

A Brief Intervention to Counter Workplace Incivility: Capturing Biomarker Data, Psychological stress and Effects on Safe Patient Care

By

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Report of a research study funded by the Honor Society of Nursing,
Sigma Theta Tau International
2013-2014 STTI Small Grant

Summary of Project Aims:

The American Nurses Association (2015) recently released a position statement clearly articulating the need for a multi-leveled approach to address workplace incivility, bullying, and violence. Recommendations include the need for nurse educators to implement evidence-based pedagogies to prepare Newly Licensed Nurses (NLNs) to address incivility and foster a culture of respect and safety in healthcare environments (ANA, 2015). Equipping NLNs with effective coping strategies to prevent and address uncivil encounters between and among co-workers, may build resilience, increase retention and job satisfaction, improve nurse performance, and result in the delivery of safer patient care (D'Ambra & Andrews, 2014; Wing, Regan, & Laschinger, 2013). This investigation tested the use of a Cognitive Rehearsal (CR) strategy to help NLNs address workplace incivility and create a healthier work environment.

Workplace incivility (WI) has been identified as a safety hazard by The Joint Commission (2008); it has a negative impact on patient care, mental health, nursing productivity, and job turnover (Hutton & Gates, 2008; Kerber, Woith, Jenkins, and Astroth, 2015; Laschinger, Wong, Regan, Young-Ritchie, & Bushell, 2013; Oyeleye, Hanson, O'Conner, & Dunn, 2013). Although the incidence of workplace incivility (WI) among new nurses is high (Budin, Brewer, & Chao, 2013), there have been no prior *biological* attempts to measure its stress effect on the receiving nurse and observe its potential impact on errors in patient care. Surveys have been used to measure the perception of WI on patient care, but clinical outcomes are less well documented (Rosenstein & O'Daniel, 2005). Surveys and interviews have been used to estimate the financial costs of WI in lost productivity and turnover, but no studies to date have identified the physiological impact of stress, nor do they observe the effect it may have on patient care activity.

Workplace incivility (WI) is defined as a range of rude or disruptive behaviors, or failing to take action when action is warranted which may result in psychological or physiological distress for the people involved; and if left unaddressed, may progress into threatening situations [or result in temporary or

permanent illness or injury] (Clark, 2009; Clark, 2013; ANA, 2015, Clark & Kenski, in press). Uncivil behaviors such as verbal abuse, rumor spreading, ignoring, and bullying threaten the mental health of new nursing graduates (Laschinger et al., 2013) and contribute to turnover and burnout (Oyeleye, Hanson, O'Conner, & Dunn, 2013).

Younger and less experienced nurses suffer from verbal abuse in the workplace more often than their peers (Ferns & Meerabeau, 2008). Verbal abuse is manifested as stress that can result in medical errors. It can alter patient perceptions of care, decrease productivity, and ultimately impact patient safety (Joint Commission, 2008; Sofield & Salmond, 2003; Ferrell et al., 2006.) New nurses report that workplace incivility delays and impedes patient care (Kerber, et al, 2015.) In a recently published survey of practicing Registered Nurses (RNs), half of the 1400 respondents had experienced verbal abuse in the workplace (Budin et al., 2013).

“Nursing staff, particularly new nurses would benefit from the development and testing of structured interventions that target verbal abuse from nurse colleagues” (Budin, et al. 2013, p. 314). Personal resilience has been shown to offset some of the negative effects of WI (Laschinger et al., 2013), but to date there are no reports in the literature of attempts to test or measure a resiliency intervention for WI. Resilience is characterized as positive coping (Luthans, Norman, Avolio, & Avey, 2008) and found to be related to work attitudes, satisfaction, happiness, and commitment. It is a dynamic and developing capacity for psychological strength. Approach coping mechanisms, such as the cognitive rehearsal intervention employed in our study, are more positively associated with resilience (Luthans, Youssef, & Avolio, 2006).

Specific Aims/hypotheses

The following research questions were explored in this investigation:

1. Is there a difference in psychological and physiological stress levels in nurses exposed to Workplace incivility and those who are not?
2. Is there a difference in patient care performance in nurses exposed to workplace incivility and those who are not?

3. Is there a difference in physiological and psychological resilience in nurses exposed to workplace incivility who have received a cognitive rehearsal intervention and those who have not?
4. Is there a difference in patient care performance in nurses exposed to workplace incivility who receive a cognitive rehearsal intervention and those who do not?

Theoretical/conceptual framework and rationale

The Transactional Model of Stress and Coping (Lazarus & Folkman, 1984) proposes that physiological responses occur in concert with behavioral and psychological stress reactions. When a person is faced with emotional or physical stressors, both cognitive and behavioral resources are used to cope with the presenting situation. The researchers postulate that providing additional coping training in the form of cognitive rehearsal may help mitigate the effects of stress on both behavior and thinking and strengthen resilience. It is theorized that verbal abuse in the workplace manifests as stress that can result in threats to patient safety through medical errors. (Oyeleye, Hanson, O'Conner, & Dunn, 2013).

Measures, procedures, and sampling

A total of 12 participants from a single Bachelor's of Science nursing program in the Northwest United States who graduated within six months of graduation were recruited for this pilot study. The PCL-C, a Post Traumatic Stress Disorder screening checklist, was utilized as an initial screening tool to minimize the risk of renewed emotional distress. One participant was excluded from data collection based on a self-reported score of greater than 30 on the PCL-C. Of the remaining participants ten were female and one was male ($N = 11$). The mean age was 34 years ($M = 34.09$, $SD = 10.62$).

After arrival and consent, participants were assigned one of three groups. All participants rested for 45 minutes prior to the intervention to set a physiological baseline for biomarkers and heart rate. After the rest period participants received a patient handoff communication from a nurse leaving a hospital shift for the day and then participated in a patient care simulation where a focused morning assessment was needed and patient medications was given. Following the patient care simulation each participant was debriefed about the communication and patient simulation experience.

The CTA intervention for this investigation was developed by co-investigator Cynthia Clark using Cognitive Rehearsal, an evidence-based intervention strategy used to mitigate WI (ANA, 2015; Griffin, 2004; Griffin & Clark, 2014; Stagg, Sheridan, Jones, & Speroni, 2011, 2013). Failing to intervene when WI occurs in a healthcare environment is a serious problem which can have devastating and life-threatening consequences on patient care. CR is an effective technique for addressing WI and consists of engaging in didactic instruction, learning and rehearsing specific phrases to use during uncivil encounters, and participating in practice sessions to reinforce instruction and rehearsal of the specific phrases. In this study, the investigators wanted to explore whether exposure to this intervention strategy could reduce or eliminate the detrimental impact of stress on nurse performance to the extent that safe patient care was delivered.

Group one (control-hurried) participants received a patient handoff communication from a nurse who was in a hurry to leave the shift to pick up her children at childcare. The off-going nurse was frustrated because the oncoming nurse was five minutes late. The handoff report preceded the participant entering the patient care simulation. Participants in the control group had the opportunity to participate in a 60 minute workshop to learn and practice a cognitively rehearsed intervention strategy *following* the simulation and data collection.

Group two (intervention-uncivil) participants received the same information contained in the patient handoff as received by the control group; however, the handoff for participants assigned to the intervention group was delivered by an off-going nurse using an angry and verbally abusive tone toward before the participant proceeded to the patient care simulation. These participants participated in a 60-minute CR workshop *prior* to the simulation and data collection.

Group three (control-uncivil) participants received the angry and abusive patient handoff communication *before* the simulation and had an opportunity to participate in a 60-minute CR workshop *after* the simulation and data collection. The off-going nurses giving the patient handoffs were actresses trained specifically for the study, to portray either the hurried or the angry nurse. The patient information conveyed in both reports was identical in content.

The simulated patient experience following the patient handoff was the same for all groups. The participants completed a focused morning assessment on a Standardized Patient followed by administration of morning medications. Each scenario was recorded for later analysis of appropriate care activities using a 30 item checklist. A certified healthcare simulation educator who did not know the participants and was blinded to group assignment scored the videos. The checklist was derived from pilot testing of the simulation scenario.

The Standardized Patients also completed an abbreviated instrument on the care provided by each participant based on questions from the Hospital consumer Assessment of Healthcare Providers and systems (HCAHPS) survey following the simulation. The first three questions were answered with never, sometimes, usually, or always. The final three questions were answered with yes, no, or don't recall. The six questions were:

1. During your hospital encounter did the nurse treat you with courtesy and respect?
2. During your hospital encounter how often did the nurse listen carefully to you
3. During the hospital encounter how often did the nurse explain things in a way you could understand
4. During your hospital encounter were you given any medicine?
5. Before giving you any medicine did the nurse tell you what the medicine was for?
6. Before giving you any medicine did the nurse tell you about possible side effects in a way you could understand?

Each participant was individually debriefed after the simulation by the same researcher regarding communication and care activities. The debriefings were recorded and later transcribed for qualitative analysis by another co-investigator who did not participate in the debriefings. The debriefing questions were open ended and included questions asking about the communication with both the patient and the nurse giving the handoff.

At intervals during the data collection the participants completed written instruments and submitted saliva specimens for later analysis. A non-invasive heart monitor device collected mean and maximum heart rate. The Brief Resilience Scale (BRS) is a six item Likert type scale with a reported

internal consistency ranging from $\alpha = .80-.91$ and has demonstrated a reliability of $.69-.62$. (Smith, et al., 2008). Participants completed the BRS after the rest period, after the patient hand off communication, and after the debriefing. Personal appraisal of the psychological stress of the data collection activities were measured using the Stress Appraisal Scale (SAS). The SAS is a 10 item instrument which contains two subscales designed to identify whether an event is identified as threatening and whether mitigating resources are considered sufficient (Schneider, 2008). A score of greater than one indicates the participant found the event threatening and exceeding personal resources. The instrument has an internal consistency ranging from $\alpha = .78- .89$ (Willhaus, 2013; Schneider, 2008). Participants completed the SAS after the rest period, after the patient hand off communication, after the simulation and after the debriefing.

Five saliva specimens were collected from each participant using a swab placed under the tongue after (1) consent, (2) after rest, (3) after patient hand off communication, (4) after the simulation, and (5) after debriefing. The first specimen after consent was not included in the analysis, but was used to note whether the participant fell into the normal range upon arrival and before the data collection begins. The specimens were placed on ice and then frozen for later processing to detect salivary alpha amylase levels. This collection and design pattern is considered optimal for measuring reactivity of salivary alpha amylase samples (Granger, Johnson, Szanton, Out & Schumann, 2012). The specimens were processed in singlet by the Salimetrics ® laboratory facility in Carlsbad, CA. Salivary Alpha Amylase can be isolated in the saliva and is associated with stress reactivity (Laurent, Laurent, & Granger, 2013). Salivary alpha amylase levels generally begin to rise within 5 minutes of a threat and return to normal in approximately 15 minutes.

Increased heart rate is also associated with physical and psychological stress (Valentini & Parati, 2009). Mean and maximal heart rates were recorded during the rest period, during the patient handoff communication, during the simulation and during the debriefing using a Sigma Onyx Fit heart rate monitor. Such monitors are considered accurate and do not require calibration (Bassett, Rolands, & Troost, 2012).

Summary of Findings

1. *Is there a difference in psychological and physiological stress levels in nurses exposed to Workplace incivility and those who are not?*

For the purposes of answering these questions using quantitative methods groups 2 and 3 where students were exposed to the angry and abusive coworker were combined for comparison to the control group. Results of the Brief Resilience Scale computed as a mixed between-within subjects analysis of variance to assess the impact of communication (uncivil and hurried) across three time periods (pre-report, post-report, and post debriefing). There was no statistically significant interaction between communication type and time, Wilks' Lambda = .65, $F(2, 8) = 2.20$, $p = .17$, partial eta squared = .335. Although the main effect was also not significant, $F(1, 9) = 2.78$, $p = .13$, partial eta squared = .24, a plotting of the means does show a downward trend in stated resilience by the participants in the groups exposed to the abusive and angry coworker. (See figure 1)

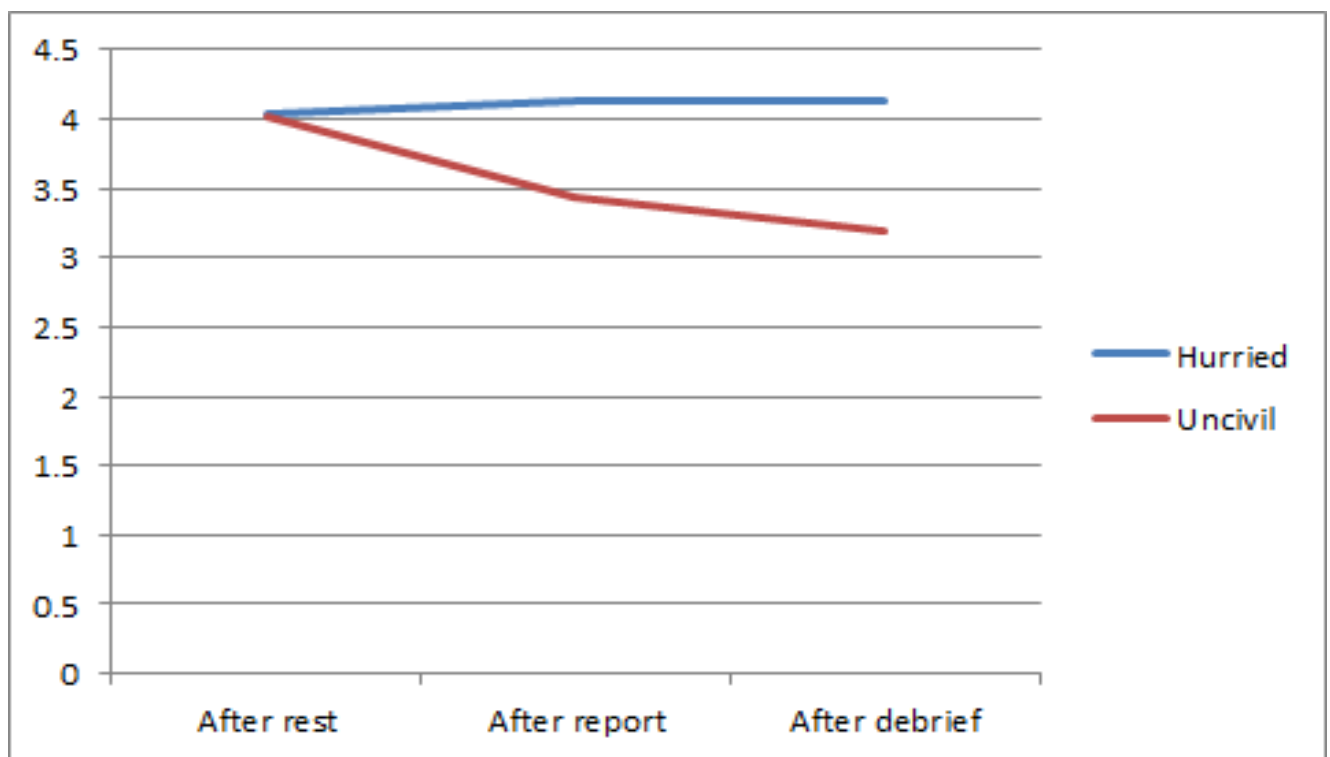


Figure 1: Comparison of means for Brief Resilience Scale between the hurried and uncivil communication groups.

The Stress Appraisal Scale analysis, also computed as a mixed between-within subjects analysis of variance to assess the impact of communication (uncivil vs hurried) across four time periods (pre- report, post-report, post simulation, and post debriefing), did not reveal significant interactions for communication type and time, Wilks' Lambda = .66, $F(3, 7) = 1.18$, $p = 3.84$, partial eta squared = .51, however the main effect comparing the two groups neared significance $F(1,9) = 1.125$, $p = .07$, partial eta squared = .314. Again a graphic depiction of the means showed the participants exposed to the angry and abusive nurse indicated a higher rating indicating they felt threatened when compared to the participants receiving report from the hurried coworker (See Figure 2).

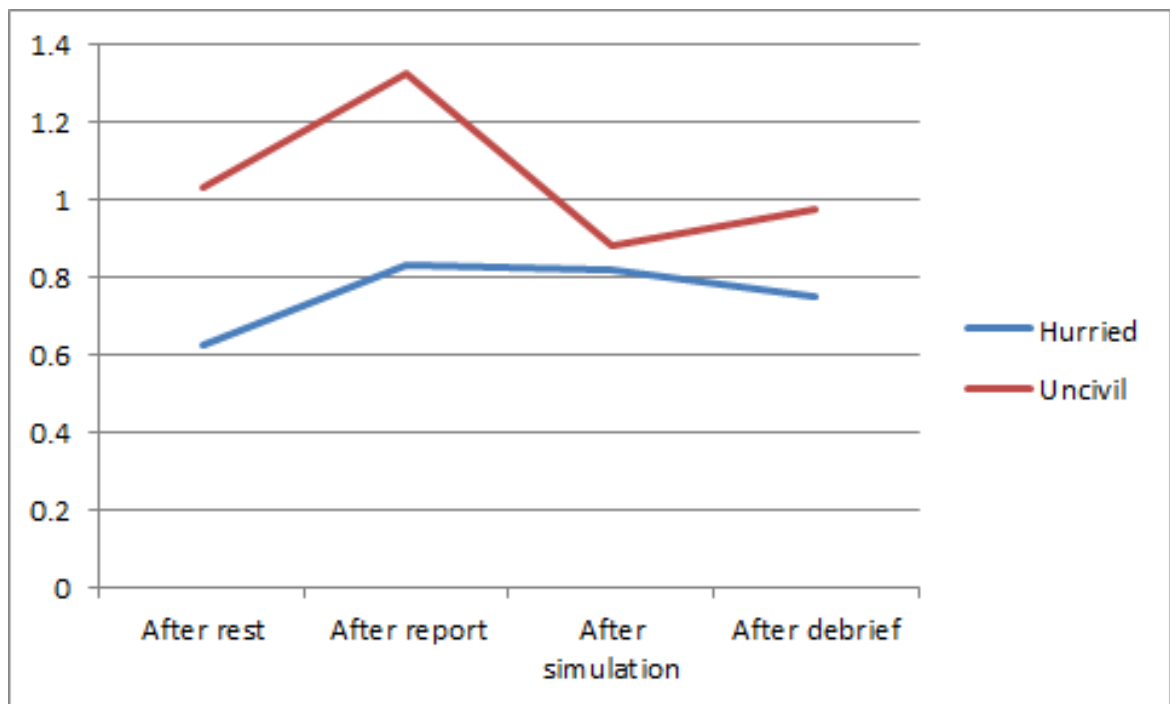


Figure 2: Comparison of means for Stress Appraisal Scale between the hurried and uncivil communication groups.

Biomarker levels for alpha amylase, average heart rate and maximum heart rate were also computed as mixed between-within subjects analysis of variance to assess means from each group in biomarker levels across four time periods. Although the interaction effect for alpha amylase approached significance Wilks' Lambda = .43, $F(3, 7) = 3.14$, $p = .10$, partial eta squared = .45, the main effect was

not significant $F(1, 9) = .86$, partial eta squared $.004$. The line chart shows that there was little difference between the two groups. (See Figure 3)

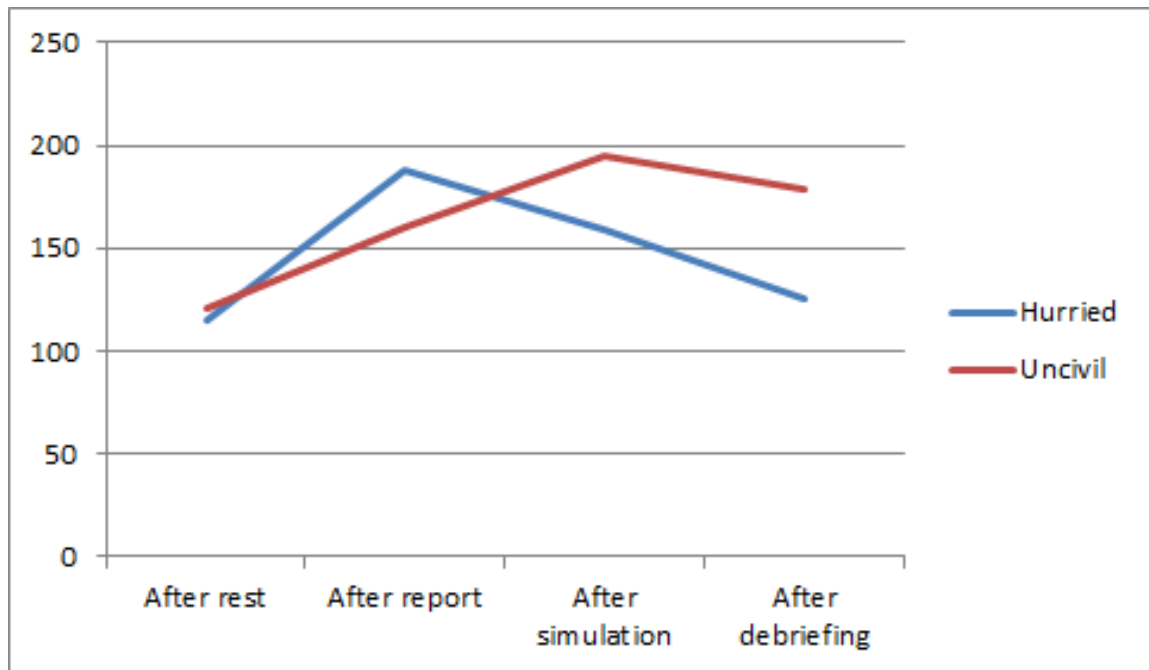


Figure 3: Comparison of means for alpha amylase between hurried and uncivil communication groups.

Neither mean heart rate nor maximum heart rate approached statistical significance when computed as a two group by four time period mixed between-within analysis of variance. All three biomarkers showed a wide degree of individual variance. A larger participant number would be required to approach significance.

2. *Is there a difference in patient care performance in nurses exposed to workplace incivility and those who are not?*

For the purposes of answering these questions, groups 2 and 3 were again combined for comparison to the control group. There were no significant differences in the HCAHPS score questions detected between the three groups using nonparametric tests. Checklist scores between the two groups were examined using an independent samples t-test. Again, no significant differences were detected $t = .06$, $p = .96$.

3. *Is there a difference in physiological and psychological resilience in nurses exposed to workplace incivility who have received a cognitive rehearsal intervention and those who have not?*

For this question the all three groups which included the control group receiving the hurried report (control hurried), the group receiving angry and abusive communication before the cognitive rehearsal intervention (control uncivil), and the group receiving angry and abusive communication after the cognitive rehearsal intervention (control intervention) were compared. Results of the Brief Resilience Scale were computed as a 3 group x 3 time period mixed between-within subjects analysis of variance. There was no statistically significant interaction between group type and time, Wilk's Lambda = .613, $F(2, 7) = 1.21$, $p = .35$, partial eta squared = .257. The main effect was also not significant $F(2, 8) = 1.51$, $p = .274$, partial eta squared = .27. The line chart (Figure 4) demonstrates a trend that although not statistically significant that the mean resilience scores for the *control uncivil* showed the greatest decline.

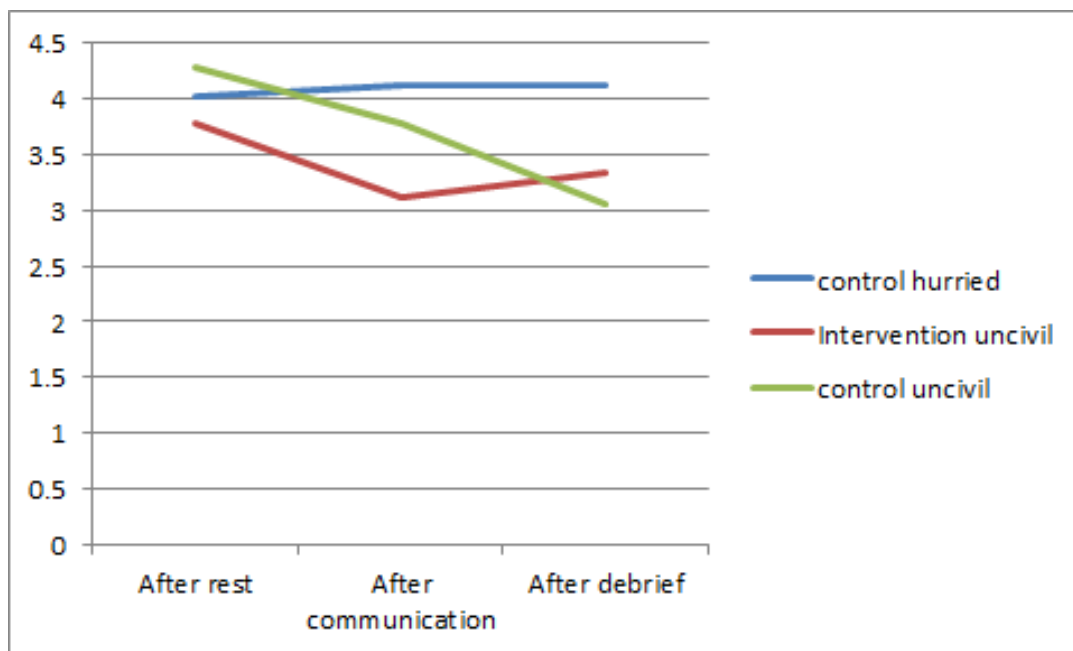


Figure 4: Comparison of means for Brief Resilience Scores among three groups over time.

The results of the Stress Appraisal Scale were computed as a 3 group x 4 time period mixed between- within subjects analysis of variance. There was no significant interaction between group and time Wilks' Lambda = .48 $F(6, 12) = .89, p = .532$, partial eta squared = .31. The main effect was also not significant $F(2, 8) = 2.72, p = .12$, partial eta squared .41. The line drawing below demonstrates a trend that although not statistically significant, that the mean scores anxiety scores for the both groups receiving angry and abusive communication (control uncivil and intervention uncivil) indicated higher levels of stress specifically after the report were higher than the control hurried group (See Figure 5). Scores over 1.0 indicate that the participant felt threatened while scores under 1.0 indicate that the participant felt prepared.

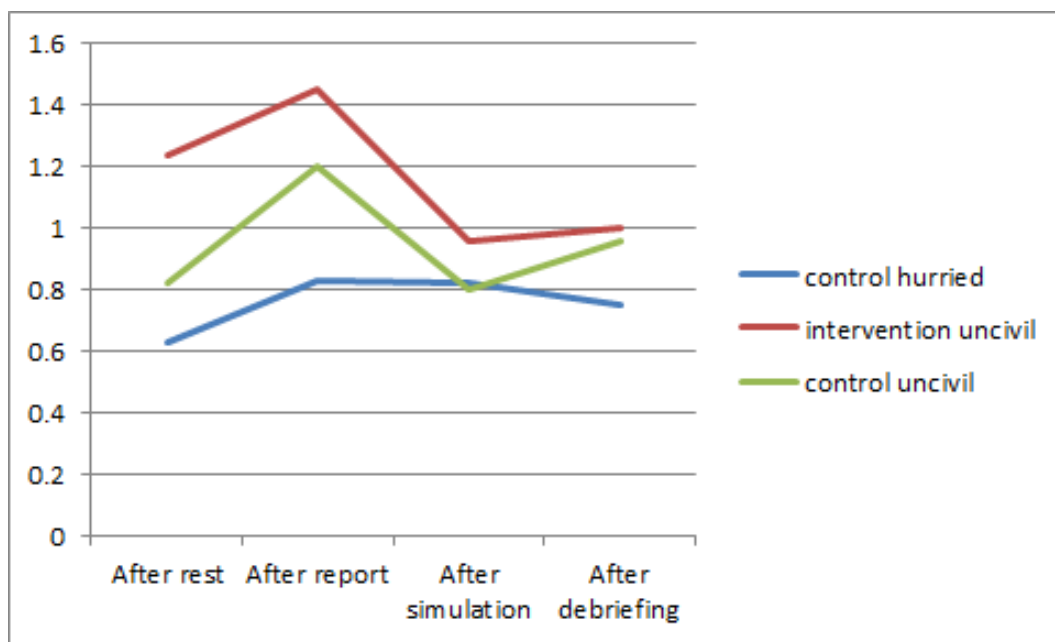


Figure 5: Comparison of mean anxiety scores among three groups over time.

Alpha amylase levels, average heart rate, and maximum heart rate were computed using a 3 group by 4 time period mixed between-within analysis of variances. Salivary alpha amylase means yielded no statistically significant results, and neither did the same type of analysis for average heart rate and maximum heart rate.

4. *Is there a difference in patient care performance in nurses exposed to workplace incivility who receive a cognitive rehearsal intervention and those who do not?*

Non parametric tests detected no significant differences among the three groups for the HCAHPS score questions, completed by the SPs. Checklist scores were compared among the three groups using one way analysis of variance also without yielding significant results.

Due to a small number of participants the quantitative data did not yield any statistically significant findings although qualitative tests did reveal some differences in the three groups. Qualitative data analysis of the recorded debriefings allowed insight into the participants' thoughts during the facilitated debriefing. All participants mentioned safety and safe care as a priority and indicated that communication was related to the delivery of safe patient care.

Three of the five participants in the control group described the hurried nurse's report as rushed and commented on how it impacted their ability to provide well-informed care. All participants in this group indicated they would ask more questions if repeating the task to help them prioritize care and garner a more complete patient assessment.

Participants in the intervention group who received the angry report described the communication with the off going nurse as stressful, uncivil, and eye-opening. One participant noted that although she had practiced addressing uncivil encounters that she/he felt too intimidated to address the situation.

Participants who received the intervention after the encounter with the angry nurse described the communication as rough, abrupt, unproductive, scary and angry. Participants wondered aloud if the stress from the report would carry into the patient care area.

Recommendations

There is a strong possibility of a Type II error in our study data because of our small sample size. Ideally, the study should be repeated as a multi-site study with care to standardize the CTA intervention across all sites.

The screening of potential participants using the PCL-C should be retained as we did identify one volunteer who might have been stressed beyond reasonable means by participation in the study. The use of the biomarkers is equivocal in this study. Although there were no differences between our groups, the small sample size may not have provided an adequate number to make this determination at this time. With ideal funding, it might be worthwhile to include the biomarkers in a larger study. However, with *so many other objective data points* built into the study design, with more typical limited funding and the timing required for gathering these biomarkers, they could be dropped from a follow on study, in favor of other measurements.

The immediacy of the intervention to the simulated experience with the hurried or abusive RN may also need to be re-evaluated. It would be ideal to have participants from both the hurried and uncivil groups immediately after the CTA intervention *and* after a few days, providing some time for participant self-reflection on how to best incorporate the CTA intervention into one's own repertoire of behaviors. Further stratifications of groups by age might also be interesting; as novice though mature, older nurses are more likely to have had life experiences requiring coping strategies for dealing with similar behaviors. Ideally, the study should also be repeated in a hospital setting with floor nurses that may be experience uncivil behavior.

Limitations

Newly graduating nurses at this location were difficult to recruit for the investigation. New graduates are busy and ready to put school work behind them as they prepare for their NCLEX exam and entry into the clinical work environment.

A promising biomarker test, salivary nerve growth factor although commercially available when the proposal was submitted was no longer available when the investigation was concluding.

Only 7 of the 11 videos of the simulations were available for scoring and review. The remaining 4 were accidentally overwritten during a monthly server cleanup.

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