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Revising the Resistiveness to Care Scale

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Abstract

Background and Purpose—The Resistiveness to Care Scale for Dementia of the Alzheimer's Type was developed to quantify care-resistant behavior. The purpose of this article is to explain how the instrument was modified and tested in two clinical studies that examined interventions to improve the oral hygiene of persons with dementia who resist care.

Methods—After pilot testing, the revised instrument (RTC-r) was used in 7 facilities ($N = 83$ residents). Systematic training procedures were implemented to preserve reliability.

Results—Clinical validity was confirmed throughout the pilot and interventional studies. Reliability was assessed using inter-rater reliability, which ranged from 0.87 ($p < .001$) to 1.0 ($p < .001$) across 2,328 mouth care observations.

Conclusions—The RTC-r validly and reliably measures care-resistant behavior in persons with dementia.

Keywords

resistiveness to care; dementia; nursing home; oral hygiene

Resistiveness to care is a common behavioral response observed in persons with dementia, especially when the care involves close proximity between the older adult and the caregiver (Jablonski, Kolanowski, et al., 2011; Jablonski, Therrien, & Kolanowski, 2011; Willumsen, Karlsen, Naess, & Bjørntvedt, 2012). Resistiveness to care is common during oral hygiene.

In fact, formal caregivers cite resistiveness as one of the primary reasons for not performing this necessary activity (Jablonski et al., 2009; Willumsen et al., 2012). Nurses, either as direct providers of oral care or supervisors of unlicensed staff who deliver mouth care, are often faced with challenging care-resistant behaviors. Given that oral hygiene is truly oral infection control, there is a need for the development of interventions that reduce resistiveness to care during mouth care. Equally important is the need for reliable and valid instruments that capture the effectiveness of these interventions. The Resistiveness to Care Scale for Dementia of the Alzheimer's Type (RTC-DAT) is an observational measure that was developed by Mahoney and colleagues (Mahoney, Hurley, Volicer, Bell et al., 1999; Volicer, Hurley, & Mahoney, 2015) that quantifies care-resistant behavior in older adults with dementia. Jablonski and colleagues modified the instrument to measure care-resistant behavior in real-time clinical settings. The purpose of this article is to describe the modifications of the RTC-DAT that were made in a pilot study and the resulting successful application of the revised instrument in an ongoing clinical study. For clarity, the original instrument will be referred to as RTC-DAT and the modified instrument as Resistiveness to Care Scale-Revised (RTC-r).

Background and Conceptual Framework

Resistiveness to care involves behaviors “invoked by a caregiving encounter ... defined as the repertoire of behaviors with which persons with dementia withstand or oppose the efforts of a caregiver” (Mahoney, Hurley, Volicer, Bell et al., 1999, p. 28). In earlier research, behavior meeting this definition was usually labeled as “uncooperative behavior” (Adams, 1996; Kambhu & Levy, 1993; Pyle, Jasinevicius, Sawyer, & Madsen, 2005), “disruptive behavior” (Algase et al., 1996; Kolanowski & Whall, 2000; Whall, 2002), or as “agitation” (Volicer, Bass, & Luther, 2007). Investigators in the past decade have made important distinctions between the latter construct and resistiveness to care. The major difference between the two involves contextual clues. That is, agitation usually occurs without a preceding event, whereas care-resistant behavior occurs in response to a precipitating event (Hurley et al., 1999; Mahoney, Hurley, Volicer, Bell et al., 1999; Volicer et al., 2007). Agitation is evident in persons with mild dementia and increases with moderate dementia then wanes as the dementia progresses to severe (Volicer et al., 2007). Resistiveness to care, however, increases exponentially as the severity of dementia increases; one study found an eightfold increase in overall care-resistant behaviors (CRBs) when dementia progressed to severe (Volicer et al., 2007). Resistiveness to care is also associated with functional status; older adults with dementia who require more assistance are more likely to exhibit CRB (Beck et al., 1997).

Persons with dementia experience neurological changes that create heightened threat perception, that is, even innocuous caregiving activities may be perceived as an assault and initiate the flight or fight response (Jablonski, Therrien, & Kolanowski, 2011). CRB during mouth care makes conceptual sense: Persons with dementia are engaging in a fight or flight response to an “attacker” who is literally “in their face.”

Description of Original Instrument Development

The RTC-DAT is a 13-item instrument that was designed to be used with video-recorded behaviors (Mahoney, Hurley, Volicer, Bell et al., 1999; Volicer et al., 2015). Scoring involves rating each of the 13 behaviors on duration and intensity. Duration is measured using a 5-point scale: 0 = *absent*; 1 = *less than 16 s*; 2 = *16–59 s*; 3 = *1–2 min*; and 4 = *more than 2 min*. Intensity is quantified as mild (1), moderate (2), or extreme (3). Please see Figure 1 for an example. To capture the severity of the behaviors, the duration and intensity scores for each item are multiplied. All scores are then summed, to provide a total RTC score. The range for possible scores were 0 (*no resistiveness*) to 156 (*maximum resistiveness*). In addition, a 100 mm visual analogue scale (VAS) with the anchors of “no resistiveness” and “extreme resistiveness” is at the bottom of the instrument to capture global resistiveness.

The original RTC-DAT was developed over the course of three studies (Mahoney, Hurley, Volicer, Bell, et al., 1999; Volicer et al., 2015). During the first study, Mahoney and colleagues (1999) developed a 13-item instrument, which achieved a content validity index of 1.0 ($p < .05$). The items and corresponding operational definitions were derived from direct observation of nursing home (NH) residents and interviews with direct care staff (Mahoney, Hurley, Volicer, Bell et al., 1999; Volicer et al., 2015). The second and third studies provided more psychometric data. Criterion-related validity was established by comparing the RTC-DAT scores with scores from the Discomfort Scale (Hurley, Volicer, Hanrahan, Houde, & Volicer, 1992). The RTC-DAT and Discomfort Scale correlated positively (Pearson correlation $r = .50$, $p < .001$). The instrument was found to be internally consistent (Cronbach's alpha = .87). Kappa scores for the individual items ranged from .82 to .92. The VAS and total scores also correlated well: $r = .74$, $p < .001$ (Mahoney, Hurley, Volicer, Bell et al., 1999; Volicer et al., 2015).

Description of Modifications to Administration and Scoring

We chose to use the RTC-DAT in a pilot study that examined the feasibility of an intervention to reduce CRBs exhibited by NH residents with dementia while receiving mouth care (Jablonski, Therrien, Mahoney, et al., 2011). The pilot study employed a quasi-experimental design with participants serving as their own controls. The intervention, dubbed MOUTH (Managing Oral Hygiene Using Threat Reduction), combined best oral hygiene practices with caregiver behaviors designed to minimize threat perception on the part of the elder with dementia. Examples of the caregiver behaviors included smiling, using judicious touch, and bridging (having the elder hold a toothbrush while the mouth care provider completed mouth care). For more information about the MOUTH intervention, please see Jablonski, Therrien, Mahoney, et al. (2011) and Jablonski-Jaudon et al. (2016).

Participants were first observed twice daily for 3 days receiving mouth care from nursing home employees. CRBs were recorded during all mouth care interactions. The next 14 days were the intervention period, during which participants received mouth care from research staff twice daily while CRB data were collected. Procedures and results have been published elsewhere (Jablonski, Therrien, Mahoney, et al., 2011).

Although the RTC-DAT instrument was a conceptual fit, our research design required real-time measurement of CRBs instead of delayed measurement from videotaped interactions. An integral component of the MOUTH intervention was performing oral hygiene in a bathroom or at least in front of a sink to evoke procedural memories (Jablonski, Therrien, Mahoney, et al., 2011). Videotaping was impractical because the confined space of the bathrooms limited positioning of the camera and light reflected from mirrors obliterated images, resulting in incomplete CRB data. Another concern was accidentally capturing nonparticipants on film.

To adapt the RTC-DAT for real-time use, the duration categories were removed because of the impracticality of recording both behaviors and their individual durations simultaneously. The original instrument, as noted in Figure 1, used fixed duration categories to measure the quantity of a specific behavior (0 = *absent*; 1 = *less than 16 s*; 2 = *16–59 s*; 3 = *1–2 min*; and 4 = *more than 2 min*). Each of the 13 behaviors was listed on the left side of the instrument. Across from each behavior were the five duration categories. A final column listed three quality indicators: mild, moderate, and extreme. For the original RTC-DAT, only one quality indicator could be selected and was based on the most severe of the observed behaviors. In other words, if the resident mildly turned her head away several times throughout the caregiving interaction but engaged in one extreme behavior, such as yelling loudly, the entire care-resistant behavior was coded as “extreme.”

The changes to the instrument are provided in Figure 2. We replaced the duration category with three columns representing one quality indicator (mild, moderate, or extreme). Raters were instructed to place a “tick” every time a behavior was observed. To capture the intensity of a particular behavior, we trained the raters to categorize all individual behaviors according to intensity: mild, moderate, and extreme. Thus, the sum for every category of behavior was multiplied by 1 for mild, 2 for moderate, and 3 for extreme. For example, a rater may have recorded two episodes of mild behavior (2×1), five episodes of moderate behavior (5×2), and two episodes of extreme behavior (2×3), for a CRB score of 18. This change affected the scoring of the instrument. The original RTC-DAT produced scores that ranged from a minimum of 0 to a maximum of 156. The RTC-r, however, was open-ended in that the maximum score could be larger than 156.

We also added a question regarding the completion of mouth care on the side of the RTC-r (Figure 2). The responses to the question assisted with CRB score interpretation and catalogued reasons for missing scores.

Because CRB raters did not always see residents clench their mouths or bite the toothbrushes during mouth care, we initiated a procedural change. To more reliably capture clenching or biting, which was not always apparent to the observer, we asked mouth care providers to report episodes of clenching or biting.

Settings and Samples—The setting for the initial pilot study was a 250-bed nonprofit nursing home (NH). Eligibility for the study included a documented diagnosis of dementia or Alzheimer's disease, age 65 years or older, having a minimum of two adjacent teeth or consistently using at least one denture plate, and identified by the NH staff as care-resistant

to oral hygiene activities. After receiving consents from the legally authorized representatives, seven NH residents were enrolled. All had a diagnosis of “dementia” but no additional evaluation had occurred to determine the subtype (e.g., vascular, Alzheimer's, or Lewy body). The mean Global Deterioration Scale was 5.86 ($SD = 0.90$), indicating moderately severe dementia. All were White and most were female (86%). The mean age was 82.29 years ($SD = 4.31$).

Procedures—The principal investigator (PI; RJJ) obtained the list of operational definitions from the RTC-DAT's original authors. An example of an operationalized behavior and the three qualifiers are listed in Table 1. The principal investigator developed training materials for all CRB raters, including a PowerPoint presentation and a standardized video. This video illustrated all of the care-resistant behaviors at various intensities occurring during mouth care interactions. An RTC-r instrument was completed for the video and served as the “answer key.” All CRB raters attended a class given by the PI, which included using the RTC-r to rate CRBs from the video. The video was replayed frame by frame and the CRB raters debriefed.

Reliability Assessments and Results—Reliability of the RTC-r was assessed in the pilot study using inter-rater reliability. Reliability was assessed as part of the mandatory rater training during both observation periods. During the 3-day observation period of the pilot study, the raters' RTC-r instruments were compared to the PIs for inter-rater reliability. All raters reached 90% or higher agreement by the end of the third day. Throughout the 2-week intervention phases, inter-rater reliability between CRB raters and the PI was randomly assessed for 10% of the mouth care interactions. Inter-rater reliability scores remained between .90 and 1.0. None of the CRB raters fell below the .90 threshold after their initial training.

Validity Assessments and Results—Mahoney, Hurley, Volicer, Bell et al. (1999) had established criterion validity by comparing the RTC-DAT scores with the Discomfort Scale Scores (Pearson correlation $r = .50$, $p < .001$). During the development of the RTC-DAT, mouth care was subsumed under bathing activities. The instrument had not been used strictly to measure CRB associated with oral hygiene. We encountered two behaviors that were not described in the original instruction manual (Mahoney, Hurley, & Volicer, 1999; Volicer et al., 2015): “biting on the toothbrush” and “spitting at a person.”

Biting on the toothbrush did not fit the operational definition for “clench mouth.” After consulting with Dr. Mahoney, we expanded the operational definition of “grab object” to include biting down on the toothbrush (Jablonski, Therrien, Mahoney, et al., 2011). We included behaviors to capture the intensity of the toothbrush biting that mirrored the behaviors dedicated to grab object. We also made the distinction during pilot study data collection between clench mouth, grab object, and sucking on the toothbrush. If a participant clenched his or her mouth prior to the toothbrush entering the oral cavity, the behavior was coded as clench mouth. If the participant bit down on the toothbrush, the behavior was coded, grab object. Sucking on the toothbrush was not coded as a CRB, which was consistent with the original operational definitions (Mahoney, Hurley, & Volicer, 1999; Volicer et al., 2015).

During one mouth care interaction, the team observed a nursing assistant providing aggressive mouth care. She was not responsive to the participant's escalating CRB, which included attempts at hitting the nursing assistant. The participant turned toward the nursing assistant and spat. The fluids landed squarely on the front of the nursing assistant. After consulting with Dr. Mahoney, we added “spitting on a person” to the category of “hit/kick.” Both involved intent to make contact. Spitting on the floor was not categorized as a CRB.

Other than these two additions to existing behaviors, no changes were made that diminished the RTC-r's face validity. In fact, the inclusion of two previously unobserved behaviors (spitting and biting down on the toothbrush) improved the instrument's clinical validity for measuring CRBs during mouth care.

Implementation of Resistiveness to Care Scale-Revised in A Randomized Clinical Trial

Study Description

The RTC-r is currently being used to measure CRB in an ongoing randomized controlled study (National Institute of Nursing Research, R01NR012737). The purpose of that study is to compare the MOUTH intervention to an evidence-based mouth care protocol that does not address resistive behaviors. Institutional Board Approval was received from Pennsylvania State University and University of Alabama at Birmingham.

Setting and Sample—The settings for the ongoing randomized clinical study were seven NHs. The same inclusion criteria as the pilot study were applied with the exception of age: Eligibility was extended to persons aged 55 years or older to improve recruitment. The available sample was composed of 83 persons with moderate-to-severe dementia (mean Global Deterioration Scale = 5.75, $SD = 0.92$), who were identified by the facility as care-resistant with oral hygiene. Mean age was 80.6 years ($SD = 10$). Most were female (72.3%) and White (77.1%).

Procedures—Recruitment for and implementation of the current randomized clinical study occurred sequentially, and not concurrently, in the seven nursing homes. Training of the CRB raters in the administration of the RTC-r occurred every time the study began in a new facility. Training procedures that were developed as part of the pilot study were refined for the current randomized clinical study. Training was mandatory for all CRB raters, including experienced ones.

CRB raters could independently use the RTC-r after reaching 90% inter-rater reliability with the expert raters during the observation phase. Throughout the intervention phases, inter-rater reliability between CRB raters and expert raters was randomly assessed for 10% of the mouth care interactions. If any CRB rater fell below the 90% inter-rater reliability threshold, he or she was immediately removed from the study and retrained.

Care-Resistive Behaviors Rater Training—Training procedures were refined to maintain consistency across the seven facilities. Unlike the pilot study, CRB raters were drawn from multiple disciplines: allied health, psychology, dentistry, and nursing. After

completing institutional review board training, they received a minimum of 11 hours of combined classroom and field instruction to maximize reliability. The trainers included both the principal investigator and the program manager. The training included observing a professionally produced, standardized video that described and depicted the behaviors and their corresponding intensities. The video was produced using actors to illustrate the distinctions between categories and intensities of behavior. Adduction was omitted from the training video because that behavior was associated with CRBs during bathing and dressing (Mahoney, Hurley, Volicer, Bell, et al., 1999; Volicer et al., 2015) and never occurred in the pilot study (Jablonski, Therrien, Mahoney, et al., 2011). After watching the video, the raters used the RTC-r to measure CRBs in a second 2-minute video that depicted all 12 behaviors. The second video was also used for training CRB raters in the pilot study. Raters were debriefed immediately by the program manager, who replayed the video and paused at every behavior to offer additional explanation and answer questions. We encouraged input from experienced, returning CRB raters to give examples about ways to distinguish behaviors. The final part of the classroom training included the completion of a 10-question procedural quiz.

Once the classroom component was accomplished, the field training commenced. The first 7 days of this study comprised the baseline observational period to capture “usual” CRBs during “routine” mouth care for all residents enrolled in the study (10–12 per facility). During this time, nursing assistants provided mouth care while the raters measured the CRBs using the RTC-r. The baseline data collection period was composed of 3-hour time blocks or “shifts” that occur in the morning (after breakfast) and early evening (after supper). The CRB raters were paired with an expert rater who served as the “gold standard” for inter-rater reliability assessments. Expert raters included the PI, the program manager, and three senior CRB raters. Senior CRB raters were those raters who had collected data in at least two facilities, had attended the most recent training session, and had achieved consistent inter-rater reliability (95% or higher agreement) with the PI or program manager at the current facility for at least one 3-hour shift.

Every CRB rater was expected to reach or exceed 90% agreement with the expert rater for two consecutive 3-hour shifts before being allowed to independently collect CRB data. New CRB raters usually require five 3-hour shifts (15 hours of field training) before reaching consistent 90% inter-rater agreement. Returning, experienced CRB raters were easily reaching consistent 90% inter-rater agreement within three shifts (9 hours of field training). Senior CRB raters achieved consistent 95% inter-rater agreement within two 3-hour shifts. The fourteen 3-hour shifts provided sufficient opportunities for all six raters to complete field training, which was defined as a minimum of three shifts.

After every mouth care interaction, the expert rater and novice rater would compare RTC-r results. Any differences between the two instruments were immediately discussed in a private area. For example, novice raters often confused “turn away” and “pull away.” The deciding factor was contact between the nursing assistant and the subject. If there was no physical contact between the nursing assistant and the subject, the correct description was turn away. If the nursing assistant was touching the older adult, and the older adult moved away from the nursing assistant, the correct description was pull away. Percentage

agreement was calculated crudely on-site by dividing the novice's RTC-r score with the expert rater's RTC-r score for each subject observed. Correlation coefficient values were calculated after individual shifts were completed and data were entered in the research office.

Results

Reliability of the RTC-r was assessed using inter-rater reliability. All raters ultimately reached 90% or higher agreement within the 7-day observation period. Throughout the 3-week intervention phases, inter-rater reliability between CRB raters and the expert CRB raters was randomly assessed for 10% of the mouth care interactions. Pearson's r was used as a measure of agreement between an expert rater and each CRB rater being trained and ranged from .87 ($p < .001$) to 1.0 ($p < .001$) across 2,328 mouth care observations. Table 2 presents the number of observations by NH and the total for all NHs combined used to compute inter-rater reliability.

The RTC-DAT was validated with persons with dementia of the Alzheimer's type in Mahoney, Hurley, Volicer, Bell, and colleagues' (1999) studies. It is entirely possible that some of those older adults had other types of dementia, such as vascular dementia or mixed dementias. We found no differences in CRB scores for participants between the ages of 55 and 64 years and those aged 65 years and older. Persons younger than age 65 years are more likely to have frontal-temporal dementia or Lewy body dementia (Josephs et al., 2011; Montine, 2011). This suggests that the RTC-r may be a valid instrument for measuring CRBs in persons who have other types of dementia.

Mahoney, Hurley, Volicer, Bell, et al. (1999) correlated total CRB scores that had been logarithmically transformed with scores on the visual analogue scale to measure criterion-related validity, $r = .74$, $p < .001$. Their rationale was that the visual analogue scale captured global resistiveness. We performed the same procedure using nontransformed scores: $r = .80$, $p < .001$. We avoided logarithmic transformations because these transformations decrease the distance between the center of a distribution and extreme outliers on the right-hand side of the distribution. Logarithmic transformations are predominantly used in an attempt to force symmetry on a distribution and produce results that are closer to a normal distribution. We did not consider a logarithmic transformation necessary for the RTC-r score because we made no assumption of symmetry in the score distribution. In addition to the earlier reported Pearson correlation between the RTC-r score and the VAS, we also estimated the nonparametric Spearman correlation, which would be invariant to a logarithmic transformation or any other transformation of the RTC-r score that preserves the order of the observations. The Spearman correlation was higher at .92; the reported Pearson correlation of .80 was actually the more conservative estimate of criterion-related validity.

Discussion

The RTC-r is an acceptable tool to measure CRBs exhibited by persons with dementia who reject mouth care. This instrument was designed to measure observable behaviors, which limits options for traditional psychometric testing. Using Cronbach's alpha to measure

internal consistency reliability is not the best choice; the individual items do not contribute to an overall concept of CRB the way individual items contribute to an overall concept of depression or anxiety (Polit & Yang, 2015). In other words, an older adult exhibiting one category of behavior (e.g., “say no”) does not have to exhibit behavior from all of the other 12 categories to exhibit CRB. In fact, this is a strength of the instrument because it includes the range of behaviors through which persons with dementia express their responses to care activities, compatible with the need-based, dementia-compromised model of behavior (Algase et al., 1996).

Inter-rater reliability was the best measure of reliability for the RTC-r. In the ongoing randomized study, we could not estimate inter-rater reliability using intraclass coefficients because we did not embed a full design, where the same pairs of raters evaluate the same individuals throughout the study (Polit & Yang, 2015). During the observation period, expert and novice CRB rater pairs did not consistently evaluate the same group of older adults because of unavailability or care refusals. Once the intervention period commenced and CRB raters were yoked to the control or experimental teams, the requirements for a full design were met.

The modification in scoring resulted in the ability to evaluate behaviors by quality. For each participant, we can determine the amount of mild, moderate, and extreme CRB. This provides more clinical meaning when interpreting the CRB scores.

CRB scores are not to be normally distributed. Although this increases analysis difficulty by precluding the use of the most common statistical analysis techniques, unless the samples sizes are large, it matches the clinical reality of care-resistance behavior. Alternative methods exist to deal with skewed data, such as nonparametric techniques and generalized linear models that do not assume an underlying normal distribution.

Measuring CRB was difficult, especially in confined areas such as bathrooms. CRB raters using the RTC-r sometimes had to change their positions to peer around the person providing mouth care. Even with the extensive training, the ability to accurately record the type of behavior was influenced by the CRB rater's observation point. For example, contact between the participant and the mouth care provider distinguished turn away (no contact prior to movement) from pull away (contact established prior to movement). The vantage point of the CRB rater influenced his or her ability to distinguish one from the other. During periods of inter-rater reliability assessments, the most common sources of disagreement between the two raters occurred with behaviors that had subtle differences.

The RTC-r has important implications for nursing practice and research. CRB is not limited to mouth care; it occurs throughout other activities, such as bathing (Gozalo, Prakash, Qato, Sloane, & Mor, 2014). Nurses in practice and nurses engaged in research activities benefit from having a valid and reliable instrument to record and quantify realtime CRB, to determine how specific clinical practices or interventions affect CRB. This is especially important in long-term care, where the previously prevalent use of atypical antipsychotics to control neuropsychiatric behaviors associated with dementia, such as CRB, are no longer acceptable (Fitzsimmons, Barba, Stump, & Bonner, 2014). Instead, nonpharmacological

approaches to address neuropsychiatric behaviors are being tested and used (Fitzsimmons et al., 2014).

The RTC-r can serve as a valuable educational tool for novice and experienced nurses by helping nurses to recognize CRB exhibited by persons with dementia. As noted earlier, CRB is distinct from agitation and occurs because the person with dementia perceives the caregiving interaction as threatening or assaultive. If nurses fail to recognize CRB and address the root cause, the person with dementia may not receive appropriate care. CRB, especially if it escalates to hitting or kicking, has the potential to cause injuries to both the nurse and patient.

In conclusion, the RTC-r is a reliable instrument but requires intensive training. Its value lay in its conceptual roots—it was developed to specifically measure resistance to care. The RTC-r can also be used to identify types of CRB and the quality of those behaviors. There is potential for correlating specific behaviors to types of dementia, which may in turn inform tailored interventions.

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Behavior	Resistive Behaviors								(Research use)
	Duration					Intensity			
	None	<16 s	16–59 s	1–2 min	>2 min	Mild	Moderate	Extreme	
	0	1	2	3	4	1	2	3	
1. Turn away	—	—	—	—	—	—	—	—	

Figure 1.

Example of scoring for original Resistiveness to Care Scale for Dementia of the Alzheimer's Type (RTC-DAT).

Resistive Behaviors				
Behavior	Intensity			Comments
	Mild 1	Moderate 2	Extreme 3	
1. Turn away	_____	_____	_____	Mouth care provided? ☐ Yes. Fully completed ☐ Yes. Incomplete ☐ No. CNA refused to be observed. ☐ No. CNA stated mouth care already completed. ☐ No. Resident refused. ☐ No. Resident unavailable or off unit.

Figure 2.

Example of scoring for Resistiveness to Care Scale-Revised (RTC-r). CNA = certified nursing assistant.

Table 1
Example of Operationalized Behavior and Descriptions of Intensity

Operational Definition of Turn Away	Intensity is dictated by the speed and the force involved in turning away.		
	Mild	Moderate	Extreme
The elder moves AWAY from the caregiver. There is <i>no physical contact</i> between the elder and the caregiver. If the elder turns away to reach for an object but not to avoid care, the action is NOT a CRB.	The elder turns <i>his or her head away</i> (up to 45°, halfway between midline and shoulder) when the caregiver tries to remove dentures or tries to insert toothbrush. The elder slightly twists body away from caregiver. The elder walks away at the same speed/pace that he or she normally uses.	The elder turns <i>his or her head away</i> more than 45° (almost to or at shoulder from midline). The elder's turning away or twisting is rapid. Facial expression indicates distress or anger. If walking away, pace is faster than when the elder approached the caregiver.	The elder turns away or twists away in a rapid, jerking motion. There is visible body tensing. The elder literally turns and runs from caregiver; he or she may duck or dart around caregiver.

Note. CRB = care-resistive behavior.

Table 2
Number of Observations by Nursing Homes for Inter-Rater Reliability

Nursing Home	Number of Observations	Number of Raters	Inter-Rater Reliability Range (Pearson's r , all $p < .05$)
1	230	4	.976–1.000
2	180	6	.958–1.000
3	75	5	.995–1.000
4	572	7	.871–.997
5	485	7	.873–.991
6	454	8	.870–.998
7	332	6	.875–.998
Nursing homes combined	Total: 2,328	27 (13 raters collected data in two or more sites)	.870–1.000