., at pre-training and three-month follow-up). Results showed that very few participants gave full accounts of their own actions in the interaction, instead explaining only what the patient did.

At pre-training, 15 participants gave accounts of their experience and, of these, eight stories did not lead to de-escalation. In many of these stories, the focus of the response was only on what the patient did, and not on what the participant may have attempted to do to de-escalate the situation. This suggested that the absence of any accommodative processes was an ineffective way to manage the situation. For those HPs who described their own behaviors, the most common strategy (30%) identified at pre-training in successful interactions was discourse management and emotional expression, such that HPs cited their ability to listen to the patient and to gain understanding. For example, in one story at pre-training, a participant said "I was able to speak to patient and understand what he needed. Patient left happy. If you just listen to them" (Medical Administration).

No responses at pre-training were coded as including interpersonal control, interpretability, or approximation.

At the three-month follow-up, 18 participants described an experience with WPV. Of those, five (26.31%) participant responses reflected use of interpersonal control strategies. For example, the following participant explained how they removed an aggressive patient from the clinic: “asked patient to meet with me outside after he scared a co-worker” (Medical Administration) after which the participant described calling for help with removing the patient from the clinic. This strategy was effective in maintaining HP safety, but was less effective in providing high quality patient care. Also, participants described using interpretability strategies more often, which often overlapped with interpersonal control and discourse management strategies. The following participant explained an interaction where they were able to make sure a situation did not escalate by using interpretability and interpersonal control strategies:

"Patient came in and was in pain, but did not have an appointment. I explained that our emergency walk-in times were usually first thing in the morning…I used small words and minimal hand gesture in my explanations, as to not aggravate the patient." (Dentistry)

In this response, the HP used interpersonal control to explain scheduling to the person such that they appropriately maintained their professional position of power over the interaction. They also used interpretability by choosing small words, implying the importance of the patient being able to understand the words to remain calm. No responses included approximation, as no HPs reported converging to the patients’ words or rate of speech. More effective de-escalation examples came from medical administration HPs, whereas less effective ones came mainly from dentistry, and only some from medical administration. Use of CAT strategies increased over time and, in the written responses at the three-month follow-up, participants described their behaviors and appeared to report using at least three, if not all of the five strategies. As such, in cases of patient aggression, effective accommodation requires the use of all of the CAT strategies to increase the likelihood of successful de-escalation and WPV prevention

Hypothesis: Communication Accommodation and Key Outcomes

The hypothesis anticipated that training in the use of accommodation strategies would increase self-efficacy and perceived patient cooperation. ANCOVA results indicated a significant change in self-efficacy over time, $F(2, 38) = 3.37$, $p = .05$, $\eta^2 = .15$. Post-hoc comparisons of time points indicated a significant increase in self-efficacy from pre-training ($M = 3.66$) to post-training ($M = 4.05$), $p < .001$. There was no significant difference between post-training ($M = 4.05$) and the three-month follow-up ($M = 3.90$), $p = .09$. Nonetheless, there was a significant increase in self-efficacy in managing patient aggression from pre-training ($M = 3.66$) to the three-month follow-up ($M = 3.90$), $p = .02$. As such, the training

significantly increased HP self-efficacy in managing patient aggression, and this effect was sustained over time.

To determine the association with accommodation, participants completed quantitative CAT measures about their own behaviors only at the three-month follow-up. There was a positive, significant association between self-efficacy in managing patient aggression and accommodation, $r = .48$, $p < .001$ indicating that the more self-efficacious the HPs felt, which increased as a result of the training, the more likely they were to report accommodating patients.

Regarding the extent to which HPs reported achieving patient cooperation over time, there was a significant increase in HP ability to achieve patient cooperation from pre-training to the three-month follow-up, $t(41) = 2.93$, $p = .01$, and a positive, nonsignificant correlation between accommodation and patient cooperation, $r = .25$, $p = .10$. These results indicate a trend in the expected direction, such that the more the HPs accommodated patients, the more they achieved patient cooperation, which significantly increased after the training. Given the significant increases in self-efficacy and patient cooperation, the hypothesis was confirmed.

Discussion

The current study developed and initially tested the effectiveness of a CAT training for HPs to prevent WPV. Results suggest that, when faced with patient aggression, HPs may have used more accommodation strategies to de-escalate the situation. In addition, results demonstrated significant improvements in HP-reported self-efficacy and patient cooperation following the training, and these lasted over a three-month period. In particular, HPs reported using interpretability, interpersonal control, and discourse management strategies more often three months after the training. Altogether, results of this initial study demonstrate considerable promise for CAT interventions for HPs to reduce and prevent WPV.

Similar to previous interpersonal skills research (Pines et al., 2020), a CAT training also helps increase HP confidence in managing patient aggression and, according to participants, increase patient cooperation. Given the diversity of types of HPs in this training (i.e., medical HPs, dental HPs, administrative staff, mental health clinicians, etc.) and the strong theoretical basis of this training, it is possible it is generalizable across healthcare contexts, such as other clinics and hospitals. Previous trainings of interpersonal skills, although at times effective, are often vague in defining the communication skills being taught, suggesting the use of scripted phrases (e.g., Frazier et al., 2014), but they do not always state what those phrases are or how to best deliver them. Rather than focusing on any particular script, CAT strategies provide an overall communication approach to the encounter that can be used by all HPs and in any interaction. Stated differently, by having the five CAT strategies taught in this training, along with the CAT focus on context and approach, this training can be used across contexts.

More specific to strategies used by HPs, results of this initial study indicate that using more CAT strategies was important for effective de-escalation rather than engaging in any one particular strategy. For example, responses where the HPs did not report using any of the strategies or did not report on their own behaviors at all were ones in which the HPs did not effectively de-escalate the interaction. One possible explanation may be that prior to the training, HPs focused on giving the patient space to be upset and vent. In informal conversations with the first author prior to the training, HPs reported that there was high value in allowing a patient to express their frustration when situations were escalating prior to doing anything else. However, allowing the patient to vent without appropriately employing accommodation strategies may be passively allowing the interaction to escalate. For example, without using emotional expression to validate the patient's feelings, interpersonal control to actively guide the patient through the visit and/or without using interpretability to clearly tell the patient what is going to happen, the interaction may escalate.

The HP responses indicating no use of interpersonal control or interpretability strategies are consequential. It may be the case that patients experience confusion without having clear knowledge of what is going to happen. This could be alleviated by having HPs use interpersonal control and interpretability strategies to direct the interaction with phrases the patients can understand. By using interpretability, HPs effectively reduce their use of hard-to-understand jargon. Eliminating jargon in patient care has been recognized as highly important by previous research. For example, Shulman et al. (2020) found that jargon lessens the receiver's ability to process scientific information, even when the speaker defines the jargon. Following this, people report less interest in the subject matter, and report lower levels of understanding. If an HP uses scientific medical jargon, a patient may not understand the information and feel confused, alongside any other emotions they may be experiencing (e.g., frustration, pain, fear). Patients who are confused and frustrated are more likely to perpetrate WPV (Tishler et al., 2013). In addition, if patients do not understand the scientific medical jargon, they are not likely to adhere to the information it contains (e.g., poor medication adherence; Bosworth, 2010), which may ultimately damage their health. By using a combination of strategies, including interpretability and interpersonal control, HPs are more effective in de-escalating patient aggression and providing high-quality patient care.

Lastly, the results of this study demonstrate promise for the utility of CAT training for preventing WPV in two main ways. First, the effects lasted over a three-month period. Previous communication trainings have shown that training effects can dissipate over time (Williams & Jones. 2006). Little to no research regarding the effectiveness of communication trainings to prevent WPV has been longitudinal. Second, in addition to the results of this study, the training was also delivered to a small group of HPs in a different cultural context, namely, Hong Kong (n = 14), and was cross-sectional. Although the sample size was too small

to report formal results here, participants confirmed the utility of the training and the applicability of what they learned to their own practice. For example, one participant stated that they expected what they learned that day to last their "whole life long," indicating that they found the training to be valuable. Hence, both the current study and the data from Hong Kong provide preliminary evidence that CAT training can increase HP self-efficacy, communication strategy use, and reported patient cooperation over time.

Stemming from these promising findings, we offer a communication-oriented model of training to prevent WPV in which CAT strategies are central (see Figure 1). This model situates the CAT strategies within the context of the organization including its norms, the attitudes and orientation toward patients held by HPs, the consequences of poorly managed WPV, and the desirable outcomes associated with its effective management. The results of this study have shown associations between many of the CAT strategies and desirable outcomes. However, there remains a rich area of inquiry and intervention available for researchers to investigate to improve WPV prevention. We offer this model as a generative depiction of the promising capabilities of a CAT intervention in the WPV arena.

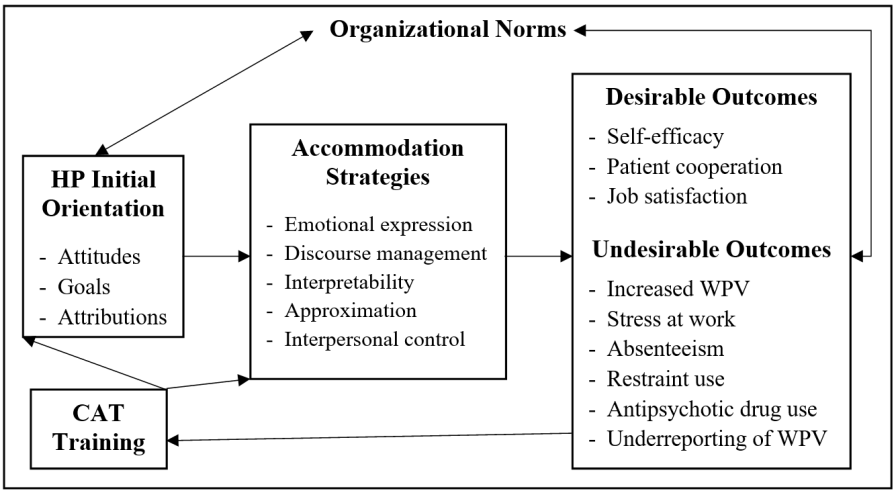

Figure 1. Communication-oriented model of communication accomodation theory training for improved healthcare professional-aggressive patient interactions.

Limitations and Future Directions

Limitations of this study suggest at least three future directions. First, given the self-report nature of data in this study and the small sample size, future research should collect naturalistic, recording-based data of HP-aggressive patient interactions to understand how HP perceptions and observer perceptions of patient cooperation do and do not align. In addition, collecting observational data could provide insight into the intergroup components of interactions by observing how age, gender, and ethnicity of the HP and the patient may impact

the interaction when salient. Lastly, observational data could clarify the use of CAT strategies. It may be the case that participants used the strategies despite not reporting them. For example, no HP responses included approximation, yet discursive data might reveal its use in the form of HPs adjusting the rate of the conversation and matching the patient's words.

Second, HPs in the current study reported low experiences of WPV at pre-training. This did not allow for much variance or ability of the training to lessen WPV beyond the already very low level. As such, future research should replicate this training at larger organizations with higher rates of WPV. In addition, collecting data from organizations about rates of WPV, rather than HPs' self-reports, may also create a clearer, more objective understanding of the amount of WPV at the organization in future uses of this training. For example, it may be the case that HPs do not report experiencing WPV due to trying to maintain privacy of that information for fear that the experience may reflect poorly on their job competency (see the communication privacy management theory; Petronio, 2013). Future research should probe under what circumstances HPs report WPV or not.

Third, this study tested a small portion of the theoretical constructs that CAT contains, and only several possible outcomes of interest. For example, this study did not focus on nonaccommodation because it is largely recipient-focused (e.g., Giles & Gasiorek, 2013). Future research should consider additional components of CAT. For example, how do HPs' attitudes and attributions about patient aggression impact the CAT strategies they use? How do organizational norms impact the interactions and likelihood to use CAT strategies to de-escalate successfully or not?

Conclusion

This study extends the utility of CAT for creating interventions in healthcare and shows great potential for WPV prevention. Given the theoretical framing of this training using a major theory in the psychology of language and communication, results arising from it provide preliminary evidence that it can extend into other areas in healthcare, including dentistry and surgery, among others, and across cultures. Specifically, this study demonstrates the importance of intergroup dynamics in healthcare interactions, including those between HPs and aggressive patients. It also shows the value of theory-based communication trainings for HPs across specialties. Lastly, it suggests potential utility of CAT trainings for de-escalation in other relevant social contexts, including law enforcement (see Giles et al., 2021).

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Conflict of Interest Disclosure

The authors have no conflicts of interest to declare.

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Research Ethics Statement

This work was conducted in accordance with ethical guidelines by receiving IRB approval from the IRB at UCSB (#80-20-0822)

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