Roy, C., Lamothe, J., Morizot, J., & **Geoffrion, S.** (2020). The influence of residential workers social climate on the use of restraint and seclusion: A longitudinal study in a residential treatment center for youth. *Children and Youth Services Review, 114*, 1-9. https://doi.org/10.1016/j.childyouth.2020.105035

Every year, a significant number of children are placed in Residential Treatment Centers (RTC). For example, in 2013, there were 62,428 children in out-of-home care in Canada, a significant proportion of which lived in RTC (Jones, Sinha & Trocmé, 2015). In comparaison, in the United States, approximately 1 in every 120 children currently resides in a RTC (Little, Kohm, & Thompson, 2005). RTC are controlled environments providing psychosocial interventions for young people (Brown, Hamilton, Natzke, Ireys, & Gillingham, 2011). Children with challenging behaviors ages 6 to 21[1] are placed in RTC when other placement options have been exhausted (Delfabbro, Osborn, & Barber, 2005; Stuck, Small, & Ainsworth, 2000). On this note, the challenging behaviors observed among youths in RTC are often linked to property abuse, assaults on others, and self-harm (Briggs and colleagues, 2013; Ledoux, 2012). In such settings, there are times when children become so aggressive or out-of-control that the staff needs to use measures of last resort to protect these children and others from immediate harm. In such extreme cases, some staff members are mandated to physically restrain or seclude children to ensure safety.

Seclusion is defined as the confinement of a client alone in a room or area that they are physically prevented from leaving. Restraint refers to any manual method that restricts the client's behaviors or limits his freedom of movement. This study made minor changes to these definitions offered by Green-Hennessy and Hennessy (2015), as seclusion is not always involuntary and chemical restraints are not allowed in the RTC where recruitment took place. Previous research has described the use of Restraint and Seclusion (R&S) as counter-therapeutic and even as a risk factor exacerbating traumatic symptoms (Hallett, Huber,

[1] In the province of Quebec, RTC house children 6 to 21 years old.

& Dickens, 2014). This in turn can contribute to an escalation of violence and sometimes lead to serious injuries and the undermining of rehabilitation objectives (Hallett, Huber, & Dickens, 2014). In the same vein, results from Izzo and colleagues (2016) have illustrated how changing organizational functioning and facilitating more therapeutic interactions with youth could help prevent conflict and increase opportunities for healthy social interactions.

To date, various factors have been associated with the use of R&S; these include specific characteristics of RTC (e.g., length of stay, type of setting, type of unit, legal requirements, implementation of a program), their staff (e.g., experience, age, gender), and the children they serve (e.g., diagnosis, age, ethnicity - Green-Hennessy & Hennessy, 2015; Leidy, Haugaard, Nunno, & Kwartner, 2006; Roy and colleagues; 2019; Stewart, Theall-Honey, Armieri, & Cullion, 2010; Thomann, 2009; Nunno, Holden, Leidy, 2003). Likewise, studies on R&S in psychiatric settings have suggested that several factors play in the decision to seclude patients (Larue, Dumais, Ahern, Bernheim, & Mailhot, 2009). Although there are significant differences between psychiatric and RTC settings, many factors associated with the use of R&S are in fact common to both environments. This means that factors influencing the use of R&S in psychiatric settings should be evaluated in RTC as well when appropriate. For example, research in psychiatry has highlighted the impact of social climate on the use of R&S. In contrast, although social climate has been studied in RTC (Leipoldt, Harder, Kayed, Griterns and Rimehaug, 2019), the nature of its association with R&S use in RTC has, to the best of our knowledge, never been tested in RTC.

Social Climate

The central tenet of the Moos model is that the perception individuals have of their own environment will influence the way they behave. According to Moos (2003), social climate can be referred

to as the "personality" of an environment that offers a sense of unity and coherence. Specifically, Moos (2003) argues that social climate can have a significant influence on the environment and the behaviors, emotions, and development of people who operate within it. Consequently, social climate is relevant not only to staff's professional development, absenteeism rates, and well-being, but also children's rehabilitation goals, their behaviors, their attitudes, and their emancipation. As with people, this milieu can therefore be competitive, strict, or open-minded. To operationalize the construct of social climate, Moos and his colleagues have developed inventories of patterns of behaviors present in certain environments. They have also established procedures to evaluate social climate. Their instruments were created with the specific purpose of assessing social climate in institutional settings. Moos (2003) explains that understanding the social climate of a given environment can help improve the lives of those it affects. Thus, asking residential workers about their social climate should provide a portrait of their behaviors and their emotions in RTC. Based on the Moos model therefore, researchers can hypothesize that if social climate is associated with the behaviors and feelings of residential workers, it can also be associated with their decision to use R&S.

Because of the paucity of research on the ties between the use of R&S and social climate in RTC settings, researchers must rely on findings from other settings such as R&S use in psychiatry. Indeed, there are major similarities between these two types of setting (e.g., teamwork, intervention with vulnerable people, aggressive behaviors, residential setting) but also important differences that must be mentioned (e.g., adults vs children, nurses vs residential workers, healthcare vs social rehabilitation). On this note, a review by Larue and colleagues (2009) found three studies examining the association between social climate and the use of R&S in psychiatric settings (Morrison, 1990; Silver Curran, as cited in Larue and colleagues, 2009; Vatne & Fagermoen, 2007). Vatne and Fagermoen (2007) revealed that two specific

beliefs held by employees regarding their relationship with patients contributed to their decision to use R&S. The first had to do with patients "needing correction" and motivated employees to use external means to change patients' behaviors. The second was the acknowledgment of patients as vulnerable and needing support. People who held that belief saw patients as capable of changing themselves from within. They also viewed the role of nurses as offering compassion and valuing patients' integrity. This study further suggested that team norms had a significant association with R&S use. This finding is in line with the authoritarian model of care and tradition of toughness that persist in psychiatric settings (Morrison, 1990). According to Morrisson (1990), this culture of control encourages violent behaviors from the patient and staffs' adherence to roles that constrain their behaviors. This type of climate thus promotes the use of R&S to manage violent behaviors. This is also consistent with Silver (2007) who suggested that the decision to use seclusion was associated with group norms among nursing teams. Indeed, in a context where R&S use is normalized, nurses could use interventions in favor of maintaining solidarity and ownership of the crisis by the team instead of relying on their own judgement. Finally, other studies support the notion that workers perceive seclusion as a standard intervention (Holmes, Kennedy, & Perron, 2004; Wynaden and colleagues, 2002). Thus, social climate as described by residential workers may have a significant association with their use of R&S to manage aggressive behaviors in RTC.

On this note, a study conducted in the province of Quebec investigating the influence of team climate on the use of R&S in a psychiatric hospital reported interesting conclusions (De Benedictis et al., 2011). This study was conducted with a sample of 309 staff members from eight university-affiliated hospitals within the province who worked more than 20 hours a week in a psychiatric ward. The team climate was evaluated with the Group Environment Scale (Moos, 1986). The number of R&S instances within the last two weeks was also assessed. Bivariate analyses allowed for the comparaison between

workers who often used R&S and those who didn't. A multivariate model was then elaborated to evaluate independent predictors of greater use of R&S. The results showed an association between social climate and the frequency of R&S use. Indeed, De Benedictis and colleagues (2011) demonstrated that the expression of anger and aggression among team members was associated with a greater use of R&S in psychiatric settings ($OR = 1.19$, $p = 0.01$). Furthermore, these authors also reported that order and organization and communication and openness among team members (e.g., expressiveness, independence, willingness to use introspection) were not related to the use of R&S in psychiatric settings. De Benedictis and colleagues (2011) showed that the use of R&S and the scores obtained with the Group Environment Scale remained stable over time. Finally, these authors concluded that the appropriate management of anger and aggression among team members created a sense of security and helped reconcile the balance between therapeutic interventions and the need to control patients. Specifically, outcomes related to working with colleagues who report high levels of anger and aggression could be similar to working in an unhealthy work climate.

In summary, studies in psychiatric settings have shown that social climate is an important concept to consider when studying factors motivating the use of R&S. Even though there are currently no studies on the subject in RTC, results from studies in psychiatry suggest similar associations can be expected. Moreover, with the exception of De Benedictis and colleagues (2011), most studies conducted in psychiatric settings and examining the associations between social climate and R&S use did so using either a qualitative or cross-sectional design. This is problematic since it does not allow for the measurement of these associations over time. This study aims to address this gap in knowledge by exploring the association between social climate and R&S in RTC over time.

Objectives

The aim of the present study is to explore how social climate is associated with the use of R&S in youth RTC. Specifically, the main objective is to assess how each dimension of social climate as specified by Moos (1987) (i.e., order and organization; communication and openness; negative climate) is associated with R&S cross-sectionally and longitudinally. Findings may provide information on the dynamic nature of this association and may also identify avenues for improving life in RTC.

Methods

Participants

All residential workers working at one RTC in the greater Montreal area (Quebec, Canada) were invited to participate in the present study. In the province of Quebec, residential workers have multiple responsibilities regarding the children they serve. Indeed, they must design and implement intervention and activity programs, offer individual and group therapeutic services, manage crises and accompany children with their daily life routines. The two inclusion criteria were a) to be at work during the two months of data collection and b) to be assigned to a specific unit. Employees working replacement shifts in different units were excluded. Workers interested in participating were asked to contact the research team directly. The sample included 198 RTC workers, which represents a participation rate of 79.2% (see appendix 2 for descriptive statistics and frequencies). Attrition rates varied by subscale (negative climate scale at T2 and T3 = 3.5% & 9.4%; order and organization scale at T2 and T3 = 10.4% & 4.1%; communication and openness scale at T2 and T3 = 7.8% & 7.7%). Most participants were women (84.0%). This proportion is similar to the province as a whole where 80.4% of the workers in health and social services are women (Ensemble du Québec, 2016). The average age of residential workers was

approximately 34. Participants had an average of 8.7 years of experience. Most staffs worked with teenagers (71.3%) and boys (60.2%). More than 70.0% of the sample worked full time.

Setting

The selected RTC oversees 36 residential units in four different towns south of Montreal. All the units are therefore managed by the same organization. In Quebec, children are placed in RTC in accordance with the Youth Protection Act, the Youth Criminal Justice Act, or the guidelines regarding voluntary admission. Three units were exclusively dedicated to housing juvenile offenders, one served both juvenile offenders and non-offenders, while the other units were reserved for children placed under the Youth Protection Act. Three units in the latter group also offered specialized services in mental health. Children housed were between the ages of 6 and 21 years old. Units divided children by age category: 5 units housed children ages 6 to 12, 3 units served preteens ages 10 to 13, and the remaining 28 units housed adolescents ages 12 to 21. Most of the units provided shelter to boys (21 units) or girls only (11 units), while 4 units were mixed. Each unit could host anywhere from 6 to 13 children at a time where around 12 residential workers worked in shifts. Generally speaking, two to three residential workers worked at the same time in the same unit. Some of the children went to school on the RTC's campus while others attended the public-school system.

Measures

Outcome: By law, each R&S incident must be compiled in the RTC's database. Using this database, researchers were able to obtain the exact number of R&S interventions each participant was involved in during the observation period. In the current study, R&S interventions were compiled as "events". This decision was made because the focus of this analysis was to study the decision to use R&S and not their frequency. For instance, if a child was freed from his restraints on the promise of being calm

but then became violent immediately upon being freed to the point where he had to be restrained once more and secluded; these three instances would have been compiled as a single R&S event because they are interdependent and all occurred in a short time frame.

Social Climate: Le Blanc, Trudeau-Le Blanc, and Lanctôt (1999) developed their 100-item questionnaire, the *Questionnaire sur le climat social de l'équipe d'intervenants (QCSEI*), by combining Moos's (1987) 90-item *Correctional Institutions Environment Scale* to the "engagement" and "work pressure" subscales of the *Work Environment Scale* (Moos, 1981). Their main aim was to develop a tool to measure social climate in RTC in Quebec. For the purpose of the current study, however, the authors developed a shorter version of the *QCSEI.* This decision was made because of participants' time constraints and the research team's confidence in preserving the scale's validity and reliability.

The authors first selected the nine items with the highest factor loadings from each subscale of the QCSEI based on a validation study by Plutino (2010). They then established a taskforce of 10 heads of service at the recruitment cite to discuss which sixty items best reflected the reality of fieldwork. The research team recruited the task force members because of their experience with both youths and residential workers but also to ensure content validity. The authors compiled responses and selected the five most popular items per scale. An interrater score was calculated.

Just like the 100-item original version, this short form of the *QCSEI* scale regroups items into three dimensions that define social climate as a construct. The first one is *order and organization* and refers mostly to the work team's orientation toward common goals and their members' sense of cohesion. It includes items such as "our team makes plans" and "there is a feeling of unity within the team". The second dimension is *communication and openness* and refers to the welcoming of initiatives taken by others and their freedom of expression. It includes items such as "in our team, members pay attention to

what others say" and "our team welcomes innovative ideas". Lastly, the third dimension, *negative climate,* refers mostly to pressure from superiors and complaints from team members. It includes items such as "members of our team complain often" and "members of our team often criticize other members".

The short version was deemed adequate as the KR20 calculated and other indicators were superior to .70 for each dimension (Kuder & Richardson, 1937). Coefficients of .815 for the order and organization dimension, .703 for the communication and openness dimension and .756 for the negative climate dimension were obtained. One item from the communication and openness dimension had to be withdrawn to reach an adequate KR20 score. Thus, the final questionnaire consisted of 59 items rather than 60; 13 items were reversed and distributed across the three dimensions.

Confounding variables: Information about participant characteristics was obtained via an online sociodemographic questionnaire. This included biological sex, age, number of years of experience in a RTC, type of employment (Full time, part time regular, casual part time), and type of unit.

Procedures

Ethics approval was submitted and obtained from the University of Montreal. Next, the lead researcher presented the study to residential workers in every unit of the chosen RTC and invited them to participate. All participants signed a consent form. The researcher then sent a questionnaire to collect the residential workers' sociodemographic data. The information on social climate, use of R&S, individual, team and unit characteristics were then matched to participants' reference number. This number was given to the participants with the first questionnaire. Information was denominalized. The current study used data from a larger study conducted over the course of two months. The larger study assessed multiple factors associated with R&S use, such as perceptions of residential workers regarding stress, security, physical activity and more. This current study only focused on the relation between social climate and

R&S use, however. Residential workers completed questionnaires every week for a total of eight weeks [Diary studies method, see Ohly, Sonnentag, Niessen, and Zapf (2010)]. Upper management allowed them to take 20 minutes off their regular work duties to fill out each questionnaire. Alternatively, they could also fill the questionnaires at home outside of work hours. All diary entries were filled out between mid-March and mid-May 2017. The QCSEI was one of the many questionnaires included in the diary. Since this questionnaire measures perceptions of social climate over the last month, it was included in the questionnaire at three time points instead of eight times over the course of 8 weeks (week 1 = T1, week 5 = T2 and week 8 = T3).

Analyses

Transformation

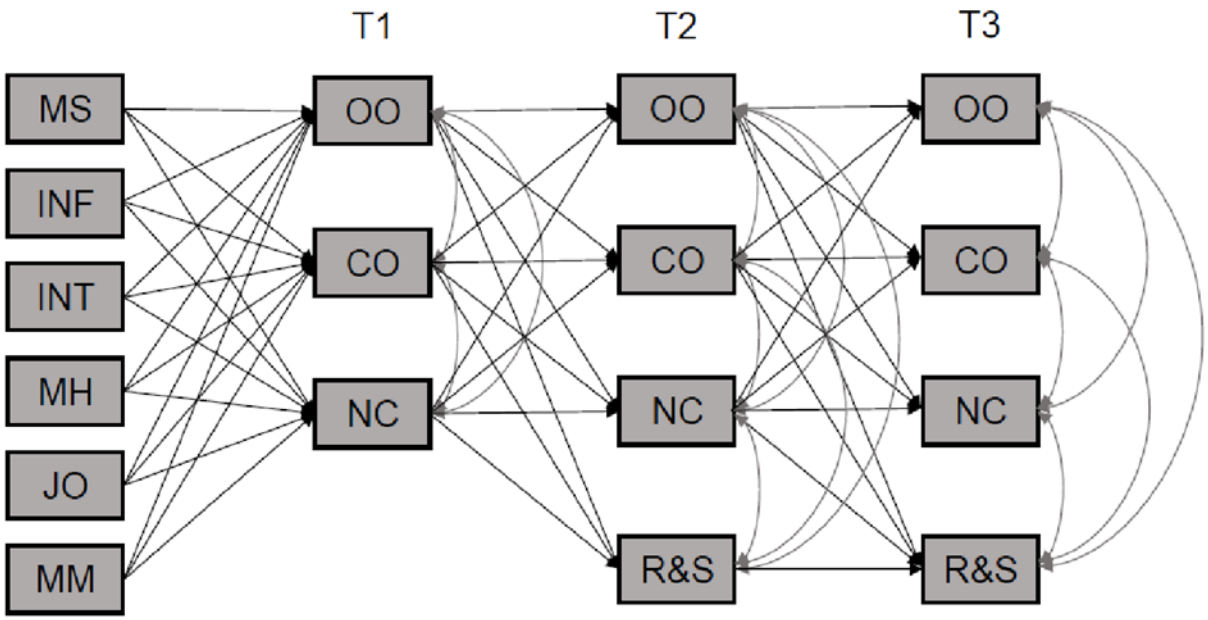
Prior to analysis, the total number of weekly events per participant was calculated. The number of events for weeks 1 to 4 were then summed as were number of events from weeks 5 to 8 to create monthly frequencies (i.e., T2 and T3). Continuous variables included staff's age and their number of years of experience. The sex of participants was coded (1 = men, 2 = women). Dummy variables were created for the other confounding variables one comparing juvenile offenders, mental health services and units with a mixed population to units housing children under the Youth Protection Act. Mixed or all-girl units were compared to the all-boy units. Children and preteen units were compared to adolescent units.

QCSEI items were coded 1 = no, 2 = yes. For each dimension, composite scores were used. The *negative climate* dimension has 10 items with a possible scoring range between 10 and 20. The *organization and order* dimension uses 30 items (scoring range between 30 and 60) while the *communication and openness* dimension has 19 items with a scoring range of 19 to 38.

Statistical Analyses

First, descriptive statistics analyzed in SPSS were used to report the sex, age, years of experience of residential workers as well as their unit. Second, bivariate correlations (Appendix 2) were conducted to select which confounding variables to include in the cross-lagged model to achieve a parsimonious model (Kline, 2015). Third, structural equation modelling (SEM) was used to conduct an integrated cross-lagged model examining the associations between variables across three time points using Mplus v.7 [(Muthén & Muthén, 2007); see Figure 2]. This type of analysis allows for the examination of bidirectional (cross-lag) effects between variables, while controlling for their stability [auto-regressed effects; (Selig & Little, 2012)]. Thus, this analysis will allow us to observe the associations between social climate and R&S using cross-sectional and longitudinal analysis. In accordance with the criteria of Hu and Bentler (1999), several fit indices were used to evaluate model fit; these include Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Square Residual (SRMR; for both values <.08 indicate acceptable fit), and Comparative Fit Index (CFI; value >.90 indicating acceptable fit). Full Information Maximum likelihood was used to handle missing data. The Bayesian information criteria (BIC) and the Akaike information criteria (AIC) were used to compare the specified model and the trimmed model (Kline, 2015). Lastly, links between variables have been estimated as within effect based on unit characteristics using the two-level modelling option in Mplus (Muthén & Asparouhov, 2011).

Figure 2. Model depicting the relationship between social climate and the use of R&S



MS = mixed sex, INF = kids unit dummy, INT = intensive care unit dummy, MH = mental health unit dummy, JO = juvenile offender unit dummy, MM = mixed mandate dummy, OO = order and organization

Results

Descriptive statistics and bivariate analysis

Descriptive statistics for outcomes and predictors are presented in Table 1. Most residential workers did not use R&S during the study's observation period. R&S use increased between T1 and T2. The mean scores for each social climate dimension remained stable over time. The negative climate mean score fell in the middle of the scoring range suggesting participants' perception of the climate was neither that negative nor positive. The order and organization mean was higher than the scale's midpoint suggesting that residential workers perceived their team as being well organized and more ordered than

not. Lastly, the communication and openness mean also higher than the scale's midpoint meaning that residential workers believed their team had good communication and openness.

Table 1. Descriptive statistic of the outcomes and predictors.

Variables	n	% valid	Mean	S.D.	Minimum	Maximum
# R&S per participant						
Time 1-2-3-4	198	-	.70	1.29	.00	8.00
Time 5-6-7-8	198	-	.97	2.26	.00	21.00
Negative climate T1	144	72.70	14.50	2.62	10.00	19.00
Negative climate T2	139	70.20	14.50	2.55	10.00	20.00
Negative climate T3	126	63.60	14.81	2.63	10.00	19.00
Order and organization T1	135	68.20	43.76	4.02	31.00	47.00
Order and organization T2	121	61.10	43.78	4.26	30.00	50.00
Order and organization T3	116	58.60	44.42	4.04	30.00	48.00
Communication and openness T1	141	71.20	32.07	2.79	21.00	35.00
Communication and openness T2	130	65.70	32.20	3.02	20.00	33.00
Communication and openness T3	120	60.60	32.50	2.86	19.00	34.00

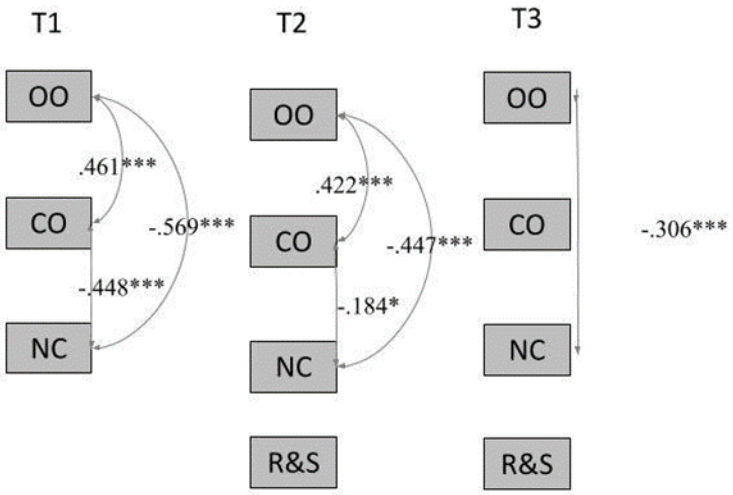
Cross-lagged model

A cross-lagged model was tested to assess cross-sectional and longitudinal associations between variables. Indicators suggested that the specified model presented an acceptable adjustment according Hu and Bentler's (1999) criteria ($X^2 = 81.80$, $df = 27$, $p < 0.001$, $RMSEA = 0.101$, $SRMR = 0.047$, $CFI = 0.934$, $TLI = 0.817$, $AIC = 6937.75$, $BIC = 7190.95$). The trimmed model also presented acceptable adjustment

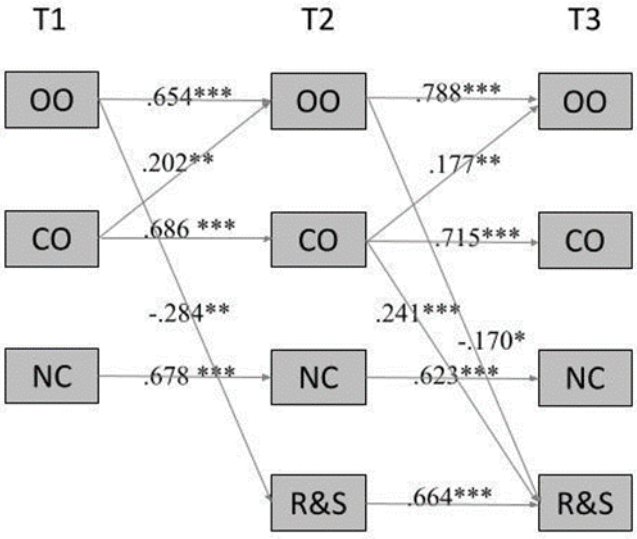
(X^2 =114.67, *df* = 52, *p* <0.001, *RMSEA* = 0.078, *SRMR* = 0.091, *CFI* = 0.925, *TLI* = 0,892, *AIC* = 6920.63, *BIC* = 7091.62). The model is presented in Figure 3 since the trimmed model provided lower *AIC* and *BIC*.

Figure 3. Path analysis results

A



B



Cross-sectional (A) and longitudinal (B) effects were separated to create a more understandable visual model. INF = kids unit dummy, INT = intensive care unit dummy, OO = order and organization dimension, CO = communication and openness dimension, CN = negative climate dimension, R&S = restraint and seclusion. *p*-value: ***: $p \leq 0.001$; **: $p \leq 0.01$; *: $p \leq 0.05$.

Cross-sectional results. The path analysis showed cross-sectional associations throughout the three time points. The effect sizes were interpreted using Cohen's (1992) criteria. The negative associations between the communication and openness and the negative climate dimensions at T1 were moderate but weak at T2 (r= -.448, $p < 0.001$, r= -.184, $p = 0.045$). This means that residential workers who perceive greater openness to initiatives and autonomy from other team members also tended to describe the climate as less tense. The positive associations between the order and organization and the communication and openness dimensions were moderate at T1 and T2 (r= .461, $p < 0.001$, r = .422, $p < 0.001$). This suggests that residential workers who report good cohesion and structure within their team also tend to perceive greater openness to initiative and autonomy in the workplace. The negative associations between the order and organization and the negative climate dimensions were large at T1 and moderate at T2 and T3 (r = -.569, $p < 0.001$, r = -.447, $p < 0.001$; r= -.306, $p < 0.001$); meaning, residential workers who perceived good cohesion and structure within their team also tended to report their work climate as less tense.

Longitudinal associations. The path analysis showed consistency in the use of R&S across time ($Bz_{T2\text{-}3}$= .664, $p < 0.001$), indicating that participants who used R&S were the same across time. The positive associations between the order and organization dimension and the use of R&S between T1 and T2 and T2 and T3 were weak ($Bz_{T1\text{-}2}$ = .284, $p = 0.007$, $Bz_{T2\text{-}3}$ = .170, $p = 0.030$). Indeed, having a structure for the team and a sense of cohesion among members were associated with the decision to R&S use. The negative associations between the communication and openness dimension and R&S use between T2 and T3 were weak ($Bz_{T2\text{-}3}$= -.241, $p < 0.001$). The more a residential worker perceived their team as open to

autonomy and to individual opinions, the less R&S was used. The negative climate dimension was not associated with the other social climate scales or to the number of recourses to R&S across time. This means perceiving one's team as being negative or being pressured by a superior were not systematically associated with the use of R&S.

Furthermore, the positive associations between the communication and openness and order and organization dimensions were weak between T1 and T2 and T2 to T3 ($Bz_{T1\text{-}2} = .202$, $p = 0.006$, $Bz_{T2\text{-}3} = .177$, $p = 0.007$). Finally, all the social climate dimensions remained largely stable across time (OO, $Bz_{T1\text{-}2} = .654$, $p < 0.001$, $Bz_{T2\text{-}3} = .788$, $p < 0.001$; CO, $Bz_{T1\text{-}2} = .686$, $p < 0.001$, $Bz_{T2\text{-}3} = .715$, $p < 0.001$; NC, $Bz_{T1\text{-}2} < .678$, $p < 0.001$, $Bz_{T2\text{-}3} = .623$, $p < 0.001$).

Discussion

The main aim of this study was to explore the nature of the relationship between social climate as described by residential workers and their use of R&S. A longitudinal design was used to examine this association across time. Results indicated that there were associations between social climate and the use of R&S, but that these association could only be observed using a longitudinal analysis. As such, no cross-sectional associations were found between any of the three social climate dimensions and R&S. More specifically, *order and organization* were associated with an increase in the subsequent use of R&S. Also, *communication and openness* were associated with fewer instances of R&S at a later time. There was no association between the *negative climate* dimension and the use of R&S later on. This suggests that there is a delayed effect between social climate and the use of R&S. The Moos model will be used to interpret the results.

Social climate, order and organization

The association between the order and organization dimension and the subsequent increased use of R&S was not expected. Especially since this association was not reported as significant in De Benedictis and colleagues (2011). A possible explanation of this finding may stem from the fact that norms become more important when teams share objectives and strive for a sense of cohesion. In such a scenario, residential workers may be more likely to use interventions that will win the approval of other team members and ensure unity. If team members have a positive view of R&S, each member might be more likely to use it. This explanation is congruent with the findings reported by Larue and colleagues (2009) that showcased how norms can influence nurses' decision to use R&S. Moreover, current findings can also contribute to the improvement of the Moos model. Indeed, results specify the direction of the association between order and organization and R&S use. This had not previously been specified by Moos (1987). Furthermore, order and organization may influence the type of intervention used, especially R&S. Consequently, in teams where objectives and rules are rigid and where norms are prioritised over residential workers' own judgment, R&S may be used more frequently.

R&S use in a negative climate

Negative climate was not associated with the use of R&S in the present study. This is inconsistent with previous studies conducted in psychiatry. Specifically, De Benedictis and colleagues (2011) showed that the expression of anger and aggression among team members was associated with the greater use of R&S. The greater use of R&S in teams reporting a negative climate, could be explained, in part, by the lack of cohesion and inadequate communication among team members. However, negative team climate did not predict the use of R&S in the present study. This suggests that pressure from superiors, conflicts with the team and heavy workloads do not lead to an increase in the use of R&S. Some factors can explain

these results. First, it is possible that during a crisis, all the efforts of residential workers are focused on the child and all work complaints are placed aside to the benefit of sound clinical judgment. If this was the case, then residential workers are able to protect children from that harmful impact of their negative climate. Alternatively, residential workers could be trivializing the impact of their workload and pressure from superiors, a common experience in RTC. This is consistent with the suggestion that a tradition of toughness influences norms (Morrison, 1990). Still, it is also possible that residential workers and teams cope differently with conflicts and pressure. The direction of the association between negative climate and R&S use could not be described in this study given the non-significance of results. In all, this construct does not appear to have a significant association with R&S use in RTC.

R&S, communication and openness

Communication and openness were associated with the subsequent decreased use of R&S. Specifically, this dimension had a significant effect on R&S use between the fifth and eight weeks. This association was not expected. Indeed, De Benedictis and colleagues (2011) found that, their proxies for communication and openness (i.e., expressiveness, independence, welcoming introspection) were not significantly associated with R&S use. One possible interpretation of this finding could be that when residential workers are free to voice their own point of view and exercise their clinical judgement, the need to make clinical decisions to please other team members and the pressure to use R&S is less felt. Alternatively, teams with great communication and openness could also have a better understanding of the needs of children and how to consequently adapt their intervention. According to Thomann (2009), residential workers who understand children and their needs develop a solid working relationship based on honesty and trust with them and are less likely to use R&S. If this sentiment is shared by all team members the team as a whole will be able to intervene in a manner more considerate the needs of the

youth thereby preventing the escalation of violence (Fraser, Archambault, & Parent, 2016). The flexibility and the initiatives of residential workers take precedence over norms which enables the personalisation of interventions. De Benedictis and colleagues (2011) explained that the appropriate management of anger and aggression by team members creates a sense of security. Interventions adapted to the needs of children and the situation at hand could have the same effect, thereby reducing the need to manage problematic behaviors with external means.

In summary, none of the three dimensions were associated with the use of R&S as reported by De Benedictis and colleagues (2011). Several factors could explain this. First, De Benedictis and colleagues (2011) used a different instrument to measure social climate. Although both instruments are from the same authors, measure the same constructs, and have almost identical items, the current study used a short version which could explain the differences in results. It should be noted also, that the motivations to use R&S in psychiatric settings are different than in RTC, the latter emphasizes the health of patients and the former focuses on social rehabilitation. Furthermore, the level of type of training received by nurses and residential workers differ quite significantly in terms of objectives and philosophy of intervention. Given these differences, it seems reasonable to suppose that some questionnaire items could have been interpreted differently causing factor loadings to vary. For these reasons, researchers must be cautious when using findings on social climate in psychiatry to inform their conclusions in RTC even if the concept applies to both fields of practice. In addition, De Benedictis and colleagues (2011) conducted their study in settings with an adult population while this analysis was conducted in a RTC housing children. Future research on the use of R&S in pediatric psychiatry could help clarify the specific nature of this association in different settings.

In all, the Moos model does not specify the direction of the relationship between social climate and the behavior and choices of residential workers. The current study addressed this gap by assessing the dynamic influence of communication and openness and organization and openness on R&S use across time.

Stability across time

The use of R&S was stable across all three time points meaning residential workers who used R&S at T1 were just as likely to use it again at T2. This observation was expected since the observation period was relatively short. This is consistent with the scientific literature in psychiatry (De Benedictis and colleagues, 2011). One possible interpretation for this finding is that a specific group of residential workers could be more proactive in managing crises than others and therefore resolve to using R&S more often. This interpretation falls in line with the systematic approach positing that environments are organized to maintain homeostasis (Buckley, 1967). This leads to group members adopting specific roles aimed at ensuring stability (Buckley, 1967). A second possible explanation is that residential workers who use R&S may not be familiar with alternative interventions. Consequently, when confronted with a crisis, untrained professionals are faced with limited options for intervention and must resolve themselves to using R&S more often. A third possible explanation is that de-escalating strategies were not effective. Consequently, residential workers had to use last resort interventions. R&S can become the de facto intervention when other team members approve of it (Holmes and colleagues, 2004; Wynaden and colleagues, 2002). In this vein, residential workers could make R&S commonplace using it as an "automatic" response to any resistance to intervention despite laws and organizational guidelines (Sequeira & Halstead, 2004). This last possibility could be damaging to children's mental health, as residential workers could underestimate

the iatrogenic effect of the coercive intervention on themselves and the children. All these possible explanations suggest that training for crisis intervention may need to be optimized.

Stability across time appears to be the only result congruent with De Benedictis and colleagues (2011). Indeed, the three social climate dimensions were stable across time. As shown in De Benedictis and colleagues (2011), social climate remains constant when residential workers are themselves constant in their behaviors. An argument for homeostasis could potentially be made here as well (Buckley, 1967); meaning team members adopt roles to favor balance and a harmonious climate.

Limitations

The contributions of this study are limited by several factors. First, the sample is not representative of the population as it is a convenience sample. Specifically, full time residential workers with many years of experience are overrepresented within the sample and this may have influenced results. Indeed, it is known that R&S are more commonly used by residential workers with less experience (Farragher, 2002). Furthermore, residential workers participated on a voluntary basis. This may have biased observations. Considering that R&S are a controversial topic and their use is regulated by law, some residential workers (e.g., new hires or those who use R&S more frequently) may have avoided participation in this study. Second, the diary questionnaires were mostly completed during team meetings. A social desirability bias could have influenced responses. Indeed, given that team norms are important, residential workers may have modified their answers to be in accordance with these norms. Also, participants scored above the midpoint on the order and organization and the communication and openness scales. This hints at the possibility of social desirability. Lastly, the two-month period of data collection could have introduced biases. In fact, perceptions of the social climate can vary at different times of the year and this may also have an impact on the frequency with which these interventions are used.

The current study also boasts strengths. Indeed, large samples from RTC settings are rare, especially considering the controversial nature of the subject at hand. The sample also included residential workers from 36 different units serving different populations (e.g., boys and girls, offenders, and non-offenders). These residential workers also carry a variety of mandates. This study is also the first to have used three measurement times to assess social climate and R&S use over time. This also reduced the possibility of recall bias. Finally, by cross-matching official data with self-reports, one ensures greater objectivity.

Clinical Implications

Identifying factors leading to the use of R&S is crucial because their use is controversial. Indeed, R&S have no proven therapeutic benefits and are associated with negative consequences for both residential workers and youths (Day, 2002; LeBel & Goldstein, 2005). Day (2002) stated that identifying the factors associated with the use of R&S was a first step toward optimizing their use. Thus, a better understanding of this phenomenon, including their associations with social climate, may lead to the improvement of training programs in place. Furthermore, the National Association of State Mental Health Program Directors (2008) has developed Six Core strategies to reduce R&S use. Regarding their recommendations on workforce development, they specified that: “this strategy suggests the creation of a treatment environment whose policy, procedures, and practices are based on the knowledge and principles of recovery and the characteristics of trauma informed systems of care. The purpose of this strategy is to create a treatment environment that is less likely to be coercive or trigger conflicts and in this sense is a core primary prevention intervention.” This statement is congruent with the study’s conclusions suggesting improving the social climate may optimize the use of R&S in RTC. Indeed, training should focus on teaching alternative interventions to deescalate tense situations. Special attention and

individualized training should be made available to residential workers who frequently use R&S. On this note, training could be given on a team basis taking their social climate in consideration to address the impact of roles and norms. Moos's model supports the hypothesis that social climate has an influence on both the worker and the youths' behaviors. Results suggest that promoting individual initiative based on the needs of youths, reducing authoritarian norms and the systematic application of rules may decrease the use of R&S in RTC. Concretely, shifting discussions from the needs of youths during team meetings and giving residential workers more alternatives to dealing with crisis instead of focusing solely on the strict management of behaviors may lead to improvements in how interventions are used. In addition, the ratio of youths to residential workers would need to be reduced so a more careful attention is given to each youth and interventions are adapted to their needs. Hopefully, this will result in R&S to only be used under exceptional circumstances to ensure everyone's safety in RTC. Children residing in RTC need to develop in a safe environment in order to enjoy the benefits their rehabilitation can offer.

Future Studies

To the authors' knowledge, this is the first study to examine the association between social climate and the use of R&S in RTC. More studies need to be conducted to confirm the associations presented in this study and move beyond its limitations. Most importantly, this study needs to be reproduced with a randomized sample. The use of probabilistic sampling would reduce several of the present study's biases and would provide information regarding less experienced staff working with younger kids. Moreover, longitudinal studies should be conducted to evaluate causality between R&S use and social climate to determine which variable has greater influence over the other. The question as to why perceptions of a negative climate are not associated with the use of R&S merits further investigation. Qualitative studies could help researchers understand the influence of residential workers' perception on their practice, as has

previously been done in psychiatric settings. This would produce a more dynamic and complete portrait of the association between social climate and R&S use. In addition, investigating which role adopted by residential workers can lead to the greater use of R&S could be highly informative. Indeed, some residential workers may be encouraged or expected to use R&S or asked by team members to involve themselves in conflicts more often. These remain speculations, however. Furthermore, the present study focused on the association between social climate and R&S use: the prevalence of use would be another interesting research question for future studies. Likewise, R&S were grouped together in the current study. Studying them separately could be used to design more targeted trainings. Lastly, it would be interesting to control for the individual characteristics of residential workers (e.g., personality, attitude toward adaptation difficulties) to isolate their effect from the influence of social climate. To conclude, this study suggest that social climate has an association with the use of R&S in RTC settings. However, a deeper investigation into the factors associated with R&S use is necessary to tailor interventions to reduce the use of R&S in RTC settings.

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Appendix 1:

Pearson's correlation coefficients between outcomes and control variables.

	MCI T2	MCI T3
Sex residential worker	-0.03	-0.08
Age residential worker	-0.06	-0.02
School-aged	0.16**	0.28**
Pre-teen	0.04	-0.01

Mix-mandate unit	0.03	-0.09
Intensive care	0.15*	0.12*
Juvenile offender	-0.11	-0.07
Mental health	0.10	0.12
Group home	-0.07	-0.07
Girls unit	0.12	-0.03
Mixed unit	0.01	0.02
Type of employment	-0.11	-0.04

Appendix 2:

Descriptive statistics for participants

	M	SD	Min	Max
Residential worker age	33.22	7.95	21.00	59.00
Years of experiences	7.98	6.10	0.00	32.00

		Frequency	Percent	Valid percent
Sex	F	182	63.9	84.7
	M	33	11.6	15.3
Education	Technique degree	119	41.8	55.3

	Certificate	23	8.1	10.7
	Bachelor's degree	55	19.3	25.6
	Master's Degree	18	6.3	8.4
Employment status	Occasional part-time	9	3.2	4.2
	Regular part-time	60	21.1	27.9
	Full-time	146	51.2	67.9
Children' age catergory	0-12	41	14.4	19.1
	10-14	18	6.3	8.4
	12-18	156	54.7	72.6
Types of unit	Open setting	103	36.1	47.9
	Open setting mixte mandate	17	6.0	7.9
	Intensive frame setting	13	4.6	6.0
	Closed guard	13	4.6	6.0
	Mental health	24	8.4	11.2
	Group home	21	7.4	9.8