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A social identity perspective on conformity to cyber aggression among early adolescents on WhatsApp

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Abstract

Cyber aggressive behaviors such as nonconsensual image sharing, nasty comments, and social exclusion frequently take place on WhatsApp. These behaviors often involve group processes, where adolescents conform to peers' behaviors. WhatsApp is pre-eminently suited for group-communication among adolescents, and, thus, may facilitate conformity to such behaviors. However, research on conformity on WhatsApp is scarce. Therefore, the aim of this study was to examine if and how the social identity perspective on group behavior may explain cyber aggression on WhatsApp. Specifically, we examined how social identification relates to conformity to cyber aggression on WhatsApp. In a preregistered survey, 647 early adolescents answered questions about social identification with group members and conformity to behavior of a WhatsApp group. Hierarchical multiple regression and moderated mediation analyses point toward an indirect, positive relation between the centrality component of social identification and conformity to cyber aggression, mediated by perceived social pressure to conform. These findings contribute to the literature by extending the social identity perspective to conformity on WhatsApp. Further exploration of this research

line within the field of cyber aggression is warranted, because this can help improve applied interventions to reduce conformity to cyber aggression.

KEYWORDS
conformity, cyber aggression, early adolescents, social identification, social identity perspective, WhatsApp

1 | INTRODUCTION

Messaging apps such as WhatsApp have become pervasive in the daily lives of early adolescents around the globe (van Driel et al., 2019; Ling & Lai, 2016; Statista, 2018; Valkenburg & Piotrowski, 2017). Problematic on these apps is the increasing occurrence of cyber aggression. This refers to derogatory, offensive, or harmful behaviors (Cohen-Almagor, 2018; Runions et al., 2016), such as impersonation, nonconsensual image sharing, and making nasty comments (Cohen-Almagor, 2018; Hinduja & Patchin, 2016). Cyber aggression on WhatsApp often involves group-based peer behavior (Aizenkot & Kashy-Rosenbaum, 2018), for example when a private picture of a peer is forwarded among members of a WhatsApp group. These behaviors pose significant risks for adolescents' well-being (Cohen-Almagor, 2018), particularly due to the potentially unlimited audience, publicness, and perpetuity of online information (Runions et al., 2016).

Unique to WhatsApp is that this platform is pre-eminently suited for group-communication, through which such group-based peer behaviors can occur. However, as of yet, little is known about conformity to cyber aggressive behaviors on WhatsApp. Given the immense popularity of WhatsApp, the prevalence estimates of around 30% for WhatsApp cyber aggression victimization (Aizenkot & Kashy-Rosenbaum, 2018), and the harmful consequences for targets of cyber aggression, it is key to understand the processes involved in conformity on WhatsApp. The Social Identity perspective (SI perspective, Tajfel & Turner, 1979; Turner et al., 1987) has not previously been applied to WhatsApp, but may actually provide a promising approach toward the understanding of these processes. If this perspective indeed helps explain conformity to cyber aggression on WhatsApp, this will be an important contribution to the literature on conformity in mediated groups of early adolescents. Subsequently, this can help design applied interventions to reduce conformity to cyber aggression on WhatsApp.

Earlier research applying the SI perspective has generated valuable insights on conformity to traditional (offline) bullying and cyberbullying (e.g., Bastiaensens et al., 2016; Duffy & Nesdale, 2009) among adolescents. It is important to apply the SI perspective to WhatsApp, because this platform differs considerably from other modes of computer-mediated communication (CMC; Waterloo et al., 2018) that have been under scrutiny in previous research (e.g., Bastiaensens et al., 2016). For example, behavioral privacy, reciprocal following, and group communication with strong social ties on WhatsApp (Ling & Lai, 2016; Waterloo et al., 2018) distinguish it from other platforms. Therefore, the current preregistered study aims to examine if and how the SI perspective may explain conformity to cyber aggression among early adolescents on WhatsApp.

Specifically, we examined the main premises of the SI perspective in relation to conformity to WhatsApp group behavior, and examined the role of a potential mediating and moderating variable. Below, we review the literature and come to four specific hypotheses. In the current study, we focused on cyber aggression rather than cyberbullying. We chose to do so because cyberbullying is conceptualized rather narrowly as repetitive, with intent to harm, and stemming from power imbalance, whereas cyber aggression is conceptualized more broadly as harmful peer-to-peer behaviors (Runions et al., 2016).

1.1 | The relation between social identification with WhatsApp group members and conformity to group behavior

The SI perspective (Tajfel & Turner, 1979; Turner et al., 1987) is an influential perspective on intra- and inter-group processes that may increase our understanding of behavior in WhatsApp groups. The perspective describes that when group members identify with others in a social group, they have a tendency to conform to the norms of that group (Hogg & Reid, 2006; Tajfel & Turner, 1979; Turner et al., 1987). This means that adolescents are likely to go along with behavior of peer groups with which they identify. The SI perspective also describes that this tendency to conform increases as people identify more strongly with a group (Hogg & Reid, 2006). For example, when forwarding private pictures of peers is considered acceptable by a WhatsApp group with which adolescents strongly identify, adolescents are likely to conform and distribute such pictures.

There are two central notions to the SI perspective that are relevant for behavior in WhatsApp groups. Firstly, there is the notion of identity shift, which describes how the social context can generate a shift in one's identity. The SI perspective distinguishes between personal and social identity (Tajfel & Turner, 1979): Personal identity refers to idiosyncratic attributes that differentiate people from others, whereas social identity refers to attributes shared among people in a group. In groups, the social aspects of one's identity become more salient than the personal aspects, resulting in a shift in focus on the personal identity to the social identity (Hogg et al., 2017; Tajfel & Turner, 1979).

Secondly, there is the notion of self-categorization, which describes how people's self-categorizations as group members increase conformity to group behavior. When a social identity is salient, people categorize themselves and others as prototypical group members with attitudes and behaviors that reflect the social identity (Hogg & Reid, 2006; Turner et al., 1987). In other words, people's perceptions of themselves and others become depersonalized. This strengthens social identification with the group, and motivates people to adhere to group norms and behaviors (Hogg & Reid, 2006; Turner et al., 1987). The salient social identity, thus, describes what it is to be a group member, and prescribes what attributes, emotions, and behaviors are appropriate. There is abundant support for these two notions (Hogg & Reid, 2006) and scholars believe that the processes of identity shift and depersonalization underlie all group behavior (Tajfel & Turner, 1979; Turner et al., 1987).

The tendency to conform to group behavior increases even more when people communicate in the absence of visually identifying information such as eye-contact, facial expressions, and gestures, which is often the case in CMC (Reicher et al., 1995). Absence of these cues makes individual differences between group members less apparent. This increases depersonalization and social identification, in turn, increasing conformity to norms and behaviors associated with the social identity (Reicher et al., 1995). Experimental research on decision making in CMC-contexts supports this line of reasoning and has shown that participants conform to group norms when faced with choice dilemmas (Lee, 2006), or when selecting task solutions (Postmes et al., 2001), especially in conditions where participants communicated in the absence of visually identifying information versus when they were identifiable (Lee, 2006; Postmes et al., 2001). Drawing on the notions of the SI perspective and previous empirical research on conformity in groups, we expect that social identification with WhatsApp group members will increase conformity to behavior of the WhatsApp group. This leads to the first hypothesis:

Hypothesis 1 *Social identification with WhatsApp group members is positively associated with general group conformity.*

The SI perspective has also been applied to explain risk behaviors such as traditional bullying (e.g., Duffy & Nesdale, 2009) and cyberbullying among early adolescents on platforms other than WhatsApp (e.g., Bastiaensens et al., 2016). For example, Duffy and Nesdale (2009) examined traditional bullying involvement in friendship groups where social identification was strong. They found that bullying increased when it was considered acceptable by friends. Bastiaensens et al. (2016) examined the role of peer groups in bystanders' joining in internet

cyberbullying and found that involvement in cyberbullying perpetration increased when friends, rather than acquaintances, were approving of cyberbullying. These studies show that such risk behaviors are often group-based. Group processes core to the SI perspective, that is, social identification, group norms, and conformity, contribute to explaining both traditional bullying and cyberbullying.

This leads to the question of whether the processes that are relevant for explaining conformity to risk behaviors in offline contexts and other CMC-contexts also contribute to conformity to cyber aggression on WhatsApp. Due to the distinguishing features of WhatsApp (Waterloo et al., 2018), it is likely that social identification-induced conformity is strengthened in WhatsApp groups. Typically, WhatsApp groups form private channels of communication with intimate friends or other strong ties (Ling & Lai, 2016; Valkenburg & Piotrowski, 2017; Waterloo et al., 2018). Going along with cyber aggression can be a way for early adolescents to establish dominance, gain status, or increase peer popularity within such intimate peer groups where social recognition is important (Brechwald & Prinstein, 2011; Steinberg & Monahan, 2007). Moreover, it is possible that these aggressive behaviors occur more frequently in WhatsApp groups than in other CMC-contexts or offline, because the risks (e.g., punishment) of engaging in cyber aggressive behaviors are minimized as behaviors in WhatsApp groups are not under public scrutiny. Taken together, the SI perspective may provide a promising approach toward the understanding of the processes involved in conformity to cyber aggression on WhatsApp. This leads to the second hypothesis:

Hypothesis 2   *Social identification with WhatsApp group members is positively associated with conformity to cyber aggression.*

1.2 | Perceived social pressure as potential mediator of the relation between social identification and conformity to cyber aggression

Over the past few decades, research in the domains of social and developmental psychology has focused on social pressure as key factor of social influence during early adolescence (e.g., Bastiaensens et al., 2016; Brechwald & Prinstein, 2011; Brown et al., 1986). Social pressure is a process in which adolescents feel pressured to conform to peer norms or behaviors, which subsequently motivates conformity (Brown, Lohr, et al., 1986; Santor et al., 2000). In the context of risk behaviors such as cyberbullying, peer norms can produce social pressure to conform (Bastiaensens et al., 2016). Seeing peers forward a private picture on WhatsApp or thinking that peers would approve of such behavior, may increase perceived pressure to engage in such behaviors as well.

Perceived social pressure is typically higher in peer groups that are closely connected, compared to peer groups that are more tangentially connected (e.g., Brechwald & Prinstein, 2011). As WhatsApp groups primarily consist of strong social ties such as friends (Ling & Lai, 2016; Waterloo et al., 2018) with which social identification is high, it is likely that adolescents perceive pressure to conform to WhatsApp group norms. The extent to which adolescents identify with a social group influences to what extent they perceive social pressure to conform to group norms (Brechwald & Prinstein, 2011; Brown et al., 1986). Therefore, the more adolescents identify with a WhatsApp group, the more pressure they may experience to conform to WhatsApp group norms. Consequently, perceived social pressure enhances conformity to group norms (Cialdini & Goldstein, 2004).

The pressure exerted by a social group encourages adolescents to change their behaviors to correspond to those of peers (Brown, Clasen, et al., 1986). Peer groups have repeatedly been identified as influential in encouraging risk behavior, in particular cyber aggression, which is inextricably linked with peer group dynamics such as status and likeability (Mayeux & Cillessen, 2008). Conforming to group norms can be a way to gain or ensure group belonging (Cialdini & Goldstein, 2004; Hogg & Reid, 2006); thus, it reflects a useful strategy for adolescents who are generally attuned to positive regard and belonging from peers (Steinberg & Monahan, 2007). The more social pressure adolescents experience from their WhatsApp group, the likelier they may be to conform to WhatsApp group norms. This leads to the third hypothesis:

Hypothesis 3 *Social identification with WhatsApp group members increases perceived social pressure to conform, which, in turn, increases conformity to cyber aggression.*

1.3 | The moderating influence of susceptibility to peer pressure

Adolescence is a tumultuous period with important socioemotional goals such as gaining autonomy, developing a stable identity, and managing social relationships with peers (Steinberg & Monahan, 2007; Valkenburg & Piotrowski, 2017). In attaining these goals, adolescents become particularly attuned to positive regard from and belongingness to peer groups, especially during early adolescence (ages 12–15) when responsiveness to peer influence peaks (Steinberg & Monahan, 2007; Sumter et al., 2008). Generally, early adolescents are susceptible to social pressure from peers and, thus, likely to conform to group norms. However, this notion fails to account for variations in the ways that adolescents express their group membership. There are individual differences in the extent to which adolescents are susceptible to peer influence (Steinberg & Monahan, 2007), for example due to differences in psychosocial development such as emotional autonomy, self-reliance, and self-esteem (Steinberg & Monahan, 2007; Sumter et al., 2008). Susceptibility to peer pressure is distinct from perceived social pressure, because it reflects sensitivity to peer pressure as opposed to perceptions of social pressure.

Individual susceptibility to peer pressure may moderate the previously hypothesized mediated relation of social identification with WhatsApp group members on conformity to cyber aggression via perceived social pressure. Specifically, moderation may take place on both paths of the mediated relation. Firstly, susceptibility to peer pressure may interact with social identification with WhatsApp group members in predicting perceived social pressure to conform to cyber aggression. Adolescents who are highly susceptible to peer pressure are more receptive to peer conceptions (Brechwald & Prinstein, 2011) as opposed to those who are less susceptible. Therefore, when they identify with WhatsApp group members, they are more sensitive to group norms that arouse social pressure (Brechwald & Prinstein, 2011; Brown, Lohr, et al., 1986). Consequently, adolescents' perceptions of social pressure increase.

Secondly, susceptibility to peer pressure may interact with perceived social pressure to conform in predicting conformity to cyber aggression. Because highly susceptible adolescents are more receptive to peer norms, they may be less capable of inhibiting initial responses and considering potential alternative responses, and instead engage in relatively automatic social influence processes such as conformity (e.g., Valkenburg & Piotrowski, 2017). Therefore, when highly susceptible adolescents perceive social pressure from their WhatsApp group, they are more likely to conform to WhatsApp group norms and behaviors, potentially also when conforming is not essential (e.g., to satisfy group belonging). This leads to the final hypothesis (see Figure 1):

Hypothesis 4a *The relation between social identification with WhatsApp group members and perceived social pressure is stronger among adolescents with higher versus lower levels of susceptibility to peer pressure.*

Hypothesis 4b *The relation between perceived social pressure and conformity to cyber aggression is stronger among adolescents with higher versus lower levels of susceptibility to peer pressure.*

2 | MATERIALS AND METHODS

2.1 | Sample

This study concerned a survey in which participants answered questions about one of their WhatsApp groups. The sample consisted of early adolescents who were in the first three grades of secondary school in The Netherlands, which typically include 12–13, 13–14, and 14–15-year-olds, respectively. The initial sample consisted of 720
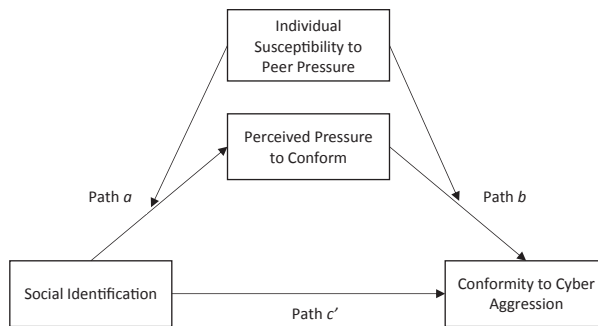
FIGURE 1 Moderated mediation model with perceived social pressure as the mediator and peer susceptibility as the moderator (PROCESS model 58)

secondary school students. However, we excluded participants who did not use WhatsApp ($n = 2$) and who were not a member of at least one WhatsApp group ($n = 4$). Moreover, participants whose WhatsApp group included family members ($n = 67$) were excluded from the analyses because all measures were operationalized in terms of peer-to-peer behavior (e.g., peer-to-peer cyber aggression). Thus, the final sample consisted of 647 participants: 51.5% boys and 48.5% girls between 10 and 16 years old ($M = 12.87$ years, $SD = 1.04$).

Some participants ($n = 38$) were 10, 11, or 16 years old, falling just outside the typical age range of early adolescents. We included these participants in the study because the data were collected at class-level and we did not want to exclude children beforehand. To control for the potential influence of age of participant, we included age of participant as a covariate in the analyses. In addition, we conducted additional analyses with a smaller sample ($N = 609$) that excluded the 38 participants that were 10, 11, or 16 years old. These additional analyses generated the same main results (see the Supporting Information for the tables that support these results).

The majority of participants (94.7%) was born in The Netherlands and all participants were fluent speakers of Dutch. Participants came from each of the three main educational levels that are distinguished in the Dutch school system; preparatory secondary vocational education (37.4%), senior general secondary education (23.8%), and preparatory university education (38.8%). The distribution of participants across educational levels was not even regarding age of participants. A one-way ANOVA showed that, on average, participants from preparatory secondary vocational education were older ($M = 13.64$, $SD = 1.03$) than participants from senior general secondary education ($M = 12.36$, $SD = 0.71$) and preparatory university education ($M = 12.43$, $SD = 0.74$), $F(2,644) = 158.94$, $p < .001$. This was an unintentional result of the sampling procedure that was followed at schools, where the schools determined which classes would participate. Age of participant and educational level were, however, controlled for in all analyses.

2.2 | Procedure

This study was preregistered at AsPredicted. The preregistration and anonymized data can be found in a repository on the Open Science Framework (OSF, https://bit.ly/2WjqaRB). To examine the hypotheses, a survey was conducted at secondary schools in The Netherlands. Schools were recruited through information letters and phone calls. They were offered workshops on social media etiquette (i.e., how to communicate appropriately on social media) for students in return for their participation. The study was approved by the Institutional Review Board of the institution where this research was conducted (ECSW-2017-002R3). Additionally, data management was in line with the research data management protocol of this institution. Informed consent was obtained from schools, legal guardians, and participants prior to data collection. Participants were eligible to participate if they owned a mobile phone. Participants completed the survey individually in-class via Qualtrics (an online software

program used to collect and analyze data), either on a mobile phone, laptop, or desktop PC. During the study participants sat at their assigned desk in class, with adequate space between each desk.

The survey contained questions about one of the participants' existing WhatsApp groups. On WhatsApp, (group) chats are chronologically ordered in a list, with the most recently used chat at the top of the list. To determine the group about which they would answer questions, participants first received a random number ranging from 1 to 5. This number indicated which WhatsApp group they would answer questions about, where the number 1 represented the first WhatsApp group in their chat list, 2 represented the second group in their chat list, and so on up until the fifth group in their list. This procedure was used to obtain variety in the intensity of use of different WhatsApp groups, with which we hoped to include different types of groups (e.g., friends, classmates, sports clubs). Simultaneously, this allowed us to exclude inactive groups (i.e., those at the bottom of the chat list).

After selecting the WhatsApp group, participants provided the name of this group. Subsequently, they answered questions about the group's size, group members, general WhatsApp group conformity, conformity to cyber aggression, social identification, perceived social pressure, susceptibility to peer pressure, demographics, and social media use. To improve readability and survey flow, all questions were adapted to refer to participants' WhatsApp group, by piping the name of the group into all questions that referred to the group. For example, when the participants indicated that the selected WhatsApp group was named 'The Three Girls', all questions referred explicitly to the 'The Three Girls' group. This is consistently indicated with '[WhatsApp group]' in the items reported below.

2.3 | Measures

2.3.1 | Outcome variables

General WhatsApp group conformity
To measure general WhatsApp group conformity, we used Santor et al.'s (2000) 7-item conformity scale. Santor et al.'s (2000) measures have often been used to assess concepts related to children and adolescents' involvement in cyberbullying and cyber aggression (e.g., Vanden Abeele et al., 2014, 2017), and thus, are suitable to measure such concepts in WhatsApp groups. An example item is 'If [WhatsApp group] asks me to do something, I usually do it'. Response categories ranged from 1 (*completely disagree*) to 6 (*completely agree*). The seven items formed a unidimensional scale with acceptable reliability (α = .67) that explained 47.2% of the variance (see Table 1 for the means and standard deviations of all key variables).

Conformity to cyber aggression
To measure conformity to cyber aggressive behavior of a WhatsApp group, we used the two behavior-specific items from Santor et al.'s (2000) 5-item antisocial peer pressure scale. The items were adapted to refer specifically to four types of cyber aggression: nonconsensual image sharing, gossiping, making nasty comments, and threatening to hurt someone. These were identified as the most common types of cyber aggression by the Cyberbullying Research Center (Hinduja & Patchin, 2016). The items referred to aggression toward peers, but were not specified to peers *within* or *outside* a group.

The two items were each assessed four times, once for each type of cyber aggression. An example item is 'I have forwarded a picture of someone that I know without their permission because [WhatsApp group] urged me to'. Response categories ranged from 1 (*completely disagree*) to 6 (*completely agree*), with an added response category (*not applicable*). Participants could select this response category if the behavior had not occurred. For each item, approximately one-fifth (19.6%–23.0%) of participants reported that the behavior was not applicable to their group. Thus, for the majority of WhatsApp groups (roughly 80%), cyber aggression had occurred (i.e., participants gave a score of 1–6). Analyses were run only for these cases. The eight items formed a reliable unidimensional scale with good reliability (α = .86) that explained 52.6% of the variance.

TABLE 1 Means and standard deviations of key variables

	M	SD
General WhatsApp group conformity	3.13	0.75
Conformity to cyber aggression	1.65	0.88
Self-investment	4.51	1.10
Self-definition	4.00	1.15
Centrality	2.52	1.40
Perceived social pressure to conform	1.38	0.77
Susceptibility to peer pressure	2.24	0.91

2.3.2 | Predictor variables

Social identification

To measure social identification, we used Leach et al.'s (2008) 14-item social identification scale. Leach et al. (2008) identified five components of social identification, housed under two dimensions: self-definition and self-investment. Self-definition refers to the extent to which people perceive themselves and others as prototypical group members, and consists of the components individual self-stereotyping and in-group homogeneity. Example items are 'I have a lot in common with the other people in [WhatsApp group]' (individual self-stereotyping), and 'The people in [WhatsApp group] have a lot in common with each other' (in-group homogeneity). Self-investment refers to the extent to which people feel psychologically attached to their group, and consists of the components solidarity, satisfaction, and centrality. Example items are 'I feel a bond with [WhatsApp group]' (solidarity), 'I am glad to be a member of [WhatsApp group]' (satisfaction), and 'I often think about the fact that I am a member of [WhatsApp group]' (centrality). Response categories ranged from 1 (*completely disagree*) to 6 (*completely agree*).

To validate the multidimensional operationalization of the scale, the factor structure was assessed with a principal component analysis with Varimax rotation. The KMO was 0.90, verifying the sampling adequacy. The scree plot showed a clear inflexion that justified retaining three factors. All three factors had eigenvalues over Kaiser's criterion of 1, and together they explained 73.0% of the variance. Upon examining the factor loadings, we observed that the centrality component, which was originally housed under the self-investment dimension, made up one of the factors. Although this contrasted with the a priori postulated dimensions, we retained the three factors because the scree plot and Kaiser's criterion converged on this value. The items that clustered on the three factors suggested that the first factor represented the self-investment dimension of social identification, consisting of the solidarity and satisfaction components. The second factor represented the self-definition dimension of social identification, consisting of the individual self-stereotyping and in-group homogeneity components. The third factor represented the centrality component separately (for a full list of items and factor loadings, see the Supporting Information or on the OSF repository). The items formed a reliable three-dimensional scale comprising self-investment (α = .92), self-definition (α = .88), and centrality (α = .87).

2.3.3 | Mediator and moderator variable

Perceived social pressure to conform to cyber aggression in WhatsApp groups

To measure perceived social pressure to conform to cyber aggression in WhatsApp groups, we used the three pressure-specific items from Santor et al.'s (2000) 5-item antisocial peer pressure scale. The items were adapted to apply to the four types of cyber aggression. The items were assessed four times, once for each type of cyber aggression. An example item is 'I have felt pressured by [WhatsApp group] to forward a picture on WhatsApp

of someone that I know without their permission'. Response categories ranged from 1 (*completely disagree*) to 6 (*completely agree*), again with an added response category (*not applicable*). For each item, approximately one-fifth (22.1%–23.8%) of participants indicated that the respective behavior was not applicable to their WhatsApp group. The twelve items formed a unidimensional scale with very good reliability ($\alpha = .97$) that explained 73.6% of the variance.

Susceptibility to peer pressure

To measure susceptibility to peer pressure, we used Santor et al.'s (2000) 6-item peer pressure scale. An example item is 'My friends can push me into doing just about anything'. Response categories ranged from 1 (*completely disagree*) to 6 (*completely agree*). The six items formed a unidimensional scale with good reliability ($\alpha = .81$) that explained 51.1% of the variance.

2.3.4 | Control variables and descriptive variables

Control variables

Several measures were included in the survey as control variables. Participants' sex (0[*male*], 1[*female*]), age, and educational level were assessed. Moreover, participants answered questions about how many days per week and hours per day they used social media and WhatsApp, how many WhatsApp groups they were a member of, their WhatsApp group size, relative age of group members (1[*much younger than me*]–5[*much older than me*]), and duration of existence (in days) of their WhatsApp group.

Descriptive variables

Several additional measures were included in the survey as descriptive variables. Participants were asked what their favorite social media platform was, how often they used different platforms (on a scale from 1[*never*]–6[*always*]), the type of group members in their WhatsApp group (e.g., friends, schoolmates, family, friends from sports and hobbies, or any combination of these) and the sex of these group members (just boys, just girls, or both boys and girls).

2.4 | Overview of analyses

Data were analyzed in SPSS (Version 25.0). Firstly, preparatory analyses were performed. Descriptive statistics were computed to describe the participant sample. Zero-order correlations were computed to obtain an overview of the inter-relations between the variables. Because conformity to cyber aggression was positively skewed, Spearman's rank-order correlations were computed. All control variables were included as covariates in the analyses.

To test the first two hypotheses, hierarchical multiple regression analyses were performed with bootstrapping based on the bias corrected and accelerated confidence intervals (BCa CI's; based on 1,000 samples). Prior to interpreting the models, the assumptions for multiple regression were checked by examining the P-P plots, scatterplots, correlations between outcome variables, and VIF-values. Two separate hierarchical regression models were run with the three factors of social identification as predictor variables, and general WhatsApp group conformity and conformity to cyber aggression as outcome variables. Each model was run in two steps: Firstly, we ran the model with only the covariates included, and then, with the predictor variables added to the model.

To test the third hypothesis, mediation models were run using PROCESS (Hayes, 2017; model 4). We looked at the significance of the indirect effects to determine whether mediation occurred. Paths were considered

significant if the 95% BCa CI's did not straddle zero. Separate models were run with perceived social pressure to conform as the mediator.

To test the fourth hypothesis, moderated mediation analyses were run using PROCESS (Hayes, 2017; model 58), which tested whether the magnitude of the direct and indirect effects changed at different values of the moderator. Again, bootstrapping with 95% BCa CI's was used. Separate models were run with susceptibility to peer pressure added as moderator. Model 58 postulates moderation of both paths of the indirect effect. Inference about moderated mediation focuses first on testing whether the indirect effect is moderated. This is indicated by a significant moderation of either path a or path b, or both. Then, the conditional indirect effects at different levels of the moderator are compared. Following Hayes (2017), the 16th, 50th, and 84th percentiles of the distribution of the moderator were used to probe the interaction. The conditional indirect effects were considered significantly different if the BCa CI's of their differences did not include zero.

3 | RESULTS

3.1 | Preparatory analyses

Descriptive statistics showed that most participants (26.0%) indicated that YouTube was their favorite social media platform, followed by WhatsApp, Snapchat, and Instagram (24.9%, 23.6%, and 23.5% of participants, respectively). WhatsApp was used most frequently (M = 5.15, SD = 0.98), followed by YouTube (M = 4.71, SD = 1.22), Instagram (M = 4.34, SD = 1.62), and Snapchat (M = 4.18, SD = 1.81). WhatsApp groups ($M_{group\ size}$ = 18.14, $SD_{group\ size}$ = 15.39) consisted of both boys and girls (60.9%), just girls (21.0%), or just boys (18.1%), and consisted mostly of schoolmates (31.7%), friends (26.7%), friends and schoolmates (19.0%), friends from sports and hobbies (9.0%), or a mixture of these (13.6%).

The correlation matrix (see Table 2) provided three insights. Firstly, conformity to cyber aggression correlated positively with general group conformity. Secondly, the three dimensions of social identification correlated positively. Thirdly, several control variables correlated with the outcome variables. Sex of participant correlated positively with general group conformity, indicating that girls showed more general group conformity than boys. WhatsApp use (hours per day) also correlated positively with general group conformity. Age, social media use (days per week and hours per day), WhatsApp use (days per week and hours per day), and number of WhatsApp groups correlated positively with conformity to cyber aggression. Number of group members and relative age of WhatsApp group members correlated negatively with conformity to cyber aggression.

3.2 | Hypothesis testing

All required assumptions for multiple regression analysis were met (information about the assumption checks available on the OSF repository). We, therefore, proceeded with the multiple regression models. The first hypothesis posed that social identification with WhatsApp group members would be positively associated with general group conformity. The model that only included the covariates significantly predicted general group conformity, $F(11,634)$ = 1.99, p = .028, and explained 3.3% of the variance. The model showed a significant positive association between age of participant and general group conformity, b = 0.08, 95% BCa CI [0.01, 0.14], and between relative age of WhatsApp group members and general group conformity, b = 0.18, 95% BCa CI [0.04, 0.31]. After adding the predictor variables, the full model significantly predicted general group conformity, $F(14,631)$ = 6.44, p < .001, and explained 12.5% of the variance. The results indicated that the predictor variables had additional value in explaining general group conformity (ΔR^2 = 9.2%, p < .001). The full model showed significant positive associations between self-investment, b = 0.11, 95% BCa CI [0.04, 0.18] and general group conformity, and centrality,

TABLE 2 Spearman's rank-order correlations among outcome variables, predictor variables and control variables (N = 552–647)

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. GGC	1																	
2. CCA	.22***	1																
3. SI	.28***	-.03	1															
4. SD	.23***	-.02	.62***	1														
5. CENT	.28***	.17***	.43***	.28***	1													
6. PSP	.21***	.70***	-.02	-.006	.23***	1												
7. SSP	.34***	.38***	.03	<.001	.25***	.38***	1											
8. Sex	.09*	-.06	.21***	.12**	.10*	-.09*	-.05	1										
9. Age	.08	.18***	.03	.05	.16***	.16***	.07	.003	1									
10. EL	.03	-.03	-.02	.10*	-.26***	-.13**	-.04	-.05	-.50***	1								
11. SMD	.04	.10*	.12**	.06	.08	.04	.06	.16***	.12**	-.09**	1							
12. SMH	.06	.13**	.06	-.02	.19***	.06	.08	.25***	.30***	-.43***	.29***	1						
13. WD	.03	.10*	.09*	.05	.12**	.05	.05	.12**	.002	-.01	.51***	.15**	1					
14. WH	.10*	.11*	.09*	-.03	.20***	.10*	.11*	.23***	.18***	-.41***	.19***	.63***	.25***	1				
15. NWG	.03	.10*	.12**	.09*	.10*	.05	.05	.18***	.01	.05	.20***	.18***	.19***	.13**	1			
16. NGM	-.06	-.08*	-.20***	-.26***	-.10*	-.06	-.02	-.08	-.14*	.15***	-.009	-.08	-.03	-.07	-.008	1		
17. AGM	.05	-.11**	.07	.11*	.03	-.07	-.07	-.06	-.07	.02	.05	-.04	.05	-.01	.07	.03	1	
18. DGE	.04	.02	.003	-.04	.05	.03	-.04	.06	.05	-.03	.07	.05	.03	.01	.01	.19***	.02	1

Abbreviations: AGM, age of group members; CCA, conformity to cyber aggression; CENT, centrality; DGE, duration of group existence; EL, educational level; GGC, general WhatsApp group conformity; NGM, number of group members; NWG, number of WhatsApp groups; PSP, perceived social pressure; SI, self-Investment; SD, self-definition; SMD, social media use: days per week; SMH, social media use: hours per day; SSP, susceptibility to peer pressure; WD, WhatsApp use: days per week; WH, WhatsApp use: hours per day.

*p < .05; **p < .01; ***p < .001.

$b = 0.09$, 95% BCa CI [0.04, 0.14] and general group conformity, but not between self-definition, $b = 0.04$, 95% BCa CI [−0.02, 0.10] and general group conformity (for the tables showing the results of the regression models, see the Supporting Information). Thus, the first hypothesis was supported for the self-investment and centrality components of social identification.

The second hypothesis stated that social identification with WhatsApp group members would be positively associated with conformity to cyber aggression. The model that only included the covariates significantly predicted conformity to cyber aggression, $F_{(11,572)} = 3.17$, $p < .001$, and explained 5.7% of the variance. The model showed a significant positive association between age of participant and conformity to cyber aggression, $b = 0.13$, 95% BCa CI [0.05, 0.22], and a negative association between relative age of WhatsApp group members and conformity to cyber aggression, $b = −0.18$, 95% BCa CI [−0.31, −0.05]. After adding the predictor variables, the full model significantly predicted conformity to cyber aggression, $F_{(14,569)} = 2.99$, $p < .001$, and explained 6.9% of the variance. However, the full model did not explain significantly more variance than the model that only included the covariates ($\Delta R^2 = 1.2\%$, $p = .078$). The results, therefore, indicated that the predictor variables had no additional value in explaining conformity to cyber aggression. When looking at the unique contribution of the predictors, there seemed to be a small, positive association between centrality and conformity to cyber aggression, $b = 0.07$, 95% BCa CI [0.02, 0.13], suggesting that centrality might play a very small role in predicting conformity to cyber aggression. Nonetheless, the second hypothesis was not convincingly supported.

The third hypothesis posed that social identification with WhatsApp group members would increase perceived social pressure to conform, in turn, increasing conformity to cyber aggression. There was a significant negative association between sex of participant and conformity to cyber aggression, $b = −0.20$, 95% BCa CI [−0.33, −0.08], and relative age of WhatsApp group members and conformity to cyber aggression, $b = −0.17$, 95% BCa CI [−0.30, −0.03], and a significant positive association between age of participant and conformity to cyber aggression, $b = 0.10$, 95% BCa CI [0.03,0.16]. After controlling for these, the mediation analyses yielded a significant, fully mediated indirect effect of centrality on conformity to cyber aggression through perceived social pressure, $b = 0.09$, 95% BCa CI [0.04, 0.14] However, the analyses yielded no significant indirect effects of self-investment on conformity to cyber aggression, $b = −0.01$, 95% BCa CI [−0.04, 0.05], or of self-definition on conformity to cyber aggression, $b = −0.002$, 95% BCa CI [−0.05, 0.04]. Thus, the third hypothesis was supported only for the centrality component of social identification.

The fourth hypothesis stated that (a) the relation between social identification with WhatsApp group members and perceived social pressure would be strengthened among adolescents with higher versus lower levels of susceptibility to peer pressure, and (b) the relation between perceived social pressure and conformity to cyber aggression would be strengthened among adolescents with higher versus lower levels of susceptibility to peer pressure. Again, there was a significant negative association between sex of participant and conformity to cyber aggression, $b = −0.15$, 95% BCa CI [−0.27, −0.03] and between relative age of group members and conformity to cyber aggression, $b = −0.14$, 95%BCa CI [−0.28, −0.01], and a significant positive association between age of participant and conformity to cyber aggression, $b = 0.09$, 95% BCa CI [0.03, 0.16]. After controlling for these, the analyses initially revealed significant interactions for conformity to cyber aggression: For all dimensions of social identification, the path between perceived social pressure to conformity to cyber aggression (path b) appeared to be moderated by individual susceptibility to peer pressure (all b's = −0.08, p's ≤ .001). Upon finding preliminary evidence for moderation of the indirect effect, the differences between the conditional indirect effects were examined. However, all 95% BCa CI's of the differences straddled zero (see Table S6 in the Supporting Information). Therefore, we could not conclude that the effects differed from each other, finding insufficient support for the fourth hypothesis.

4 | DISCUSSION

This study aimed to examine if and how the SI perspective may explain conformity to cyber aggression among early adolescents on WhatsApp. Our findings point towards an indirect, positive relation between the centrality

component of social identification and conformity to cyber aggression, mediated by perceived social pressure. No relations were moderated by individual susceptibility to peer pressure.

4.1 | Social identification and conformity to cyber aggression

In line with our first hypothesis, social identification with WhatsApp group members was positively associated with general group conformity on WhatsApp. This is consistent with prior studies that have examined conformity in CMC-contexts (e.g., Lee, 2006; Postmes et al., 2001). Two dimensions of social identification (self-investment and centrality) significantly predicted general conformity in WhatsApp groups. This finding shows that the group processes core to the SI perspective extend beyond group behavior in offline contexts and earlier CMC-contexts: They also explain group behavior on WhatsApp, where communication is uniquely shaped in small, closely knit, and private groups.

For conformity to cyber aggression, the findings are more intricate. Surprisingly, we found no convincing support for the second hypothesis that social identification with WhatsApp group members would be associated positively with conformity to cyber aggression. Inspection of the unique contribution of the predictors suggested that the centrality component of social identification might be positively related to conformity to cyber aggression. However, because the predictor variables had no additional value in explaining conformity to cyber aggression, this should be carefully examined further before drawing any conclusion. A potential explanation for the different findings for general group conformity and conformity to cyber aggression may lie in the fact that the items measuring general conformity focused on nonspecific behaviors, whereas the items measuring conformity to cyber aggression focused specifically on hostile peer behaviors. This difference could imply that social identification-related conformity tendencies on WhatsApp are, at least partly, determined by the nature of the group behavior.

More specifically, it might be necessary for a WhatsApp group to be highly salient and important for adolescents to go to such lengths as to conform to cyber aggressive behaviors. The lack of convincing support for the relation between social identification with WhatsApp group members and conformity to cyber aggression may suggest that social identification is less well suited to explain hostile peer behaviors than it is to explain nonspecific peer behaviors in messaging apps. Potentially, other variables or processes such as previous cyber aggression involvement (Vanden Abeele et al., 2017) or striving for social status (Mayeux & Cillessen, 2008) are more predictive for conformity to cyber aggression.

In line with our third hypothesis, there was an indirect relation between centrality and conformity to cyber aggression, fully mediated by perceived social pressure. This finding is consistent with prior research that illustrates how perceived social pressure differs across peer groups that are more tangentially versus closely connected (e.g., Brechwald & Prinstein, 2011), and how such pressures subsequently encourage conformity (e.g., Brown, Clasen, et al., 1986). This mediated relation suggests that perceived social pressure is a key factor of social influence in WhatsApp groups.

Finally, we found no support for the fourth hypothesis that susceptibility to peers moderated the magnitude of the indirect effects. This is surprising, given that prior studies have identified susceptibility to peer pressure as an important determinant of the strength of social influence among early adolescents (Steinberg & Monahan, 2007; Sumter et al., 2008). A potential explanation is that susceptibility to peer pressure was relatively low on average, and there was little variance across our sample. We are unsure how to account for this lack in variance, therefore, follow-up research is needed that has access to a more varied sample.

4.2 | Limitations and future research directions

The findings of our study have both theoretical and practical value. However, we want to address three limitations. Firstly, our findings are based on cross-sectional data, which do not allow for the inference of causality as

the relations between variables could be bidirectional. Furthermore, given that all measures were based on self-report, it is conceivable that the relations that we found in our study could partly be attributed to common method variance. This first crucial step we undertook in this line of research warrants further research, particularly in the form of causal research designs such as experiments and longitudinal studies that implement procedural remedies to prevent common method variance such as temporal separation of measurements (Podsakoff et al., 2003).

Secondly, we did not assess early adolescents' perceptions of depersonalization on WhatsApp, nor did we compare these to perceptions in other CMC-settings. This means that we cannot conclude whether WhatsApp is more depersonalizing than other CMC-settings due to specific characteristics of WhatsApp such as behavioral privacy. Comparing WhatsApp to other CMC-settings remains an important area for future research because this could tell us what technical aspects of WhatsApp facilitate conformity.

Thirdly, we did not include a measure for the perceived WhatsApp group norm on cyber aggression, or for early adolescents' experiences with cyber aggression on other CMC platforms or in offline contexts. We would suggests that future research includes these measures to examine (a) how social identification relates to conformity to cyber aggression as a function of the perceived group norm, and (b) whether other experiences with cyber aggression predict involvement in cyber aggression on WhatsApp, as we may expect that these other experiences determine aggression on WhatsApp (Vanden Abeele et al., 2017). Additionally, it is conceivable that early adolescents' need for social status influences conformity to cyber aggression: Striving for status is associated with aggressive or risk taking behavior such as bullying (e.g., Mayeux & Cillessen, 2008; Olthof et al., 2011), therefore, further research on the role of peer status in predicting conformity to cyber aggression is warranted.

These limitations affect the implications of our study in two ways. Firstly, current findings are inconclusive as to whether centrality actually causes conformity to cyber aggression, and secondly, these findings shed light on *how* conformity on WhatsApp works, not *why* adolescents conform or which technical aspects of WhatsApp facilitate conformity.

4.3 | Implications and conclusion

Theoretically, the current findings corroborate and extend existing conformity research by showing that the SI perspective can be applied to group behavior in messaging apps. The findings cautiously suggest that the processes that underlie conformity to hostile peer behaviors might be distinct from those that underlie conformity to nonspecific behaviors, at least in the context of WhatsApp. However, more research is needed to examine whether this is the case. Moreover, the explained variances of the regression models were relatively small. This suggests that other variables might be more predictive for conformity to cyber aggression, calling for further investigation. On a practical level, this study makes an important first step in providing suggestions for the improvement of applied interventions that reduce conformity to cyber aggression. Concretely, a potential intervention strategy could be to alter feelings of social identification in order to mitigate social identification-induced conformity tendencies. However, future research should first further disentangle and test the causal effects of the mechanisms that underlie conformity to group behavior on WhatsApp, because this will allow for the design and implementation of fitting, theory-based behavior change interventions.

In discussing the theoretical and practical implications, it is necessary to also reflect on the relatively low prevalence scores of conformity to cyber aggression. Table 1 shows that the extent of conformity to cyber aggression was quite low overall (an average score of < 2 on a 6-point scale). Nevertheless, up to 80.4% of participants indicated to have conformed to some form of cyber aggression—albeit to a small extent. Cyber aggression, thus, occurred in the majority of WhatsApp groups. This is worrisome, because even a single act of cyber aggression could have lasting harmful effects on its victims (Runions et al., 2016). In addition, the current study only focused on conformity as a response to cyber aggression and did not take into account alternative

responses, such as remaining a passive bystander (Pöyhönen et al., 2012). Not acting on cyber aggression may also be harmful, because it could contribute to a negative norm on cyber aggression in a given WhatsApp group. Future research should, therefore, pay more attention to these different potential responses to cyber aggression on WhatsApp. Taking these into account could increase the theoretical and practical implications of the current research line.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available on the Open Science Framework (OSF) at https://bit.ly/2WjqaRB.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

Supplementary Material