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Group climate, aggressive incidents and coercion in a secure forensic setting for individuals with mild intellectual disability or borderline intellectual functioning: A multilevel study

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Abstract

Background: This study examines associations between group climate, aggressive incidents and coercive measures in adults with mild intellectual disability or borderline intellectual functioning (MID-BIF) of a secure forensic setting.

Method: Participants (*N* = 248) were interviewed about their perception of group climate utilizing the Group Climate Instrument. Data on aggressive incidents and coercive measures were retrieved from the facilities' electronic database. A multilevel structural equation model was fitted in which variability in perception of group climate within and between living groups was examined.

Results: An open and therapeutic group climate was associated with lower levels of aggression within and between groups. A higher number of aggressive incidents were significantly associated with a higher number of coercive measures.

Conclusions: The findings have implications for the understanding of how group climate may play a role in reducing aggressive incidents at the living group in treatment of individuals with MID-BIF in secure forensic settings.

KEYWORDS
aggressive incidents, borderline intellectual functioning, coercive measures, group climate, mild intellectual disability, secure forensic setting

1 | INTRODUCTION

A high number of aggressive incidents in secure forensic care are considered a serious problem, not only for clients but also for sociotherapists[1] as well (Robinson et al., 2018; Ros et al., 2013). According to the results of a study presented by one of the Dutch labour unions (CNV, Zorg & Welzijn, 2018) addressing aggressive incidents in Dutch health care for people with intellectual disabilities, more than 50% of the 640 caregivers experienced physical (70%) or verbal (79%) aggressive incidents in their work. About half (53%) reported an increase in aggressive incidents during the past year. These results are worrying given the range of negative consequences for victims, the aggressor and the organization in which aggressive incidents occur. Negative consequences for the victim can include psychological effects (e.g. anxiety, sleep disturbance, fear, anger and resentment) and physical injury (Knotter, 2019). Sociotherapists and clients may feel less safe in living groups where there are a high number of aggressive

[1]Throughout this paper, the term 'sociotherapist' is used to describe the role of a professional caregiver.

incidents. For the aggressor, aggressive incidents can disrupt their rehabilitation because of coercive measures, conviction and prosecution, and transfer to another facility. For the organization, aggressive incidents against staff and residents ultimately reduce the efficacy and effectiveness of rehabilitative efforts (Robinson et al., 2018). Also, aggression may lead to an unsafe working environment for staff and to an increased risk on sick leave and burnout symptoms (De Looff et al., 2018). It is therefore important that studies explore which factors are related to aggressive incidents in secure (forensic) settings for individuals with mild intellectual disability or borderline intellectual functioning (MID-BIF; IQ 50–85).

Research suggests that a positive group climate is important to reduce aggressive incidents in secure forensic settings (Robinson et al., 2018). Group climate has been defined as 'the quality of the social and physical environment in terms of the provision of sufficient and necessary conditions for physical and mental health, well-being, contact and personal growth of the residents, with respect for their human dignity and human rights, as well as (if not restricted by judicial measures) their personal autonomy, aimed at recovery and successful participation in society' (Stams & Van der Helm, 2017, p. 4). A structured and safe environment, with adequate support from sociotherapists, opportunities to learn and develop (growth), clear rules and limits, and a safe atmosphere among clients, characterizes an open and therapeutic group climate (Van Der Helm et al., 2014). By contrast, a closed and repressive group climate is characterized by a lack of structure, unduly strict control, loss of autonomy, absence of mutual respect, boredom, feelings of despair, aggression and lack of perspective (De Valk et al., 2016). A range of studies shows that there is a relation between the quality of group climate and the number of aggressive incidents in secure forensic settings (De Decker et al., 2018; Heynen et al., 2016; Meehan et al., 2006; Robinson et al., 2018; Robinson & Craig, 2019; Ros et al., 2013; Van den Tillaart et al., 2018).

In secure forensic settings, clients live with approximately eight other clients together in living groups under 24/7 supervision of professional caregivers (i.e. sociotherapists). Therefore, the quality of sociotherapist–client relationships is a crucial element of a safe and therapeutic group climate. To maintain safety at the living group, sociotherapists attempt to regulate aggressive behaviour of clients. Unfortunately, too often this involves restricting the client's freedom using coercive measures (Hui et al., 2016). In secure forensic settings, coercive measures can take the form of seclusion (placement of a client alone in a locked room that has been designed for this purpose or in a client's room), restraint, involuntary medication, and involuntary food and/or fluids. Researchers, care organizations, the inspection for Dutch Health Care, labour institutions and other partners in health care stated in the last two decades that the use of coercion should be minimized (Kersting et al., 2019; Knotter, 2019). Coercive measures should be limited to situations in which staff and other clients at the living group need to be protected from aggressive behaviour as a last resort when acute danger or harm is likely (De Valk et al., 2016). Coercive measures often do not prevent the aggressive behaviour of clients in the long term but, paradoxically, may strengthen and maintain it (Knotter et al., 2013; Parhar et al., 2008). Coercion was described by Van Der Helm et al. (2014) as part of a structure in secure forensic settings that is necessary to set boundaries and prevent chaos and anarchy. However, the degree of coercion should always be proportional in relation to 'dangerousness' to avoid institutional repression. Institutional repression threatens, and may even harm, the effectiveness of secure (forensic) treatment and therefore must be prevented (De Valk et al., 2015, 2016).

The current study examines the association between the group climate, aggressive incidents and coercive measures in a secure forensic setting for clients with MID-BIF. While there is (preliminary) evidence for the importance of group climate in managing aggressive incidents in residential youth care (De Decker et al., 2018; Van den Tillaart et al., 2018), secure forensic and psychiatric settings (Robinson et al., 2018; Ros et al., 2013), and prison settings (Akerman et al., 2018), little attention has been paid to group climate and its relation to aggressive incidents in secure forensic settings for individuals with mild intellectual disability or borderline intellectual functioning. This is striking considering that aggression in Dutch health care for people with intellectual disabilities (CNV, Zorg & Welzijn, 2018) and in forensic healthcare settings in many countries (Robinson et al., 2018) is recognized as a significant problem. Based on studies in Dutch and German residential youth care (De Decker et al., 2018; Heynen et al., 2016) and secure psychiatric settings (Ros et al., 2013), we hypothesize a negative association between aggressive incidents and support, atmosphere and growth. Also, we expect a positive association between aggressive incidents and repression. More specifically, when clients experience more *support*, a more positive *atmosphere* and more possibilities for *growth*, there would be less aggressive incidents on the living group. Also, more aggressive incidents were expected when clients report more *repression*. To date, no studies have been conducted to explore the relations between coercive measures, aggressive incidents and group climate for individuals with MID-BIF. Based on studies from De Valk et al. (2015, 2016), we hypothesize a positive association between repression and use of coercive measures on the one hand and a positive association between aggressive incidents and coercive measures on the other hand. Also, we expect that the relation between group climate and coercive measures is mediated by aggressive incidents, such that in a therapeutic climate with higher levels of support, atmosphere and growth, less aggressive incidents occur and therefore less coercive measures are expected. When clients experience more repression, more aggressive incidents may occur, thus leading to more coercive measures.

Due to the nested data structure (clients are nested within living groups), multilevel analysis will be used to examine whether group climate is related to the frequency of aggressive incidents in clients with MID-BIF. We also examined differences in perceived group climate between different subgroups, addressing within-group (age, IQ, gender, legal status and treatment duration) and between-group (security level, group size and care intensity) variables.

2 | METHOD

2.1 | Participants

The sample consisted of 248 participants (76% male), aged between 18 and 93 years (M = 41.4, SD = 13.2), who were residents of Trajectum, a secure forensic treatment facility for individuals with MID-BIF located in the northern and eastern part of the Netherlands. They resided in 58 living groups; modal group size was 9 participants. Living groups varied from solely male groups (22%) to mixed groups (78%).

All 441 residents were invited to participate. In total, 248 residents were willing to participate. Of the participants, 48% had a mild intellectual disability (MID; IQ 50–69) and 52% had borderline intellectual functioning (BIF; IQ 70–85). The mean total IQ was 69.7 (SD = 9.7). IQ scores were based on diagnostic testing results and retrieved from the files of the participants. Participants had severe problem behaviour in combination with mental health problems and/or serious problems in all areas of life, often with a history of substance use. Most participants were admitted because of externalizing behaviour problems (i.e. aggression or a sexual offence) and/or internalizing problems (such as self-injurious behaviour and suicide attempt; Delforterie et al., 2020).

Participants were placed in the facility under criminal law (40%), civil law (23%) or were voluntarily admitted (37%). All participants need intensive care in a secure setting due to severe behavioural and mental health problems, similar to participants placed under criminal law in terms of required intensity of treatment and level of security. Treatment duration in both cases is rarely shorter than two years and can last ten years or more, depending on the participants' legal status and risk of (re)offending.

In this sample (N = 248), mean treatment duration at the moment of data collection was 2 years and 2 months. Based on the psychopathology of the participants and the phase of the treatment (i.e. observation, treatment and rehabilitation), treatment programmes (e.g. aggression, addiction or sexual offending behaviour), the security levels and care intensity vary between the units. While in some units the support is more distant, in other units the participants receive one to one guidance throughout the day. In this sample, 5% of the participants resided in a high intensive care unit, 18% medium to high care unit, 24% on a medium care unit, 25% on a low to medium care unit and 28% on a low care intensity unit. Depending on the risk of (re)offending, legal status and treatment phase, residents move to living groups with different levels of restrictions and levels of security. In this sample, 66% of the participants resided in a low secure living group, 16% resided in a medium secure living group, and 18% resided in a high secure living group.

2.2 | Procedure

Data were collected in the context of routine monitoring of the ward's climate within the facility. Each year, participants who resided in the facility were individually interviewed and completed the GCI. For the purpose of exploring associations between group climate, aggressive incidents and coercive measures, only data from one wave were used which were collected between June 2017 and July 2018. Participation was voluntary. The researcher provided oral and written information to participants concerning data collection, study aims and objectives. All participants and their legal guardians were informed that the research was strictly confidential and anonymous. Data were only reported on a living group level. The multidisciplinary treatment team determined whether a participant was able to give informed consent to participate. The active consent method was used. All participants gave explicit oral and written consent. Approval for this study was obtained from the Ethics Committee of the Faculty of Social Sciences (ECSS) of the Radboud University (ECSW2017-3001-471). Questionnaires were given a code to guarantee anonymity of participants. Names of participants were replaced by a code to ensure privacy.

The questionnaires were used by trained (assistant) researchers of Trajectum, specialized in working with individuals with MID-BIF and forensic histories. If necessary, participants were assisted in completing the questionnaire by a (assistant) researcher who read the questions and answering categories out loud and explained the questions to the participant if necessary. Alternative scripted phrases to enable questions to be explained differently were part of the training they received. If used, this would provide an additional way of checking participants' understanding while preventing researchers from projecting their interpretation of the questions on to participants. Completed questionnaires were returned to the researcher (first author), and scores were entered into SPSS version 24 (IBM, SPSS Statistics) for analyses. Characteristics on participant level (gender, age, total IQ, legal status, treatment duration at the living group and the facility) and group level (security level, care intensity, composition and size) were extracted from participants' records and added to the SPSS database.

Data on frequency of aggressive incidents and use of coercive measures were obtained from the facilities' electronic database (see Instruments).

2.3 | Instruments

2.3.1 | The group climate instrument

Participants were interviewed about their perception of group climate utilizing the revised Group Climate Instrument (GCI; Van der Helm et al., 2011; Neimeijer et al., 2019). The GCI is a self-report questionnaire containing 29 items using a 5-point Likert-type scale varying from 1 ('not applicable') to 5 ('entirely applicable'). There is preliminary evidence for the construct validity and reliability of the GCI for individuals with MID-BIF, based on confirmatory factor analysis (Neimeijer et al., 2019). These results are in line with other studies that used the GCI measure in other settings and for other target groups (Tonkin, 2015). The GCI consists of four subscales: support (α = .88), growth (α = .79),

repression (α = .64) and atmosphere (α = .76). Together, the 29 items measure overall Group Climate (α = .92).

Responsivity of sociotherapists towards the needs of participants is an essential characteristic of the support subscale. Growth assesses learning opportunities, hope for the future and comprehension of the benefit of staying on the ward. The perception of strictness and control, unfair and coincidental rules and a lack of flexibility on the living group encompass the repression subscale. Last, the atmosphere subscale assesses the degree to which participants treat and trust each other, feel safe and secure, and can find rest on the living group. The overall climate scale of the GCI includes all four dimensions and is bipolar. At the 'positive' end of the scale group, climate should be regarded as open and therapeutic, whereas at the 'negative end' of the scale group climate should be regarded as closed and repressive (Van der Helm et al., 2011). The four factors—support, growth, atmosphere and repression—are evident in both a closed and an open group climate score.

2.3.2 | Aggressive incidents and coercive measures

Sociotherapists electronically register each aggressive incident committed by a client and use of coercive measures on the living group. Aggressive incidents and use of coercive measures were examined using incident reports maximally three months before and after administering the Group Climate Instrument was completed. This interval was chosen to avoid accidental snapshots of the number of aggressive incidents and coercive measures and to ensure sufficient frequency of aggressive incidents and coercive measures. Three different types of aggressive incidents were distinguished: verbal aggression, physical aggression and aggression against property. Examples of physical aggression are hitting, kicking, biting and spitting. Examples of verbal aggression are threatening, yelling and scolding. Aggression against property refers to destroying furniture or kicking the door or wall. In the 58 participating living groups, in total 1,003 aggressive incidents had occurred in the study period, in which 161 participants were involved. The number of aggressive incidents per participant (as perpetrator) varied from 0 to 53, with an average of 4.01 per participant (*SD* = 7.33).

A distinction between four different types of coercive measures was made: physical restraint (where one or more sociotherapists hold a client), seclusion in client's own room, seclusion in a locked room (designed for this purpose) and involuntary medication (the administration of rapid tranquillization via intramuscular injection against a client's will). A total of 425 coercive measures were used during the study period, involving 92 participants. The number of coercive measures per participant varied from 0 to 116 (*M* = 1.70, *SD* = 8.30).

2.4 | Statistical analyses

First, assumptions were checked (missing data, multivariate outliers). We addressed missingness of the data using Little's MCAR test. We also examined multivariate and influential outliers using visual inspection of the data as well as examining values for Cook's distance and the Mahalanobis distance. Further, we examined associations between group climate, coercive measures and aggressive incidents using bivariate correlation analyses (Pearson's *r*). Pearson's correlations of *r* = .10–.30 are seen as small, *r* = .30–.50 are seen as moderate, and *r* > .50 are seen as large (Cohen, 1992). Subsequently, we tested the hypotheses through multilevel structural equation modelling (MSEM), due to the nested data structure (clients were nested within groups), using Mplus software version 6.11 (Muthén & Muthén, 2017).

We followed the procedures outlined by Hox (2010). First, intraclass correlation coefficients (ICCs) were calculated to examine between-group variability (i.e. the degree of non-independence in the data; Raudenbush & Bryk, 2002). ICCs greater than zero are indicative of nested data structures, in which case multilevel analysis is warranted (Byrne, 2012). Then, the covariance matrix was decomposed into a pooled within- and between-level covariance matrix. The pooled within-level covariance matrix was used to examine the within-level part of the model, and the pooled between-level covariance matrix was used to examine the between-level part of the model. Next, a multilevel structural equation model was fitted in which the within- and between-level models were estimated simultaneously using the 'type = two-level' option in Mplus. Maximum likelihood (ML) was used to estimate all models. We followed the guidelines on using the MSEM framework to test multilevel mediation as outlined by Preacher et al. (2010), as well as the provided Mplus syntax.

We hypothesized a direct effect of group climate on aggressive incidents, more specifically a negative association between aggressive incidents and support, atmosphere and growth. Also, we expected a positive association between aggressive incidents and repression. Furthermore, we hypothesized a direct, positive association between aggressive incidents and use of coercive measures. We also examined differences in group climate between subgroups, addressing within-group (age, IQ, gender, legal status and treatment duration) and between-group (security level, group size and care intensity) variables. Legal status was coded as voluntary versus forced treatment. The hypothesized model is depicted in Figure 1.

A measurement model was examined using the pooled within-level covariance matrix. In this model, group climate was specified as a latent variable, using four indicators: *support*, *growth*, *repression* and *atmosphere*. Second, a structural model was examined in which a direct effect from group climate on aggressive incidents and coercive measures (both represented by observed [composite] variables) were specified, as well as an indirect effect such that aggressive incidents mediated the relation between group climate and coercive measures. Third, the pooled between-level covariance matrix was used to examine the hypothesized measurement and structural models at the between-group level. The variable *repression* was recoded such that a higher score was indicative of less repression because research on MSEM has found that reversely scored variables may cause convergence problems (Gustafson, & Stahl, 2005). Also,

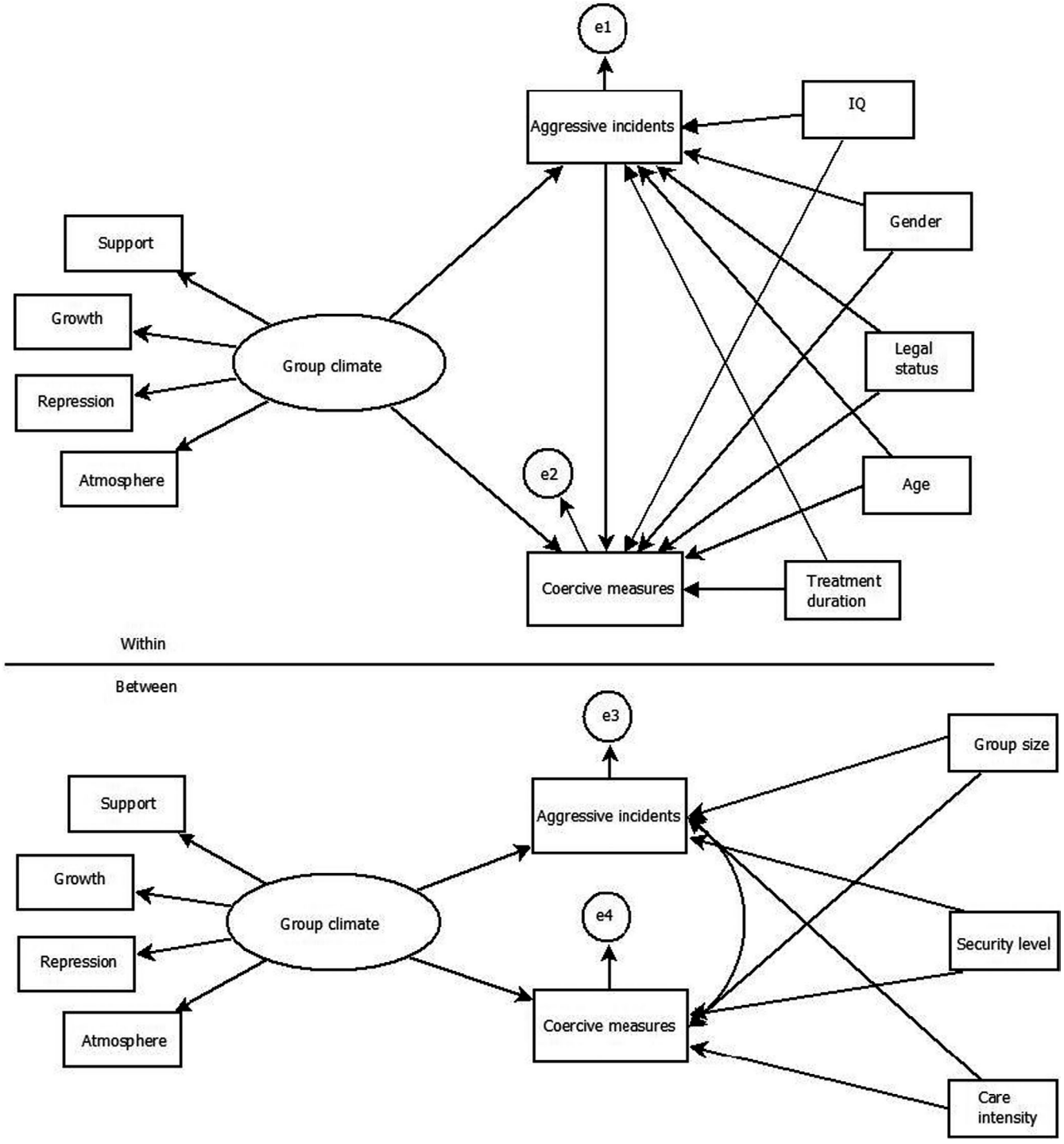

FIGURE 1 Hypothesized model of the relation between group climate, aggressive incidents and coercive measures

negative residual variance at level 2 is a common problem in MSEM, which can result in non-convergence of the model (Kim et al., 2016). The variable *growth* at the between part of the model (level 2) displayed negative residual variance. Because the residual variance was close to zero and non-significant, it was fixed to zero, which is a recommended practice when using multilevel SEM (Hox, 2010).

Exact model fit was calculated with a chi-squared test. Because the chi-squared test is sensitive to sample size, fit measures that are less sensitive to sample size were also used (Cheung & Rensvold, 2002): comparative fit index (CFI), Tucker–Lewis index (TLI), the root mean square error of approximation (RMSEA) and the standardized root mean square residual (SRMR). The SRMR at the within-group level ($SRMR_W$) and between-group level ($SRMR_B$) were examined. Modification indices, giving the expected drop in chi-square if the parameter in question is freely estimated, were used to improve model fit. A non-significant chi-square value is considered to indicate

an exact fit to the data. The following fit values indicate a good fit to the data: TLI > .95; CFI > .95; RMSEA ≤ .05; and SRMR ≤ .08, and values of TLI > .90; CFI > .90; and RMSEA ≤ .08 are indicative of acceptable model fit (Cheung & Rensvold, 2002).

3 | RESULTS

3.1 | Preliminary analyses

There was a very small proportion of missing values on the self-reported group climate data, ranging from 0% to 4.8% per variable. Little's MCAR test ($\chi^2(63) = 54.70$, $p = .763$) was not significant, indicating that missing values were completely at random. Missing values were imputed through expectation maximization. Two cases were identified as influential outliers regarding the variable coercive measures. These cases displayed a coercive measures score of 116 and 49, respectively, while the scores of the sample excluding these outliers had a range of 0–18 ($M = 2.66$, $SD = .30$). Also, values for Cook's distance (43.8 and 17.9, respectively) and the Mahalanobis distance (186.7 and 32.4) as indicators for multivariate outliers were very high for these cases compared with the means of these values in the sample (Cook's distance $M = 0.18$ and the Mahalanobis distance $M = 1.99$). The analyses reported below were run with and without the outliers and results indicated that they impacted the results significantly, particularly the parameter estimates of the between-level models. For example, the ICC of the variable coercive measures was extremely low (.01) with outliers present compared to the ICC value without outliers (.30). Also, between-level models with outliers indicated standardized betas >1, as well as very large standard errors of standardized estimates of associations involving the variable coercive measures. Therefore, these two cases were removed from the data set. Table 1 shows the means, standard deviations and ICCs of the study variables as well as the correlations among these variables.

A small to moderate significant negative correlation was found between group climate total score and aggressive incidents ($r = -.29$, $p < .001$). Significant small to moderate correlations in the expected direction were found between group climate subscales and different types of aggressive incidents, except for non-significant correlations between *support*, *growth* and *physical aggressive incidents*. Also, a small significant negative correlation was found between group climate total score and coercive measures ($r = -.13$, $p = .043$). However, no significant correlations were found between group climate subscales and different types of coercive measures, except for a small positive correlation between *repression* and *confinement in a client's room* on the one hand ($r = .16$, $p = .011$) and a small positive correlation between *repression* and *coercive measures total score* on the other hand ($r = .16$, $p = .014$). Significant small to large positive correlations were found between different types of aggressive incidents and different types of coercive measures, except for the relation between *confinement in a segregated room* and *verbal aggressive incidents*, which was non-significant. Results indicate that an open and therapeutic group climate, characterized by higher degrees of perceived support, growth, and atmosphere and a lower degree of perceived repression, was associated with a lower number of aggressive incidents, but not significantly associated with coercive measures. Also, a higher number of aggressive incidents were associated with more use of coercive measures.

No significant correlations were found between aggressive incidents and participants' age, IQ, gender, legal status, treatment duration, group size, care intensity and security level. Coercive measures was significantly and positively related to participant's gender ($r = .25$, $p < .001$), legal status ($r = .22$, $p = .001$) and care intensity ($r = .15$, $p = .022$). Furthermore, coercive measures correlated negatively and significantly with group size ($r = -.21$, $p = .001$). No significant correlations were found between coercive measures and participants' age, treatment duration and security level. These results indicate that coercive measures were more frequently enforced on female clients compared with male clients, clients who received treatment involuntarily, and those receiving more intensive care. Also, coercive measures were more often reported in smaller groups.

3.2 | Structural equation modelling

First, a measurement model was examined using the pooled within-level covariance matrix. A model with group climate represented as a latent variable showed an acceptable fit to the data: $\chi^2(2) = 5.56$, $p = .062$, CFI = .986, TLI = .959, RMSEA = .097 and SRMR = .032. Second, the structural model was specified, in which a direct effect was specified from group climate on aggressive incidents, which was represented by an observed (composite) variable, as well as direct effects from group climate and aggressive incidents on coercive measures, which was also represented as an observed variable. An indirect effect was specified such that the relation between group climate and coercive measures was mediated by aggressive incidents. Results showed a good fit to the data: $\chi^2(8) = 12.63$, $p = .125$, CFI = .986, TLI = .974, RMSEA = .055 and SRMR = .043. Next, a measurement model was fitted using the pooled between-level covariance matrix, in which group climate was specified as a latent variable, which resulted in poor model fit: $\chi^2(2) = 25.71$, $p < .001$, CFI = .894, TLI = .682, RMSEA = .452 and SRMR = .065. Modification indices suggested a correlation between residual variances of the indicators *atmosphere* and *support*, which resulted in good model fit: $\chi^2(1) = 0.94$, $p = .331$, CFI = 1.00, TLI = 1.001, RMSEA = .000 and SRMR = .013. The structural model indicated a good fit to the data, based on the majority of fit indices: $\chi^2(6) = 8.56$, $p = .200$, CFI = .991, TLI = .979, RMSEA = .086 and SRMR = .040.

Subsequently, a two-level model was fitted, in which the within- and between-level models were examined simultaneously. Also, *gender* and *legal status* were included as within-level covariates. Between-level covariates group size and care intensity were considered; however, including these variables in the model showed

TABLE 1 Group climate, aggressive incidents and coercive measures: means, standard deviations, intraclass correlation coefficients (ICCs) and correlations

	N	*M*	*SD*	ICC	2	3	4	5	6	7	8	9	10	11	12	13	14
Support (1)	248	3.54	0.68	.16	.70**	−.65**	.49**	.92**	−.22**	−.17**	−.07	−.25**	−.09	−.07	−.01	−.10	−.08
Growth (2)	248	3.57	0.79	.13		−.57**	.36**	.82**	−.16*	−.17**	−.08	−.14*	−.07	−.07	.01	−.08	−.10
Repression (3)	248	2.78	0.70	.16			−.44**	−.81**	.28**	.24**	.16*	.26**	.16*	.08	.06	.16*	.12
Atmosphere (4)	248	3.39	0.79	.24				.66**	−.26**	−.21**	−.17**	−.23**	−.12	−.06	−.11	−.06	−.04
Total group climate (5)	248	3.49	0.60	.20					−.29**	−.24**	−.14**	−.29**	−.13*	−.08	−.04	−.13*	−.11
Aggressive incidents_ total (6)	248	3.82	7.03	.11						.74**	.73**	.88**	.53**	.15*	.47**	.40**	.18**
Aggression against property (7)	248	0.86	2.13	.08							.37**	.53**	.34**	.19**	.20**	.30**	.16*
Physical aggression (8)	248	1.08	2.71	.07								.42**	.67**	.19**	.66**	.38**	.29**
Verbal aggression (9)	248	1.89	3.94	.12									.30**	.04	.28**	.29**	.04
Coercive measures_total (10)	248	1.05	2.66	.30										.60**	.65**	.62**	.62**
Confinement in a segregated room (11)	248	0.20	0.96	.42											.02	.33**	.41**
Fixation (12)	248	0.33	1.58	.11												.04	.12
Confinement in a clients' own room (13)	248	0.33	1.01	.15													.38**
Separation (14)	248	0.18	0.69	.38													

*$p < .05$.

**$p < .01$. (two-tailed).

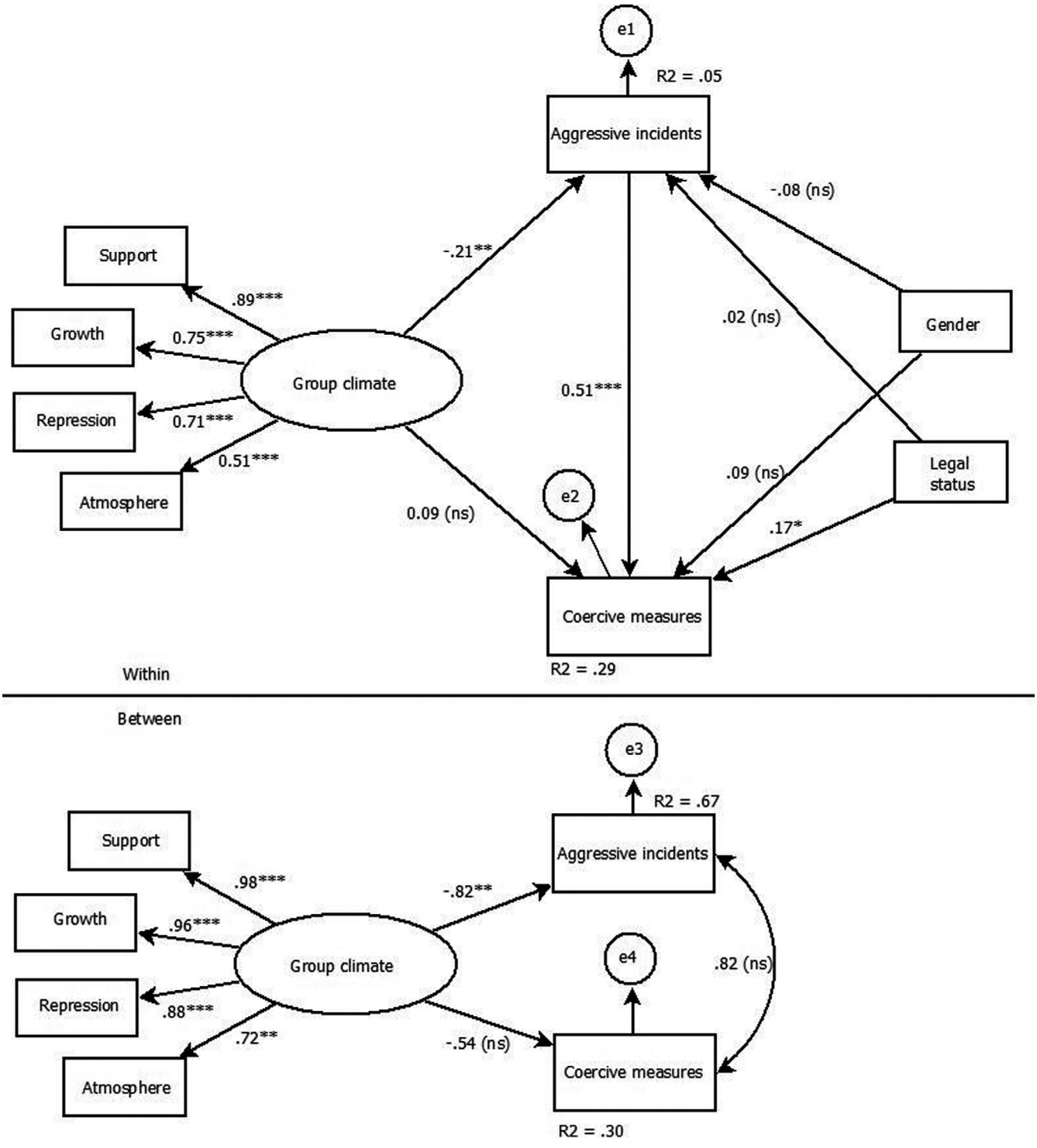

FIGURE 2 Two-level structural equation model of the relation between group climate, aggressive incidents and coercive measures

a significant deterioration in model fit of the between-level part of the model. The final model (Figure 2) showed a good fit to the data: $\chi^2(24) = 38.71$, $p = .029$, CFI = .970, TLI = .947, RMSEA = .050, $SRMR_W$ = .076 and $SRMR_B$ = .068. However, results indicated a standardized beta coefficient >1 between aggressive incidents and coercive measures. Therefore, a covariance between aggressive incidents and coercive measures was specified at the between-level part of the model.

Results indicated that, at the within-group level, group climate was negatively related to aggressive incidents ($\beta = -.21$, $p = .005$), but not significantly related to coercive measures. Aggression ($\beta = .51$, $p < .001$) and legal status ($\beta = .17$, $p = .011$) were significantly related to coercive measures. The relation between group climate and coercive measures was significantly mediated by aggression (indirect effect, $\beta = -.11$, $p = .010$). At the between-level, group climate was significantly related to aggression ($\beta = -.82$, $p = .005$), but not

to coercive measures (β = −.54, p = .05). This means that a positive group climate was associated with lower levels of aggression at both the within level and the between level, such that participants' perceptions of group climate were associated with lower levels of aggression, and variation in levels of perceived group climate between groups was also associated with aggression at the group level.

4 | DISCUSSION

In the present study, the relation between group climate as perceived by individuals with MID-BIF staying in a secure forensic setting, aggressive incidents and use of coercive measures on the living group was examined. First, our results support the hypothesized negative relation between the quality of group climate and aggressive incidents. Also, the number of aggressive incidents was positively related to coercive measures and proved to be a mediator of the relation between quality of group climate and coercive measures. Participants' perceptions of an open and therapeutic group climate were associated with lower numbers of aggressive incidents, and institutional repression was associated with more aggressive incidents. Although the conclusions regarding the relation between group climate and aggressive incidents generally are in line with those of earlier studies (De Decker et al., 2018; Heynen et al., 2016; Ros et al., 2013; Van den Tillaart et al., 2018), some findings of the present study are inconsistent with earlier studies. The reason for these inconsistencies might be that studies were conducted in different settings, with different populations, and used different group climate questionnaires and measures of aggressive incidents (Robinson et al., 2018).

Unexpectedly, we did not find an association between support, growth and physical aggressive incidents. It is therefore concluded that physical aggressive incidents are mainly related to atmosphere and repression. The association between repression and aggressive incidents in general (including physical aggressive incidents) is in line with the deprivation model which states that aggression is not so much caused by client characteristics but by environmental factors such as sociotherapists' behaviour (Bosma et al., 2019). However, the cause–effect relationship is still unclear, and the association between aggression and repression stresses the importance of awareness on processes in which these factors interact. An explanation for the link between atmosphere and physical aggressive incidents might be the way atmosphere is measured with the GCI. This construct has a multifaceted character and measures among other things perceptions of safety and cohesion between clients. These facets are consistent with outcomes of the systematic review by Robinson et al. (2018) in which they stated that client's perceptions of safety, the level of cohesion between clients and the atmosphere of the environment are important elements of group climate which are associated with institutional aggression.

Second, we found that a higher number of different types of aggressive incidents were associated with more frequent use of different types of coercive measures. This is in line with findings of studies by Van der Helm and Stams (2012) and De Valk et al. (2016) in which they noted that transactional processes in (forensic) residential settings can transform into coercive cycles when aggressive behaviour of clients induces coercive responses by sociotherapists, which, in turn, causes aggressive behaviour by clients. Third, only a small positive association between repression and coercive measures was found. This may be explained by the earlier described fact that forensic residential settings are characterized by a certain amount of coercion to set boundaries as requirement for a structured and safe environment. De Valk et al. (2016) stated that sociotherapists' acting becomes repressive when the use of coercive measures is harmful, unlawful or arbitrary.

4.1 | Limitations

There are several limitations of this study that should be mentioned. First, data were collected in only one facility, which limits the generalizability of the findings. Second, it was not possible to derive causal relations between group climate, aggressive incidents and coercive measures, because of the cross-sectional design. We expect, however, bidirectional relations between the aspects of group climate and the number of aggressive incidents on the living group. Further studies with a longitudinal design are needed to explore causality between group climate, aggressive incidents and coercive measures. Third, the sample size did not allow us to include more variables in the multilevel structural equation model. Also, regarding further analyses of different subgroups (e.g. differences between the hypothesized relation among men and women), future studies on the association between group climate, aggressive behaviour and coercive measures should use a larger sample, representing multiple organizations. Further, future studies might explore how other personal and contextual characteristics, for example, diagnoses of clients, team functioning and organizational factors, interact with aggressive incidents and use of coercive measures.

4.2 | Implications

The current study supports the importance of the relation between the frequency of aggressive incidents and social environmental factors, which underlines the transaction models underlying inpatient aggression in daily practices (Jahoda et al., 2013). It can be expected that interventions focused on this transactional model will show an impact on both the group climate and the prevalence of aggressive incidents. It is advised that ongoing training of sociotherapists is facilitated by organizations, focussing on providing support, creating possibilities for growth and creating a safe atmosphere in which learning becomes possible for clients with MID-BIF. In an open and therapeutic group climate, the occurrence of aggressive incidents may decrease and may contribute to better treatment results. Also, organizations should strive to minimize repression, as repression hinders the development of a therapeutic group climate, motivation for and susceptibility to treatment, and in the end rehabilitation (De Valk, 2019).

To create a therapeutic group climate and stimulate clients to develop, sociotherapists should be responsive to fulfil basic psychological needs of the clients, such as the need for autonomy, competence and relatedness (Ryan & Deci, 2017). Giving clients the opportunity to make decisions themselves in their daily care may help to restore some feelings of control over their own lives (Blair & Kennedy, 2014). Providing opportunities to choose for themselves has been suggested to be an important component of interventions that aim to reduce the aggressive behaviour of clients with ID (Knotter et al., 2013).

Another implication for secure forensic settings for individuals with MID-BIF relates to the continuing need of improving sociotherapists' expertise and competences. It is important that sociotherapists are educated in psychological and psychiatric problems underlying aggressive behaviour.

At last, further research is necessary in order to understand how work or team climate affect the quality of the group climate. There is preliminary evidence to suggest that a positive work climate, as perceived by sociotherapists, seems necessary in the degree to which sociotherapists can build an open and therapeutic group climate (Van der Helm & Stams, 2012). Establishing a more open and therapeutic group climate may not only result in a decrease of aggressive incidents, but also in a safer work climate for professionals.

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CONFLICT OF INTEREST

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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