Geoffrion, S., Lamothe, J., Lafortune, D., Fraser. S., & Dumais, A. (2020). Workers and perceived team climate influence the use of restraint and seclusion in youth residential treatment centers: Results from a mixed-method longitudinal study. *Child Abuse and Neglect.* https://doi.org/10.1016/j.chiabu.2020.104825

Abstract

Background: Restraint and seclusion (R&S) are controversial methods of intervention aimed at protecting children from immediate harm in residential treatment centers (RTC). Previous studies have mainly focused on situational factors and youth characteristics to predict its use.

Objectives: This study sought to evaluate the role other potential predictors could play in the decision to use R&S, namely characteristics of residential workers and their perceived team climate.

Methods: For two months, a total of 132 residential workers from different RTC in the greater Montreal area completed weekly diaries of standardized questionnaires. Using an explanatory sequential design (i.e., mixed methods), this study aimed at exploring the role of residential workers' characteristics (e.g., exposure to client aggression, stress and fatigue) and aspects of their perceived team climate (e.g., order and organization, communication and openness) as predictors of R&S use. Survey results were later also presented to four focus groups for discussion.

Results: Results indicated that exposure to verbal violence from youths was associated with the increased use of R&S. Meanwhile, perceived communication and openness were associated with lower rates of R&S use. Participants shared that repeated exposure to verbal violence diminished their level of tolerance while teamwork provided them with the emotional space needed to focus on the needs of youths and find alternatives to R&S.

Conclusion: This study sheds light on the complex role of human emotions in the decision to use of R&S. Specifically, intense momentary emotions during crisis interventions had a greater influence on the use R&S than chronic states, such as fatigue.

WORKER AND PERCEIVED TEAM CLIMATE FACTORS INFLUENCE THE USE OF RESTRAINT AND SECLUSION IN YOUTH RESIDENTIAL TREATMENT CENTERS: RESULTS FROM A MIXED-METHOD LONGITUDINAL STUDY

Residential workers in youth residential treatment centers are mandated to ensure the safety and rehabilitation of children in their care. In industrialized countries, residential treatment centers offer intensive psychosocial services to the most vulnerable service users whose current needs cannot be effectively addressed by community interventions (e.g., foster care, home visits—Smith, Coletta & Bender, 2017). Caring for traumatized and emotionally disturbed youths around the clock, however, can be emotionally demanding and residential workers find themselves at high-risk of being harmed while exercising this mandate (Geoffrion & Ouellet, 2013; Littlechild, Hunt, Goddard, Cooper, Raynes & Wild, 2016; Robson, Cossar & Quayle, 2014). Indeed, managing youth aggression and self-harming behaviors poses a difficult challenge to residential workers (Smith, Coletta & Bender, 2017). On this note, residential workers appear more vulnerable to client violence than their colleagues in other fields of child protection (Lamothe, Couvrette, Lebrun, Yale-Soulière, Roy, Guay & Geoffrion, 2018; Winstanley & Hales, 2015). Researchers have found associations between client aggression and high levels of stress, sickness, and turnover (Lamothe et al., 2018; Littlechild, 2005; Robson, Cossar & Quayle, 2014; Winstanley & Hales, 2015). Furthermore, several scientists have reported that child protection workers who are victims of client aggression were more likely to experience intense feelings of stress, fear, shock, and anger (Lamothe et al., 2018; Littlechild et al., 2016; Winstanley & Hales, 2015). Specifically, a dose effect exists between frequent exposure to youth aggression and increasingly poorer mental health outcomes (Lamothe et al., 2018; Winstanley & Hales, 2008). This is especially true when workers are exposed to both verbal and physical aggression (Kind, Eckert, Steinlin, Fegert & Schmid, 2018). On a related note, the very nature of the child protection mandate places workers at risk for traumatic stress reactions, stress, and anxiety (e.g.,

removing a child from his home—Antonopoulous, Killian & Forrester, 2017; Dagan, Ben-Porat, & Itzhaky, 2016).

When all else fails: The use of restraint and seclusion in residential settings

Client aggression is one of the many scenarios residential workers face when the safety of youths and those around them could be at immediate risk of harm. In such scenarios, residential workers can use interventions of last resort, namely restraint and seclusion (R&S). Restraint involves the immobilization of an individual via personal (i.e., physical holding) or non-personal mechanisms (e.g., handcuffs). Seclusion consists of transferring an individual from his usual environment to a locked or unlocked isolation room to control at-risk behaviors (Day, 2002; Stewart, Theall-Honey, Armieri & Cullion, 2010).

The use of R&S, however, is controversial. Most importantly, neither type of intervention has proven to be therapeutically effective (Day, 2002; Smith & Bowman, 2009). Moreover, scientists have linked the use of R&S in residential treatment centers to a variety of negative consequences for youths, such as physical injuries and distress and a weakening of their therapeutic relationship with residential workers (Day, 2002; Smith & Bowman, 2009). Furthermore, the few existing studies on the use of R&S in youth protection settings have shown that residential workers sometimes make inappropriate use of this practice (e.g., disciplinary measure instead of security measure; Day, 2002). For these reasons, it appears especially important for researchers to fully understand the factors that weigh in residential workers' decision to use R&S. So far, however, most studies on the matter have focused on youths' personal characteristics (e.g., gender) and situational factors (e.g., time of day; Roy, et al., 2019) thereby framing the use of R&S as a youth compliance issue rather than an organizational issue. In addition, the influence of residential worker characteristics has rarely been studied in this context even though they are ultimately the ones deciding if interventions of last resort are needed (Roy et al., 2019). This lack of information

limits the effectiveness of training programs and organizational policies aimed at reducing the use of R&S (Day, 2002).

Known Factors Influencing the Use of R&S

Given the lack of studies on the associations between residential worker characteristics and their use of R&S, this scoping review was supplemented with findings from a more developed field of study, namely, R&S use in psychiatry. On a separate note, it should be noted that the majority of studies on R&S in RTCs were conducted in the United States with a minority from other Anglo-Saxon countries, this review therefore applies to the American context more accurately than others (Roy et al., 2019). This review highlighted just how important it is for scientists to contribute additional information on the topic as the findings reported can span many decades.

Patient and Situational Characteristics

A recent systematic review on the subject concluded that youth characteristics were the most frequently studied variables (Roy, et al., 2019). Indeed, studies on the use of R&S in youth protection settings suggest that patient background and characteristics are important factors to consider (Farragher, 2002; Green-Hennessy & Hennessy, 2015; Stewart, Theall-Honey, Armieri & Cullion, 2010). These studies also suggest that a minority of children account for most instances of R&S (Farragher, 2002). This systematic review, which mostly included American studies, also found that black children were more likely to be restrained and secluded, as were boys and younger children (Roy et al., 2019). Previous authors have also found a link between youths' hostile and aggressive behaviors and the use of R&S (Leidy, Haugaard, Nunno, & Kwartner, 2006). Furthermore, the use of R&S also depends on factors that are specific to the context or situation at hand (Dosreis, McCulloch, Colantuoni, Barnett, Pruitt & Zachik, 2006; Farragher, 2002; Griffiths, 2001; Nunno, Holden, & Leidy, 2003; Sonnentag, Binnewies & Mojza, 2008). For example, this type of intervention is correlated with certain periods of the day and of the year,

as well as to the duration of admission (Dosreis et al., 2010; Leidy, et al., 2006). By solely focusing on youths or the situational context, however, researchers have so far only painted a partial portrait of the issue and additional research is needed to address this gap. In all, scientists have mostly documented how youth and situational characteristics, such as age, gender, and time of day, can have an impact on R&S use, especially as it relates to the American context.

Organizational Factors

Recently, some researchers have begun documenting the influence of organizational factors on the use of R&S. For example, the higher the staff-youth ratio in residential treatment centers, the more R&S are likely to be used (Farragher, 2002; Peter, 2006). More broadly, scientists have also found that leadership commitment, training, staff supervision, mandatory reporting and data analysis are all negatively associated with the use of R&S in youth rehabilitation treatment centers (Nunno et al., 2003). Likewise, some authors have suggested that the implementation of alternative therapeutic measures or special training for residential workers could significantly decrease rates of youth aggression and the use of R&S (Farragher, 2002; Nunno et al., 2003; Griffiths, 2001; Sonnentag et al., 2008). On a similar note, some researchers have found that working in a "tense" climate can increase the use of R&S in psychiatric settings (Stevenson, Jack, O'Mara & Legris, 2015). In contrast, authors in psychiatry have also found that a positive team climate could not only reduce stress (Abu-Alrub, 2004) but also improve staff members' ability to cope with work demands (Hylen, Kjellin, Pelto-Piri & Warg, 2018). Unfortunately, Roy and colleagues (2019) did not find a single study on the impact of perceived team climate on R&S use in youth residential treatment centers, making comparisons impossible. In all, researchers have suggested that factors influencing R&S use are more complex and multifaceted than a simple youth compliance issue. Specifically, organizational factors, such as the influence of a "tense climate", merit further attention.

Residential Workers' Characteristics

Evidence suggests that residential workers' personal characteristics also influence the use of R&S. For example, some authors have found negative correlations between work experience, age and the frequent use of R&S (Farragher, 2002; Ledoux, 2013; Lee-Lipkins, 2014); whereas other authors have found positive associations between the level of education and the use of R&S (Lee-Lipkins, 2014). Furthermore, some residential workers perceive the use of R&S as an adequate method of intervention to prevent aggression especially when it happens repeatedly (Sequeira & Halstead, 2004; Smith, Coletta & Bender, 2017). On this note, researchers have found that residential workers were more likely to approve of the use of R&S if they had themselves used it before, in part, because it made some residential workers feel in control, competent, and calm after using it (Ledoux, 2013). Likewise, in a Canadian study, Leblanc and colleagues (2012) found that the situational stress child protection workers experienced as a result of an unexpected confrontation with an aggressive youth often led to the use of coercive interventions. Indeed, Smith, Colleta and Bender (2017) reported that the residential workers they interviewed in the United States referred to youth aggression as one of the most stressful aspects of their work. The influence of these worker characteristics demonstrates how factors other than the needs of adolescents and educational objectives also weigh into the decision to use R&S (Leidy et al., 2006). Likewise, research in psychiatric settings has also revealed that healthcare workers' background, personality, attitude, values and levels of psychological functioning were all associated with R&S use (Bellonci, Huefner, Griffith, Vogel-Rosen, Smith, & Preston, 2013). For instance, in their international review, Laiho and colleagues (2013) found that when mental health workers had confidence in their own skills and that of their team to manage patient aggression, they postponed the decision to use R&S, thereby allocating more time to verbal de-escalation.

In summary, although evidence suggests staff members' personal characteristics, such as levels of stress and feelings of self-efficacy, could be associated with R&S use, the extent of this influence remains

partially understood. Specifically, since child protection workers and residential workers are known to experience high levels of work stress (Lamothe et al., 2018; Smith, Colleta & Bender, 2017), it would be important to understand how their emotional state influence their decision to use R&S.

Objectives

Using a mixed-method longitudinal design, the current study aimed to evaluate how factors specific to residential workers' personal characteristics and perceived team climate were associated with R&S use and how these associations fluctuated over time.

Ethics Statement

The Research Ethics Board of the *Centre Institut-Universitaire de Santé et Services Sociaux (CIUSSS) de la Capitale-Nationale* in Quebec City, Canada, approved the present study. To participate, all interested workers had to fill out and sign a consent form. Their participation was voluntary, confidential, and did not lead to any financial compensation.

Material and Methods

Study Design

An explanatory sequential design was used to include the voice of residential workers (i.e., qualitative data) in the interpretation of survey results (Creswell, 2015). Researchers distributed survey diaries to participants every week for eight weeks and periodically extracted data from official records. The second part revolved around the use of focus groups to enrich the interpretation of survey results. This method gave participants an opportunity for individual expression, constructive group interactions, as well as group ownership of both problems and solutions (Anadon, 2007).

Data Collection

The lead author and a research assistant made several visits to the residential treatment center, between February and March 2017, to present the project to residential workers and invite them to participate. Interested participants exchanged their signed consent form for a confidential identification number. This number allowed the authors to confidentially match archival data of R&S to the completed questionnaires. Ohly and colleagues' (2010) diary method was used to collect data over time to reduce retrospective bias. Specifically, with the agreement of their supervisor, participants completed questionnaires at work every week during eight weeks between March 15 and May 15, 2017. Most participants filled out paper questionnaires, except for the on-call dispatch team, who completed an online version (n=4%). Since members of this team do not work from a fixed location, researchers feared this could lead to paper questionnaires being lost and so they also created an online survey.

Using a semi-structured interview grid, researchers used focus groups as a platform for residential workers to reflect on their own practice in relation to survey results (Anadon, 2007). With the help of research assistants, the authors organized four focus groups between February and March 2018. Researchers presented survey results and helped generate discussion. The assistants recorded and transcribed the discussions that emerged during these encounters. Data from these focus groups were used to nuance and contextualize findings.

Participants

Participants were recruited from one large RTC in the Montérégie region of Quebec, Canada, housing hundreds of children across 36 different units (i.e., 8 to 12 children per unit). Each unit houses approximately 8 to 12 children with a ratio of 1 worker per every 6 adolescents. The children and adolescents were placed there because they exhibited at-risk behaviors, suffered from serious mental, social and behavioral disorders or were involved with the juvenile criminal justice system. In total, 454 residential workers were invited to participate in the weekly diary component of the project for which 270

volunteered and returned the consent form (participation rate = 59.5%). Inclusion criteria were 1) to be present at work during the study period (e.g., no sick leave, maternity leave) and 2) to be in direct contact with the children each workday. Given the type of analysis chosen, the present sample was restricted to participants who had completed at least the first and last time points. The final sample consisted of 132 participants who had an average of 9 years of residential work experience (*SD*=6.2). Approximately, 80% of participants were women. The attrition over time was 17.4%. Table 1 summarizes participant characteristics.

All residential workers from the participating residential treatment center were then invited to take part in the focus groups after the 8 weeks of diary completion. Twenty-five workers accepted and were divided into four groups according to location. Among them, 17 were residential workers assigned to a specific unit, three were residential workers in the on-call dispatch team, and five were clinical advisors. Of these 25 workers, only four were men.

Measures

Because participants had to fill out questionnaires on a weekly basis, reference periods for the measurement instruments were adjusted to reflect this time span (e.g., in the past week instead of in the last month). Not all standardized measurements were administered every week as some were less likely to fluctuate over the course of just one week and were therefore only administered monthly (e.g., self-efficacy, perceived team climate, quality of life). The monthly measures were administered at weeks 1, 5, and 8.

Outcome

R&S use: Data on the decision to use of R&S was compiled for each participant using archival data. This provided information on the weekly number decisions participants made to use R&S for each child. This variable was then dichotomized making it possible to discriminate between participants who

had decided to use R&S during the week and those who had not. This variable was coded: 0 = did not use R&S over the course of the last week, 1 = used R&S at least once over the course of the last week. R&S instances were studied together as the main interest was understanding the decision-making process that led workers to use coercive measures, regardless of the type of measure used.

Predictors Measured Weekly

Exposure to aggression: Cumulative exposure to aggression was measured using the French version of the Perception of the Prevalence of Aggression Scale (POPAS - Geoffrion, Giguère, Fortin, Fortin & Guay, 2017). This measure was originally developed to assess the annual frequency of exposure to aggressive behaviors in healthcare settings (Nijman, Bowers, Oud, & Jansen, 2005). The French version of the POPAS contains 13 of the 16 original items referring to three forms of aggressive behaviors (i.e., verbal aggression, physical aggression, aggression against self) and uses a 5-point Likert scale ranging from 1 (never) to 5 (frequently). The French version of the POPAS was validated previously and its three-factor structure showed good to excellent construct validity (Geoffrion et al., 2017). In the present study, the number of incidents of each of the 13 items was used instead of the 5-point frequency scale and summed scores were computed for each of the three scale dimensions. The sum of each subscale was computed and used in analyses. Cronbach alphas $\alpha = .822$ for verbal aggression, $\alpha = .705$ for physical aggression, and $\alpha = .506$ for aggression against oneself were obtained at Time 1. As such, physical and verbal aggression as well as self-inflicted aggression in this study reflects the sums of each scale for the past week.

Perceived stress: Perceived stress was assessed with the French version of the Perceived Stress Scale (PSS—Bellinghausen, Collange, Botella, Emery & Albert, 2009). This scale was originally developed to measure the degree to which participants identify situations in their life to be stressful (Cohen, Kamarck & Mermelstein, 1983). It contains 10 items and uses a five-point frequency scale

ranging from 0 (never) to 4 (very often) that are computed in a total score. Internal consistency for the French version is reportedly good (Lesage, Berjot & Deschamps, 2012). In the present study, a Cronbach α of .828 was obtained at Time 1.

Occupational fatigue: The Occupational Fatigue Exhaustion Recovery Scale (OFER) was originally developed to assess chronic fatigue, acute fatigue after work and inter-shift recovery (Winwood, Winefield, Dawson & Lushington, 2005). This measure contains 15 items with Likert-scales ranging from 0 (strongly disagree) to 6 (totally agree) that were computed as a sum for each subscale. Previous authors have tested this scale's psychometric properties and found them to be excellent for face, construct, convergent, and discriminant validity, reliability, internal consistency, and strong predictive power (Winwood et al., 2005). Internal consistency at Time 1 for each subscale was α = .890 for chronic fatigue, α = .841 for acute fatigue after work, and α = .783 for inter-shift recovery.

Fear: Fear was measured with the Fear of Future Violent Events at Work scale (Schat & Kelloway, 2000). The instrument consists of 14 items, ranging from 1 (strongly disagree) to 7 (strongly agree) that were computed as a sum for the scale. Previous authors have tested this scale's psychometric properties and found them to be either good or excellent for internal consistency (Schat & Kelloway, 2000; Pachco, Cunha & Duarte, 2016). In the present study, a Cronbach α of .927 was obtained at Time 1.

Predictors Measured Monthly

Self-efficacy: The Confidence in Coping with Patient Aggression Inventory (CCPAI) is a standardized tool used to measure staffs' levels of confidence in their ability to de-escalate tense situations and deal with aggressive reactions from service users (Thackrey, 1987). The instrument consists of 10 items rated on an 11-point scale (i.e., 1 to 11) the sum of which make up the final score. Ranges vary from "very uncomfortable," "very poor," "very unable", "very unsafe", and "very ineffective" to "very comfortable", "very good", "very able", "very safe", and "very effective" depending on the item. Previous

authors have tested its psychometric properties and have reported excellent internal consistency (Needham, Abderhalden, Zeller, Dassen, Haug, Fischer …, 2005). In the present study, a Cronbach α of .921 was obtained at Time 1.

Quality of life at work: The Professional Quality of Life Scale (ProQOL-5; Stamm, 2009) was designed to measure professional quality of life among caring professionals using three subscales: "compassion satisfaction", "burnout" and "secondary traumatic stress". Compassion satisfaction refers to the joy residential workers feel while helping others (i.e., a form of job satisfaction), while burnout and secondary traumatic stress (i.e., compassion fatigue) refer to the fear and exhaustion some residential workers experience while at work (Stamm, 2009). The scale consists of 30 items, 10 for each subscale, with a rating scale ranging from 1 (never) to 5 (very often) and covers the last 30 days. Other authors have tested this scale's psychometric properties and found them to be between acceptable and excellent (Ray, Wong, White & Heaslip, 2013). Scores are computed for each subscale by adding all the items together. In the present study, at Time 1, the following Cronbach α were obtained: compassion satisfaction = .850, burn out = .714, and secondary traumatic stress = .764.

Perceived Team climate: A validated short version of the counselors' perceived team climate questionnaire was used for the purpose of this study (Plutino, 2010). The instrument has three subscales and records answers as either true or false (True = 1 vs. False = 2). The subscale "order and organization", is composed of 30 items, and refers to perceived team functioning in terms of executing job tasks (e.g., rigorous planning of activities, goal sharing, affective and professional engagement). The second subscale "communication and openness" possesses 19 items and refers to the willingness of residential workers to learn from and adapt to new styles of intervention, different ways of thinking as well as their ease for personal self-disclosure. The last subscale "negative climate", showcases 10 items and validates the presence of conflict between team members as well as the work pressure felt by residential workers

(Plutino, 2010). For each subscale, items are then summed. In the present study, internal consistency was measured using the Kuder-Richardson-20 for each subscale with the following results: order and organization = .791, communication and openness = .700 and negative climate = .762. Composite scores for each subscale were used.

Sociodemographic variables: The first questionnaire included questions on residential workers' sociodemographics, such as sex (male/female) and years of experience.

Focus groups interview grid

Focus group participants were first asked to discuss the significant results of the analysis of the diary questionnaires. Second, they were asked to discuss the non-significant results in a free-flowing manner (Stewart, Shamdasani & Rook, 1990). In other words, researchers presented the results in an impartial manner and let the comments of participants emerge without much additional prompting.

Analysis

Gender and years of experience were set as fixed variables but the other predictors were defined as time-varying variables. Given the low number of R&S instances reported each week, time points had to be regrouped into two-week intervals (Time 1 = weeks 1 and 2, Time 2 = weeks 3 and 4, Time 3 = weeks 5 and 6, Time 4 = weeks 7 and 8). For weekly measures, researchers calculated the mean score of the two time points used (e.g., week 1 + week 2/2). For monthly measures (e.g., ProQol, CCPAI and perceived team climate), week 1 assessment was used for Time 1, week 5 for Time 2 and Time 3 and week 8 for Time 4. Missing data were managed using maximum likelihood. Log transformation was used for the POPAS scale to create a normally distributed variable. Correlates of R&S were examined using Generalized Estimating Equations (GEE), which allows for the analysis of repeated measurements based on the correlations of measurements through time. Logit link was used for dichotomous variables. Two-

sided p-values and odds ratios (OR) with 95% confidence intervals are reported in Table 2. All statistical analyses were performed using SPSS software package version 22 (IBM, 2012).

The conversations between focus group members were transcribed and analyzed using thematic analysis (Paillé & Mucchielli, 2016). Specifically, researchers coded each explanation, causal inference, and contextualizing element offered by the participants for the different findings presented. The depth of focus group analysis depended on the complexity of interactions. The high level of agreement among members led to obvious codification schemes (Stewart, Shamdasani & Rook, 1990).

Results

Survey Results

The number of participants who used R&S throughout the study, according to archival data, was relatively low, moving from 21 participants at Time 1 (19.6%), to 36 for Time 2 (22.8%), to 41 at Time 3 (25.9%) to 33 at Time 4 (20.9%). Table 1 presents descriptive statistics and for each variable. Exposure to self-aggression and verbal aggression were relatively common (i.e., approximately 15 instances per worker per week) and stable over time. Though less prevalent, physical aggression occurred almost once every two weeks. In all, throughout the study period, participants reported moderate levels of stress, chronic and acute occupational fatigue, minimal fear of future violent behaviors and little need for recovery from work. Regarding the variables measured on a monthly basis, using Stamm's (2009) suggested cut-off scores, residential workers had low levels of compassion satisfaction, but also lower levels of burnout and secondary traumatic stress. Altogether, these findings suggest participants were neither thriving at work nor were they deeply and negatively affected by their work. They also scored in the middle range of the scale for self-efficacy, suggesting that participants saw room for improvement but also did not feel inadequate in terms of managing aggression.

Insert Table 1 Here

The GEE analysis (Table 2) revealed that verbal aggression was the only form of aggression significantly associated with the use of R&S. For each one-unit increase on the verbal aggression scale, the risk of using R&S was multiplied 1.15 times (OR = 1.15). In other words, the more instances of verbal aggression a residential worker reported, the more likely he was to use R&S. Also, the subscale openness and communication of the perceived team climate questionnaire was negatively correlated with the use of R&S (OR = .83). Meaning that the more residential workers perceived good communication and openness among team members, the less likely they were to use R&S. As for time effects, Tables 2 and 3 present the fixed effects results confirming the relative stability of all indicators over time, including R&S. Despite intra-individual variance (see ICC in Table 1), none of the variables changed significantly over time except of verbal violence which was significantly higher at Time 1 when compared with Time 4 (β=5,842, $p < 0.05$), but not with the other time points, which made it anecdotical.

Insert Tables 2 & 3 here

Focus Group Results

Regarding significant results, some participants indicated that the repetitive exposure to verbal aggression challenged their capacity to maintain an adequate emotional distance. This emotional state made them more likely to use drastic methods liberally. Several participants also mentioned that they did not have the time to prevent aggression and instead found themselves "putting out fires" all day. In such a context, residential workers explained they were more likely to use R&S. Furthermore, some residential workers shared that using R&S in response to verbal aggression was also seen as a tool to prevent the escalation of aggression. On this note, all residential workers unanimously expressed that R&S was the most adequate intervention against physical aggression.

Regarding the association between perceived team climate and R&S, all participants agreed that open communication was essential to aggression prevention. This could help explain the association between openness and communication and fewer instances of R&S. In contrast, some residential workers admitted that they sometimes reacted to stressful situations by disengaging completely from youths and their colleagues (i.e., becoming withdrawn and giving up on communication). Participants often questioned how adopting this laissez-faire attitude impacted the rehabilitation of youths and possibly fueled the cycle of aggression.

Contrary to other authors, this study did not detect any statistical association between all other measures (i.e., professional quality of life, stress, fatigue recovery, fear and self-efficacy) and R&S use (Bouras & Holt, 2007; Griffith, 2001; Ledoux, 2013; Leidy et al., 2006; Sonnentag et al., 2008). To explain this, participants had different interpretations. They suggested that their fast-paced working environment made it difficult for them to reflect on their own thoughts and feelings while at work. Many workers talked about the importance of "putting up a front" while at work and ignoring their fatigue so as to not appear vulnerable. Some mentioned that when one colleague appeared stressed and anxious it sometimes had the effect of "*contaminating*" the rest of the team, so many residential workers kept their feelings to themselves to avoid influencing others with their stress. Others mentioned that if they had completed the questionnaires at home, results would have been different (i.e., having the emotional space to reflect). The participants attributed their difficulties in filling out the questionnaire to the defense mechanisms they use to be functional at work and to avoid being in direct contact with their emotions. Finally, some participants also mentioned how the current organizational climate discouraged them from talking about their vulnerability. Specifically, all participants in the focus groups reported being negatively impacted by the situations leading to R&S, on a physical (e.g., palpitations, sweat, tremors) and psychological (e.g., fear,

anxiety, stress) level. Thus, participants reported feeling a certain pressure to suffer in silence in an effort not to be deemed incompetent.

Participants also provided an explanation as to why the stress and fear felt while children were being restrained or secluded did not correlate with survey items. Ironically, even though participants completed questionnaires every week, many indicated that the measures were taken too far apart in time and were not specific enough to the situations that led to the use of R&S (i.e., emotional state at the time of the intervention). In their fast-paced working environment, residential workers shared being unable to dwell on their emotions for too long and feeling the need to move on quickly. In other words, the stress and fear felt during R&S situations and other events at work were diluted in a retrospective weekly assessment.

Finally, participants pointed out that the low participation rates among residential workers on the dispatch mobile teams may have affected the results. Focus groups underlined that in their experience, conflicts between youths and residential workers depended a lot on the relationship previously built with youths. This would give full-time and regular workers a greater edge when trying to de-escalate tense situations. They explained how they were more likely to know the warning signs of impending aggression, and they knew how to intervene to prevent such an escalation. In contrast, residential workers from the mobile dispatch teams who have little time to get to know each youth used R&S more often. Their explanations suggest that the type of interactions and levels of trust residential workers have with youths could play a central role in the use of R&S.

Discussion

The following study sought to contextualize the link between residential workers' characteristics as well as perceived team climate and the use of R&S over the course of eight weeks using a mixed-methods sequential design. Exposure to verbal aggression was the only predictor to significantly predict increased R&S use. As for perceived team climate, openness and communication among work teams were negatively associated with the use of R&S. As for time effects, all variables remained relatively stable over time. In all, this study makes important contributions to the field. First, it adds contextual knowledge to the study of R&S by focusing on the use of R&S in youth residential treatment centers. Second, unlike most existing studies on R&S in residential treatment centers, this analysis considered the psychological state of staff when trying to identify factors predicting the use of R&S. This study suggests considering perceived team climate as a predictor for R&S in residential treatment centers for youths. Finally, this study adds up-to-date information to the current scientific literature on R&S use. As mentioned, studies on the subject span many decades which constraints scientists in their ability to synthesize findings.

R&S as a Deterrent for Future Aggression

Based on the findings of previous studies on the matter (Roy et al., 2019), an association between physical aggression and R&S was expected but the results revealed no statistically significant associations. The absence of associations in this study might be explained by the fact that, according to official reports, participants did not use R&S often during the study period. Therefore, a lack of statistical power could explain the absence of associations between variables. Another explanation offered by the focus groups is that survey participants were mostly full-time regular employees with significant experience, two factors known to be associated with lower R&S use (Roy et al., 2019). On this note, it is important to consider how results based on official records can differ from those based on the recall of participants. Indeed, participants asked to recall how many R&S decisions they have made, and to also assess their stress levels may be self-reporting associations that may not exist.

Results indicated that residential workers were more likely to use R&S when they were exposed to verbal aggression but not physical aggression. Other researchers have found similar associations as well (Fraser, Archambeault & Parent, 2016; Leidy et al., 2006). These findings suggest that residential workers could be using R&S in response to verbal aggression as a tool to help de-escalate tense situations and prevent physical aggression. Indeed, studies in the field of healthcare have found that verbal aggression often preceded physical aggression (Bowers, James, Quirk, Wright, Williams & Stewart, 2013). Still, other explanations merit attention. Specifically, during focus groups, residential workers also admitted that the constant insults and harassment from youths sometimes got under their skin and led them to use R&S as "quick fixes." Likewise, previous authors have found that psychiatric workers and residential workers sometimes used R&S as punishment for not obeying the rules (AbuAlrub, 2004; Bellonci et al., 2013; Farragher, 2002; Green-Hennessy & Hennessy, 2015). This finding is echoed by previous authors who have also documented how the cumulative toll of verbal violence sometimes caused residential workers to experience stress and become irritable, impatient and short-tempered with youths (Lamothe et al., 2018; Smith, Colleta & Bender, 2017). On a related note, stress researchers have long found an association between high levels of stress and interpersonal difficulties. For example, work stress has been linked to many cognitive (e.g., ignoring the youth's viewpoint), emotional (e.g., fear of losing control of the situation), and behavioral short-term effects (e.g., opting for a quick fix; Bouras & Holt, 2007). Likewise, high levels of stress have also been linked to long-term effects on individuals and organizations (e.g., depression, increased number of accidents; Bouras & Holt, 2007). Altogether, stress research offers one explanation as to why exhausted and stressed mental health workers tend to use last resort strategies more often (Griffith, 2001).

Furthermore, previous authors have reported that R&S were sometimes used as an "automatic response" to any resistance posed by adolescents despite legal and organizational guidelines (Sequeira &

Halstead, 2004). In such contexts, residential workers spent less time investing in de-escalating strategies and opted to use R&S sooner than they normally would. This is problematic since the use of R&S erodes the trust youths have in their residential workers (Fraser et al., 2016). Specifically, Fraser and colleagues (2016) found that the use of coercive measures to deal with verbal aggression in youth residential treatment centers often led to an escalation of aggression between youths and residential workers, damaged the therapeutic alliance and hindered the rehabilitation process. Furthermore, it should be mentioned that most youths in residential treatment centers have already lived through significant abuse at the hands of their previous caregivers (Briggs, Greeson, Layne, Fairbank, Knoverek & Pynoos, 2012). One of the goals of rehabilitation is therefore to allow these children to trust adults again (Briggs, et al., 2012). And so, the use of R&S as a "quick fix" or as a deterrent for future verbal aggression could seriously undermine the rehabilitation of these children. On this note, cultural differences could explain why rates of R&S were so low in this study compared to others (most of which were conducted in the United States; Roy et al., 2019). Specifically, rehabilitation goals may not be shared internationally or even be funded equally across countries; especially, in countries where children with serious behavioral issues are given minimal services, such as in the United States (Smith, Colletta & Bender, 2017).

During focus groups, residential workers raised the possibility that this type of interaction (i.e., R&S in response to verbal aggression) could be fueling the cycle of aggression in this context. Specifically, they mentioned how, during phases of emotional exhaustion, they sometimes mismanaged defiant behaviors, which triggered youths and caused tense situations to spiral to a point where residential workers felt R&S were their only recourse. Likewise, studies in psychiatric settings suggest patients often become violent when they feel vulnerable, powerless, and scared and this tendency is exacerbated when they perceive their carers as cold or indifferent (Gudde, Olso, Whittington & Hatne, 2015). In this sense, perceiving a residential worker as being harsh in response to one's clumsy attempt at requesting comfort

through defiance could lead youths to become verbally or even physically abusive and thereby justifying the use of R&S. Indeed, the intense stress felt during certain interactions with distressed individuals can undermine the cognitive, emotional and behavioral skills needed to de-escalate conflicts (Bouras & Holt, 2007). Findings regarding this "cycle of aggression" is supported by other authors (Fraser et al., 2016; Lamothe et al., 2018; Winstanley & Hales, 2015).

Open Communication and the Importance of Teamwork

Findings revealed a link between perceived openness and communication among staff members and fewer instances of R&S. A high score on this subscale means that staff members communicate well enough to understand their team's needs and those of the children, are supportive of one another and are open to trying innovative interventions. In their systematic review, Roy and colleagues (2019) found that residential workers who made efforts to understand the needs of adolescents also reported using R&S less often, in part, because they invested more time in de-escalation interventions. Openness and communication could also be instrumental in allowing residential workers to prevent aggression by giving each other respite when needed, coming up with alternative strategies to deal with the most challenging youths, and expressing support for one another. Likewise, Estryn-Behar and colleagues (2008) found that nurses who perceived a greater quality of teamwork in their workplace also reported a lower frequency of aggression. This impression was shared by the participants during focus groups. These findings highlight the importance of focusing on organizational dynamics, and not just workers' attitudes or youth characteristics, as several factors influence residential workers in their decision to use R&S.

R&S as a Cure for Stress Contagion

Findings showed an interesting contrast between survey results depicting no statistical associations between participants' emotional states and R&S use and focus group discussions on the same subject.

Indeed, during focus group discussions, participants shared how they felt the need to suppress their emotions to maintain a professional façade but also described moments of intense stress that survey questionnaires could not capture. This discrepancy highlights the complex and significant influence of contextual variables motivating the use of R&S such as surges in stress levels. Residential workers' perceived need to change their emotional reactions to meet their employer's expectations is what Hochschild (1983) calls Emotional Labor (EL). EL is the process of managing affects and affective expressions at work in accordance to organizational display rules. It has two mechanisms: *surface acting* which amounts to faking the "correct" emotion (e.g., pretending to be interested) and *deep acting* which consists of active cognitive and emotional efforts to genuinely feel the expected emotion (e.g., finding the motivation to accomplish a task). Although researchers have associated deep acting with positive outcomes at work, such as improving perceptions of team support and customer satisfaction (Becker, Cropanzano, Van Wagoner & Keplinger, 2018), it is plausible that, in some contexts, this strategy could also lead to negative consequences for service users. For example, in certain scenarios, residential workers could be using R&S to regulate their own stress levels back to a "non-contagious state" to preserve themselves and colleagues from its consequences. Therefore, R&S could be a coping strategy when facing an opposing and aggressive youth. This could also help explain why survey items did not catch these intense but short-lived emotional responses because the use of R&S had already had the intended effect of helping them regulate these emotions (i.e., deep acting).

One important nuance to this, however, is that the number of R&S instances reported during the observation period was low while the average number of violent incidents per residential worker was high (i.e., 15 instances per week). This suggests that if residential workers did indeed use R&S to regulate their own emotions, it remained a rare occurrence. Without disregarding the opinions of focus group participants, their descriptions of their emotional state before using R&S may be the result of a negative

memory bias whereby participants only focused on the few R&S instances that caused them the most distress and not all the other situations when they successfully de-escalated tense situations. Likewise, a recent study of acute and chronic stress among residential workers caring for children aged 6 to 12 years of age suggested that stress levels were rather stable over time among this population (Mathieu, Plusquennec, Giguère, Lupien & Geoffrion, 2020). Measuring indicators of distress or stress over time, therefore, could lead to different results than the ones reported in cross-sectional studies (Roy et al., 2019). Indeed, the absence of relationships between residential workers' emotional state and their use of R&S in this study could also be an accurate depiction of reality; in that, residential workers are not biased by their emotional state and are able to remain professional even in stressful situations. This point highlights the importance of exploring personal triggers and investigating which situational factors are more likely to lead to the use of R&S than others.

Limitations and Strengths

Despite the wealth of information gathered for this longitudinal mixed-method analysis, this study has limitations. First, several factors can explain why there were no variations over time (Dosreis et al., 2010; Leidy, et al., 2006) for example, the 8-week observation period may have been too short to capture time effects and may also be another explanation to the low rates of R&S when compared to other studies studying R&S over a longer time span. Also, there were no major holidays or events during (i.e. seasonal effects) these two months that may have affected stress levels, such as working with the skeleton crew during the holidays or helping children reintegrate school in September. Second, another limitation is the nature of the explanatory sequential design. Indeed, since researchers were committed to presenting weekly results to focus group participants, this limited the statistical manipulations possible. Given the low base rate of R&S, researchers could have compiled the number of R&S for all participants over time to yield stronger statistical associations. In the end, however, researchers opted not to make significant

changes to their analyses as this would have meant presenting a set of results that was radically different than what was initially described to focus group participants. Despite this limit, focus groups added significant context to this study's non-significant results. Third, the sample size was relatively small, and this may explain the absence of statistical associations between predictors and R&S use. Fourth, the authors learned at the end of data collection that some participants filled out their questionnaires near each other which may have increased the risk for social desirability. Lastly, policies guiding residential care for youths vary from country to country; consequently, findings can only be generalized to residential treatment centers like the ones described in this study. Indeed, a recent review has demonstrated that most previous studies were conducted in the United States (Roy et al., 2019), differences in philosophies of intervention may explain differences in terms of result.

Still, the present study included several strengths. First, archival data was reviewed to identify the number of R&S instances made throughout the observation period, which diminished risks of biases related to self-reporting (e.g., recall, underestimation). Moreover, this allowed this study to rely on multi-source data. Second, the weekly diaries method used reduced the risk of recall bias. Third, comments made by focus group participants were included in the process of data analysis to better understand and interpret the results.

Future Directions and Implications

Based on focus group findings, future studies on the use of R&S should consider conceptualizing this issue as a complex social interaction occurring at a specific point in time. In other words, to include "in the moment" variables (e.g., emotional state and level of self-efficacy just before using R&S) in addition to youth, residential workers, and organizational characteristics. Qualitative methodologies, such as ethnography, appear especially well suited to explore this angle. Ecological Momentary Analysis

(EMA) could also be instrumental in tracking variations in stress levels throughout the day (Steinhart, Myin-Germeysa & Reininghausb, 2018). This technique has been used convincingly to monitor mental health symptoms over time (Steinhart, Myin-Germeysa & Reininghausb, 2018). Specifically, the use of physiological indicators (e.g., heart rate variability) to monitor upticks in stress levels could also help researchers understand the experiences of residential workers. Conducting debriefing sessions post-R&S with residential workers and youths could also be especially informative. Indeed, some researchers have found that, following instances of aggression at work, child protection workers were willing to receive feedback on their intervention to invest in their professional development and their personal safety (Lamothe et al., 2018). Indeed, contrasting the point of view of workers with that of youths regarding the same event could be informative. Regardless, this study highlights the need to provide residential workers with the "emotional space" needed to engage in wise and effective interventions with defiant youths and not let their irritation overwhelm them. Supervision, team meetings, breaks and mental health days could be effective strategies to offer them the "emotional space" they need to whine down and engage in meaningful dialogue. Also, regular training on verbal de-escalation techniques could be instrumental in helping residential workers properly regulate their emotions during tense moments. Indeed, filtering situations through the more "objective" lenses of de-escalation training rather than taking verbal violence personally could help some residential workers feel more confident in their ability to manage aggression and therefore help them manage their stress more effectively (Laiho et al., 2013). The proven adverse effects of R&S on youths, residential workers, and organizations render this type of misuse especially concerning (i.e., out of fear or punishment—Peter, 2006). Finally, since organizational climate appears to be an important variable, researchers should seek to include and evaluate the impact of organizational dynamics in predicting the use of R& (AbuAlRub, 2004; Bellonci et al., 2013; Huefner et al., 2014; Leidy

et al., 2006). On this note, interventions that seek to improve organizational dynamics and perceived team climate would be a much-needed contribution to the field.

Acknowledgments

The authors wish to thank the residential workers who accepted to participate in this study and for their implication in the interpretation of the results.

References

AbuAlRub, R. F. (2004). Job stress, job performance, and social support among hospital nurses. *Journal of nursing scholarship*, *36*(1), 73-78. **https://doi.org/10.1111/j.1547-5069.2004.04016.x**

Anadón M. (2007). La Recherche Participative: Multiples Regards. PUQ.

Antonopoulou, P., Killian, M., & Forrester, D. (2017). Levels of stress and anxiety in child and family social work: Workers' perceptions of organizational structure, professional support, and workplace opportunities in Children's Services in the UK. *Children and Youth Services Review*, *76*, 42-50. **https://doi.org/10.1016/j.childyouth.2017.02.028**

Authors (full reference was removed to ensure author confidentiality)

Baugerud, G. A., Vangbæk, S., & Melinder, A. (2018). Secondary traumatic stress, burnout, and compassion satisfaction among Norwegian child protection workers: Protective and risk factors. *British Journal of Social Work*, *48*(1), 215-235. **https://doi.org/10.1093/bjsw/bcx002**

Becker, W. J., Cropanzano, R., Van Wagoner, P., & Keplinger, K. (2018). Emotional labor within teams: outcomes of individual and peer emotional labor on perceived team support, extra-role behaviors, and turnover intentions. *Group & Organization Management*, *43*(1), 38-71. **https://doi.org/10.1177/1059601117707608**

Bellinghausen, L., Collange, J., Botella, M., Emery, J. L., & Albert, É. (2009). Validation factorielle de l'échelle française de stress perçu en milieu professionnel. *Santé publique*, *21*(4), 365-373.

Retrieved May 8, 2020, from **https://www.cairn.info/revue-sante-publique-2009-4-page-365.htm**

Bellonci C, Huefner JC, Griffith AK, Vogel-Rosen G, Smith GL, & Preston S. (2013). Concurrent reductions in psychotropic medication, assault, and physical restraint in two residential treatment programs for youth. *Children and Youth Services Review,* 35(10):1773–1779. **https://doi.org/10.1016/j.childyouth.2013.08.007**

Bouras N, & Holt G. (2007). Psychiatric and Behavioral Disorders in Intellectual and Developmental Disabilities Second Edition [Internet]. Vol. 53. London: Cambridge University Press. **http://doi.wiley.com/10.1111/j.1365-2788.2009.01155.x**

Bowers, L., James, K., Quirk, A., Wright, S., Williams, H., & Stewart, D. (2013). Identification of the "minimal triangle" and other common event-to-event transitions in conflict and containment incidents. *Issues in Mental Health Nursing*, Jul 1;34(7):514-23. **https://doi.org/10.3109/01612840.2013.780117**

Briggs, E.C., Greeson, J.K., Layne, C.M., Fairbank, J.A., Knoverek, A.M., & Pynoos, RS. T. (2012). Trauma exposure, psychosocial functioning, and treatment needs of youth in residential care: Preliminary findings from the NCTSN Core Data Set. *Journal of Child & Adolescent Trauma*, Jan 1;5(1):1–5. **https://doi.org/10.1080/19361521.2012.646413**

Centre Jeunesse de Montréal – Institut Universitaire (2014). Rapport sur l'application des mesures particulières 2013-2014. Montréal: Centre Jeunesse de Montréal – Institut Universitaire (CJM-IU).

Cohen, S., Kamarck, T., & Mermelstein, R. (1998). A global measure of perceived stress. Journal of *Health and Social Behavior,* Dec; 24 (4):385–96. **https://doi.org/10.2307/2136404**

Creswell, J. W. (2015). A concise introduction to mixed methods research. Sage Publications.

Dagan, S.W., Ben-Porat, A., & Itzhaky, H. (2016). Child protection workers dealing with child abuse: The contribution of personal, social, and organizational resources to secondary traumatization. *Child Abuse & Neglect,* Jan 1; 51:203-11. **https://doi.org/10.1016/j.chiabu.2015.10.008**

Day, D. M. (2002). Examining the therapeutic utility of restraint and seclusion with children and youth: The role of theory and research in practice. *American Journal of Orthopsychiatry,* 72 (2):266—78. **https://doi.org/10.1037/0002-9432.72.2.266**

DosReis, S., McCulloch, J.R., Colantuoni, E., Barnett, S.R., Pruitt, D., Zachik, A., et al. (2010). Early identification of seclusion and restraint patterns during adolescents' course of residential treatment. *Residential Treatment for Children and Youth*, 27 (3):160–174. **https://doi.org/10.1080/0886571X.2010.500145**

Estryn-Behar, M., Van Der Heijden, B., Camerino D., Fry, C., Le Nezet, O., Conway, P.M., & Hasselhorn, H.M. (2008). Violence risks in nursing—results from the European 'NEXT' Study. *Occupational medicine*, 21;58(2):107-14. **https://doi.org/10.1093/occmed/kqm142**

Farragher B. (2002). A System-Wide Approach to Reducing Incidents of Therapeutic Restraint. *Residential Treatment for Children and Youth*, 20 (1):1—14. **https://doi.org/10.1300/J007v20n01_01**

Fraser, S. L., Archambault, I., & Parent, V. (2016). Staff intervention and youth behaviors in a child welfare residence. *Journal of Child and Family Studies*, 25(4), 1188–1199. Retrieved May 8, 2020, from **https://www.semanticscholar.org/paper/Staff-Intervention-and-Youth-Behaviors-in-a-Child-Fraser-Archambault/aa155bd9600c2c8a65b581e041c88f7d742ad32d**

Geoffrion S, & Ouellet F. (2013). Quand la réadaptation blesse? Éducateurs victimes d'agressions. *Criminologie*, 46 (2):263–89. **https://doi.org/10.7202/1020996ar**

Geoffrion, S., Giguère, C-É., Fortin, M., Fortin, C., & Guay, S. (2017). Validation de la version française canadienne du Perception of Prevalence of Aggression Scale (POPAS) auprès d'un échantillon d'intervenants en protection de la jeunesse, *Revue de Pyschoeducation,* 46 (1):145–74. **https://doi.org/10.7202/1039685ar**

Green-Hennessy, S., & Hennessy, K.D. (2015). Predictors of seclusion or restraint use within residential treatment centers for children and adolescents. *Psychiatry Quarterly,* 86 (4):545–554. Retrieved May 8, 2020, from **https://www.ncbi.nlm.nih.gov/pubmed/25733324**

Griffiths L. (2001). Does seclusion have a role to play in modern mental health nursing? *British Journal of Nursing,* 10 (10):656–61. **https://doi.org/10.12968/bjon.2001.10.10.9985**

Hochschild, A.R. (1983) The Managed Heart: Commercialization of Human Feeling, London: University of California.

Hylén U, Kjellin L, Pelto-Piri V, & Warg LE. (2018). Psychosocial work environment within psychiatric inpatient care in Sweden: Violence, stress, and value incongruence among nursing staff. *International Journal of Mental Health Nursing,* 27(3):1086-98. **https://doi.org/10.1111/inm.12421**

IBM Corp. Released (2012). IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.

Kind, N., Eckert, A., Steinlin, C., Fegert, J.M., & Schmid, M. (2018). Verbal and physical client aggression—A longitudinal analysis of professional caregivers' psychophysiological stress response and burnout. *Psychoneuroendocrinology*, 94:11-6. **https://doi.org/10.1016/j.psyneuen.2018.05.001**

Laiho, T., Kattainen, E., Åstedt-Kurki, P., Putkonen, H., Lindberg, N., & Kylmä, J. (2013). Clinical decision making involved in secluding and restraining an adult psychiatric patient: an integrative

literature review. *Journal of Psychiatric and Mental Health Nursing*, 20(9):830-9. **https://doi.org/10.1111/jpm.12033**

Lamothe, J., Couvrette, A., Lebrun, G., Yale, G., Roy, C., Guay, S., & Geoffrion, S. (2018). Violence against child protection workers: A study of workers' experiences, attributions, and coping strategies. *Child Abuse & Neglect*, 81:308-21. **https://doi.org/10.1016/j.chiabu.2018.04.027**

LeBlanc, V.R., Regehr, C., Shlonsky, A., & Bogo, M. (2012). Stress responses and decision making in child protection workers faced with high conflict situations. *Child Abuse & Neglect,* 36(5):404-12. **https://doi.org/10.1016/j.chiabu.2012.01.003**

Ledoux, M.B. (2013). Physical Restraint in Residential Facilities: Staff Members' Perspectives [doctoral thesis]. Antioch University. Retrieved May 8, 2020, from **http://rave.ohiolink.edu /etdc/view?acc_num=antioch1363343108.**

Lee-Lipkins, H.A. (2014). The influence of selected aggression, demographic, gender role, and temperament factors on the level of physical restraint among staff in residential treatment centers for youth [doctoral thesis]. Houston, USA; Texas Southern University. Retrieved May 8, 2020, from **http://search.proquest.com/openview/8cb1fc809133534f95593a82a9e1fa29/1?Pqorig site=gsc holar&cbl=18750&diss=y**

Leidy, B.D., Haugaard, J.J., Nunno, M.A., & Kwartner, J.K. (2006). Review of restraint data in a residential treatment center for adolescent females. *Child Youth Care Forum*, 35 (5–6):339–52. Retrieved May 8, 2020, from **https://www.researchgate.net/publication/2 25473409 Review of Restraint Data in a Residential Treatment Center for Adolescen t Females**

Lesage, F-X., Berjot, S., & Deschamps, F. (2012). Psychometric properties of the French versions of the Perceived Stress Scale. *International Journal Occupational Medicine and Environmental Health*, 25 (2):178–184. Retrieved May 8, 2020, from **https://www.ncbi.nlm.nih.gov/pubmed/22528542**

Littlechild, B. (2005). The Nature and Effects of aggression against Child-Protection Social Workers: Providing Effective Support. *British Journal of Social Work*, 35 (3):387–401. **https://doi.org/10.1093/bjsw/bch188**

Littlechild, B., Hunt, S., Goddard, C., Cooper, J., Raynes, B., & Wild, J. (2016). The effects of violence and aggression from parents on child protection workers' personal, family, and professional lives. *Sage Open.* 6(1):2158244015624951. **https://doi.org/10.1177/2158244015624951**

Ministère de la santé et des services sociaux (2017). Bilan des directeurs de la protection de la jeunesse et des directeurs provinciaux.

Needham, I., Abderhalden, C., Zeller, A., Dassen, T., Haug, H-J., Fischer, J.E., et al. (2005). The effect of a training course on nursing students' attitudes toward, perceptions of, and confidence in managing patient aggression. *Journal Nursing Education*, 44 (9):415–20. Retrieved May 8, 2020, from **https://www.ncbi.nlm.nih.gov/pubmed/16220649**

Nijman, H., Bowers, L., Oud, N., & Jansen, G. (2005). Psychiatric nurses' experiences with inpatient aggression. *Aggressive Behavior*, 31 (3):217—227. **https://doi.org/10.1002/ab.20038**

Noël, V., & Papillon, S. (2017). Étude sur l'utilisation de l'isolement et de la contention au sein des missions réadaptation jeunesse des CISSS et CIUSSS du Québec, ainsi que dans certains établissements non fusionnés. Québec, Canada: Commission des droits de la personne et des droits de la jeunesse.

Nunno, M.A., Holden, M.J., & Leidy, B. (2003). Evaluating and monitoring the impact of a crisis intervention system on a residential childcare facility. *Children and Youth Services Review*, 25 (4):295–315. **doi:10.1016/S0190-7409(03)00013-6.**

Steinharta, H., Myin-Germeysa, I., & Reininghausb, U. (2018). Translating treatment of mental health problems to daily life: a guide to the development of ecological momentary interventions. Same Same but Different, 81.

Ohly, S., Sonnentag, S., Niessen, C., & Zapf, D. (2010). Diary studies in organizational research. *Journal of Personnel Psychology*, 9, 79—93. **https://doi.org/10.1027/1866-5888/a000009**

Paillé, P., & Mucchielli, A. (2016). *L'analyse qualitative en sciences humaines et sociales-4e éd*. Armand Colin.

Peter, M.M. (2006). Examining the relationship between reinforcement ratios and seclusion rates in residential treatment [Doctoral Thesis]. Chicago, USA; The Chicago School of Professional Psychology. Retrieved May 8, 2020, from **https://elibrary.ru/item.asp?id=9378037**

Plutino, A.-M. (2010). Questionnaire du climat social de l'équipe d'intervenants (QCSÉI) : structure factorielle et validité de critère dans un échantillon d'intervenants québécois [Masters' thesis]. Montreal, Canada; Université de Montréal. Retrieved May 8, 2020, from **https://papyrus.bib.umontreal.ca/ xmlui/handle/1866/4459**

Ray, S.L., Wong, C., White, D., & Heaslip, K. (2013). Compassion satisfaction, compassion fatigue, work life conditions, and burnout among frontline mental health care professionals. *Traumatology,* 19 (4):255–267. **https://doi.org/10.1177/1534765612471144**

Robson, A., Cossar, J., & Quayle, E. (2014). Critical Commentary: The Impact of Work-Related aggression towards Social Workers in Children and Family Services. *British Journal of Social Work,* 44 (4):924–36. **https://doi.org/10.1093/bjsw/bcu015**

Schat, A. C. H., & Kelloway, E. K. (2000). Effects of perceived control on the outcomes of workplace aggression and violence. *Journal of Occupational Health Psychology, 5*(3), 386-402. **https://doi.org/10.1037/1076-8998.5.3.386**

Sequeira, H., & Halstead, S. (2004). The psychological effects on nursing staff of administering physical restraint in a secure psychiatric hospital: 'When I go home, it's then that I think about it.' *British Journal of Forensic Practices*, 6 (1):3–15. **https://doi.org/10.1108/14636646200400002**

Slemon, A., Jenkins, E., & Bungay, V. (2017). Safety in psychiatric inpatient care: The impact of risk management culture on mental health nursing practice. *Nursing Inquiry,* 24(4): e12199. **https://doi.org/10.1111/nin.12199**

Smith, M.L., & Bowman, K.M. (2009). The restraint spiral: Emergent themes in the perceptions of the physical restraint of juveniles. *Child Welfare,* 88 (3):57–83. Retrieved May 8th 2020 from: Retrieved May 8th 2020 from: **https://www.ncbi.nlm.nih.gov/pubmed/20084818**

Smith, Y., Colletta, L., & Bender, A. E. (2017). Client violence against youth care workers: Findings of an exploratory study of workforce issues in residential treatment. *Journal of Interpersonal Violence,* 0886260517743551. **https://doi.org/10.1177/0886260517743551**

Sonnentag, S., Binnewies, C., & Mojza, E. J. (2008). "Did you have a nice evening?" A day-level study on recovery experiences, sleep, and affect. *Journal of Applied Psychology, 93*(3), 674-684. **http://dx.doi.org/10.1037/0021-9010.93.3.674**

Stamm, B. H., (2009). Professional Quality of Life Measure: Compassion, Satisfaction, and Fatigue Version 5 (ProQOL).

Stevenson, K., Jack, S., O'Mara, L., & LeGris, J., (2015). Registered nurses' experiences of patient violence on acute care psychiatric inpatient units: an interpretive descriptive study. *BMC Nursing,* 14(1):35. Retrieved May 8, 2020, from **https://www.ncbi.nlm.nih.gov/pubmed/25999795.**

Stewart, D., Shamdasani P., & Rook D., (1990). Analyzing focus group data. Focus groups: Theory and practice, 102-21. **https://dx.doi.org/10.4135/9781412991841.d51**

Stewart, S., Theall-Honey L, Armieri AA, & Cullion C. (2010). Predicting the Utilization of Intrusive Interventions at a Tertiary Residential Treatment Center. *Residential Treatment for Children and Youth,* 27 (3):175–90. **https://doi.org/10.1080/0886571X.2010.500152**

Thackrey, M. (1987). Clinician confidence in coping with patient aggression: Assessment and enhancement. *Professional Psychology: Research and Practice,* 18 (1):57–60. **https://doi.org/10.1037/0735-7028.18.1.57**

Winstanley, S., & Hales, L. (2015). A Preliminary Study of Burnout in Residential Social Workers Experiencing Workplace aggression: Might It Be Cyclical? *British Journal of Social Work*, 45 (1):24–33. **https://doi.org/10.1093/bjsw/bcu036**

Winwood, P.C., Winefield, A.H., Dawson, D., & Lushington, K. (2005). Development and validation of a scale to measure work-related fatigue and recovery: The Occupational Fatigue Exhaustion/Recovery Scale (OFER). *Journal of Occupational and Environmental Medicine*, 47 (6):594–606. **https://doi.org/10.1097/01.jom.0000161740.71049.c4**

Table 1: Descriptive statistics of personal characteristics and perceived team climate

	Time 1			Time 2			Time 3			Time 4			ICC
Measures	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	
POPAS													
• Verbal aggression	132	6.4	3.9	130	5.8	3.7	111	5.8	4.5	109	5.8	4.7	0.821
• Physical aggression	132	1.4	1.9	130	1.4	1.7	111	1.4	1.8	109	1.4	2.0	0.752
• Self-Inflicted aggression	132	0.5	0.8	130	0.4	0.6	111	0.5	0.8	109	0.5	0.9	0.428
Perceived Stress	132	22.3	5.6	130	22.0	5.9	111	22.1	6.1	109	21.8	7.0	0.657
Fear	132	25.6	11.6	130	26.3	14.1	111	26.6	14.7	109	27.5	16.7	0.743
OFER													
• Chronic Fatigue	132	13.7	8.5	130	14.0	9.2	111	14.0	9.7	109	14.1	10.3	0.714
• Acute Fatigue	132	14.9	4.1	130	15.0	4.3	111	15.3	4.5	109	15.4	4.6	0.659
• Recovery	132	6.7	3.3	130	6.4	3.5	111	6.5	3.5	109	6.3	3.8	0.692
ProQoL													
• Compassion Satisfaction	132	39.0	4.9	130	38.9	4.9	111	38.6	5.2	109	38.7	5.2	0.782
• Burnout	132	21.4	4.2	130	21.3	4.2	111	21.7	4.9	109	21.8	4.8	0.744
• STS	132	18.9	4.8	130	18.9	4.8	111	19.0	5.1	109	19.1	5.1	0.740
CCPAI	132	73.0	18.0	130	73.1	18.1	111	73.4	17.4	109	73.0	17.4	0.773
Team Climate													
• Order and Organization	132	23.7	4.2	130	23.7	4.2	111	23.5	4.5	109	23.5	4.5	0.706
• Communication and Openness	132	12.5	2.4	130	12.6	2.4	111	12.7	2.7	109	12.7	2.7	0.605
• Negative Climate	132	4.4	2.6	130	4.4	2.6	111	4.5	2.5	109	4.5	2.5	0.685

ICC: Intraclass correlation coefficient; OFER: Occupational Fatigue Exhaustion Recovery Scale; ProQoL: Professional Quality of Life; STS: Secondary Traumatic Stress; CCPAI: Confidence in coping with patient aggression inventory.

Table 2. Results from GEE

	Estimate	Robust SE	OR	95%CI	p-value
(Intercept)	-2,713	2,332	.07	0 - 6.4	.245
Time (1)	-.008	.356	.99	0.49 - 1.99	.981
Time (2)	.357	.292	1.43	0.81 - 2.53	.222
Time (3)	.582	.308	1.79	0.98 - 3.28	.059
Time (4—Ref)	0	-	1.00	-	-
POPAS					
• Verbal aggression	.138	.054	1.15	1.03 - 1.28	.011
• Physical aggression	.123	.107	1.13	0.92 - 1.39	.251
• Self—Inflicted aggression	.211	.207	1.23	0.82 - 1.85	.309
Perceived Stress	-.021	.037	.98	0.91 - 1.05	.563
Fear	.006	.012	1.01	.98 - 1.03	.597
OFER					
• Chronic Fatigue	-.072	.043	.93	.86 - 1.01	.092
• Acute Fatigue	-.046	.036	.96	.89 - 1.03	.210
• Recovery	.018	.036	1.02	.95 - 1.09	.608
ProQoL					
• Compassion Satisfaction	.025	.037	1.03	.95 - 1.1	.510
• Burnout	.001	.049	1.00	.91 - 1.1	.986
• STS	.023	.038	1.02	.95 - 1.1	.545
CCPAI	.001	.010	1.00	0.98 - 1.02	.915
Social Climate					
• Order and Organization	.072	.039	1.07	1.00 - 1.16	.063

• Communication and Openness	-.189	.056	.83	.74 - .92	.001
• Negative Climate	.091	.064	1.10	.97 - 1.24	.155
Sex (Man)	.103	.447	1.11	.46 - 2.66	.817
Experience	-.025	.028	.97	.92 - 1.03	.373

OFER: Occupational Fatigue Exhaustion Recovery Scale; ProQoL: Professional Quality of Life; STS: Secondary Traumatic Stress; CCPAI: Confidence in coping with patient aggression inventory.

Table 3. Fixed effects results

	Estimate	Robust SE	OR	95%CI	p-value
POPAS					
• Verbal violence					
Intercept	5,842	0.377	190,277	15,509	0.000
[Time=1]	0.607	0.238	343,480	2,552	0.011
[Time=2]	-0.081	0.239	343,410	-0.340	0.734
[Time=3]	0.009	0.243	340,073	0.039	0.969
[Time=4]	0.000	0.000	.	.	.
• Physical violence					
Intercept	1,492	0.172	214,437	8,678	0.000
[Time=1]	-0.027	0.126	342,614	-0.216	0.829
[Time=2]	-0.065	0.127	342,558	-0.509	0.611
[Time=3]	0.013	0.129	337,770	0.103	0.918
[Time=4]	0.000	0.000	.	.	.
• Self-inflicted violence					
Intercept	0.510	0.072	294,425	7,077	0.000
[Time=1]	0.016	0.068	346,773	0.244	0.808
[Time=2]	-0.118	0.068	346,870	-1,740	0.083
[Time=3]	-0.032	0.069	338,120	-0.458	0.647
[Time=4]	0.000	0.000	.	.	.
Perceived Stress					
Intercept	22,012	0.558	260,771	39,447	0.000
[Time=1]	0.335	0.475	349,173	0.706	0.481
[Time=2]	-0.049	0.477	349,176	-0.103	0.918
[Time=3]	0.143	0.486	342,500	0.295	0.768
[Time=4]	0.000	0.000	.	.	.
Fear					
Intercept	26,916	1,266	222,550	21,254	0.000
[Time=1]	-1,090	0.946	346,314	-1,153	0.250
[Time=2]	-0.486	0.950	346,262	-0.511	0.609
[Time=3]	-0.901	0.967	341,370	-0.932	0.352
[Time=4]	0.000	0.000	.	.	.

OFER

- Chronic Fatigue

Intercept	8,042	0.528	235,215	15,223	0.000
[Time=1]	-0.465	0.414	347,261	-1,123	0.262
[Time=2]	-0.244	0.416	347,223	-0.586	0.558
[Time=3]	-0.135	0.424	341,732	-0.320	0.749
[Time=4]	0.000	0.000	.	.	.

- Acute Fatigue

Intercept	11,440	0.541	258,872	21,133	0.000
[Time=1]	0.693	0.459	348,289	1,508	0.133
[Time=2]	0.795	0.461	348,290	1,722	0.086
[Time=3]	0.248	0.470	341,626	0.528	0.598
[Time=4]	0.000	0.000	.	.	.

- Recovery

Intercept	10,154	0.518	244,063	19,611	0.000
[Time=1]	0.688	0.420	347,248	1,637	0.102
[Time=2]	0.197	0.422	347,224	0.467	0.641
[Time=3]	0.331	0.430	341,253	0.772	0.441
[Time=4]	0.000	0.000	.	.	.

Social Climate

- Order and Organization

Intercept	23,429	0.399	188,377	58,730	0.000
[Time=1]	0.316	0.319	110,319	0.993	0.323
[Time=3]	0.000	0.000	.	.	.

- Communication and Openness

Intercept	12,569	0.245	203,189	51,261	0.000
[Time=1]	-0.202	0.223	112,401	-0.907	0.367
[Time=3]	0.000	0.000	.	.	.

- Negative Climate

Intercept	4,464	0.232	192,643	19,269	0.000
[Time=1]	-0.084	0.191	112,278	-0.440	0.660
[Time=3]	0.000	0.000	.	.	.

PROQOL

- Compassion Satisfaction

Intercept	38,540	0.460	176,081	83,822	0.000
[Time=1]	0.475	0.321	109,700	1,478	0.142
[Time=3]	0.000	0.000	.	.	.

- Burnout

Intercept	21,665	0.408	184,924	53,047	0.000
[Time=1]	-0.362	0.307	113,643	-1,180	0.241
[Time=3]	0.000	0.000	.	.	.

- STS

Intercept	18,540	0.429	185,157	43,233	0.000
[Time=1]	0.413	0.324	113,068	1,273	0.206
[Time=3]	0.000	0.000	.	.	.

CCPAI					
Intercept	73,348	1,603	179,111	45,760	0.000
[Time=1]	-0.265	1,141	111,801	-0.232	0.817
[Time=3]	0.000	0.000	.	.	.

OFER: Occupational Fatigue Exhaustion Recovery Scale; ProQoL: Professional Quality of Life; STS: Secondary Traumatic Stress; CCPAI: Confidence in coping with patient aggression inventory.