

Changes in social safety, feelings of competence, and depressive feelings of primary school children who have participated in the intervention program Rock and Water: A comparison study

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| NOTE: This is a literal translation of the article that is published in the Belgian journal: Tijdschrift Klinische Psychologie [Journal of Clinical Psychology], 2019, 49(1), 38-57.

The translation is done by the first author. |

ABSTRACT

The aim of the study was to examine changes in social safety (bullying and being bullied), feelings of competence (self-regulation, global self-esteem, and social acceptance effectiveness), and depressive feelings when using the intervention program Rock & Water (R&W). Gender differences in development were also examined. A total of 1203 primary school children between 7-14 years old ($M = 10.08$; $SD = .97$; 48,6% girls) participated in the study, coming from 17 schools that were randomly assigned to the intervention group (11) or the control group (6), and filled out questionnaires before and after the intervention. When the pre- and post measurements were compared separately for the intervention group and control group, children in the intervention group reported a decline in two forms of bullying, a decline in almost all forms of being bullied, reported higher levels of self-regulation, global self-esteem and social acceptance, and a decline in depressive feelings. In the control group only two changes were found. When differences between the intervention group and the control group in changes over time were examined, they proved to differ in two forms of bullying (being physically bullied, bullying 'other'), in self-regulation and global self-esteem, and in depressive feelings. The children who have participated in R&W reported stronger improvements than the children in the control group. No gender differences were found in changes over time between the different groups, and also not within the intervention group. It seems important to distinguish different forms of bullying and being bullied. Results do not give reason for a gender specific approach of R&W. Implications for future studies and clinical practice are discussed.

Keywords: intervention study, Rock & Water, bullying, primary school, repeated measures ancova

Introduction

Bullying is a serious public health concern and constitutes a serious risk for the social and emotional adjustment, as well as academic achievement (e.g., Hong & Espelage, 2012). It is estimated that about 30% of all school children are involved in bullying, either as perpetrators or victims or both (Evans, Fraser, & Cotter, 2014; Salmivalli, 2010). In the Netherlands national estimates indicate that about 20% of the children in primary school report bullying others (Van de Gaag & Duiven, 2013) and about 10% report being victimized by others (Scholte, Nelen, De Wit, & Ananiadou, 2016).

In the last decades, multiple school-based anti-bullying programs have been developed to target bullying. Recent reviews and meta-analyses of these anti-bullying interventions show mixed findings. Some reviews conclude that the examined intervention studies showed minimal or even negative effects (Ferguson, San Miguel, Kilburn, & Sanchez, 2007; Merrell, Gueldner, Ross, & Isava, 2008; Smith, Schneider, Smith, & Ananiadou, 2004). Other reviews, on the other hand, showed modest positive effects (Ttofi & Farrington, 2011; Ttofi, Farrington, & Baldry, 2008). These contrasting results might be explained by the use of different definitions and operationalizations of bullying (Evans et al., 2014). To increase our understanding on the effectiveness of anti-bullying programs it seems paramount to differentiate in forms of bullying. Bullying is a complex, multidimensional, and dynamic social behavior (Olweus, 1993) and can take different forms (Gladden, Vivolo-Kantor, Hamburger, & Lumpkin, 2014). A first form is physical bullying in which children use physical force such as hitting or kicking. Verbal bullying is a second form and represents oral expressions such as teasing, name calling, or ridiculing someone. A third form is relational bullying which is focused on social exclusion or injuring the reputation of another person. A fourth form is damage to property in which, for example, possessions or properties of victims are stolen or damaged. Finally, a fifth form is cyberbullying where electronic communication is used to send intimidating messages to victims or to post mean messages on the Internet.

Many studies fail to differentiate different forms of bullying. For a more comprehensive understanding of the effectiveness of school-based anti-bullying interventions it seems important to differentiate between physical, verbal, and relational bullying, as well as property damage and cyber bullying. It is hereby also important to include levels of victimization on all these measures because reductions in bullying should coincide with decreases in feelings of victimization. The present study therefore aimed to examine the development of multiple forms of bullying and victimization when a school-based intervention is deployed.

Most anti-bullying school-based interventions use a cognitive approach and frequently use verbal interactions. As such, not all children might benefit from these interventions. Especially the children in primary schools, who are still cognitively maturing but who are also still playful and in need of physical stimulation, might profit less from such interventions. In addition, it is shown that children become more motivated for learning when they actually experience what they need to learn (Van de Laarschot & Heusdens, 2012). Thus, an intervention that uses mainly physical exercises instead of a mere verbal cognitive approach, might be more effective in reducing bullying in primary school children.

Rock and Water

Rock and Water (R&W; Ykema, 2014) is an intervention that is developed in the Netherlands which aims to increase the psychosocial wellbeing of children, thereby aiming to reduce bullying and subsequently improving feelings of social safety of children. The focus of R&W is on increasing resilience (the so-called Rock element) and the development and improvement of social and communication skills (the so-called Water element). Safety, respect, and integrity on a personal and social level are important elements in the training. The intention is to create a safe and bully-free school climate.

In contrast to a verbal cognitive approach that many interventions use, R&W applies a psychophysical approach. Physical communication is an important theme. By using play and exercises, children learn to make physical contact and to respect and to set own and others' boundaries. Children develop behavioral alternatives and learn to make well-considered choices between the so-called Rock-actions and Water-actions. Children playfully learn to stand strong and calm (grounded and centered) making them better able to choose between a tough Rock-action and a bonding Water-action. One of the exercises, for example, is Chinese Boxing where children try to tap each other out of balance by using open palms of their hands ('Rock-action'). It is, however, also allowed to withdraw their hands ('Water-action'). Children experience that both Rock and Water actions can yield points but the chances of losing their physical and mental balance are greater when using a Rock-action. The centered and grounded basic posture can also be used in conversations. A Rock attitude in a conversation will sooner lead to conflicts and loss of the psychophysical balance, whereas a Water attitude will lead to more understanding and connection. When a Rock attitude is necessary, for example when children must set their own boundary, children also learn to remain more calm in these situations. The Rock and Water

principle can also be translated to friendships and relations. Later on it gets more nuanced; sometimes more Rock is needed, sometimes more Water.

R&W is used worldwide. It of origin Dutch product has developed into an international program. Since 1999, over 60,000 participants have followed the basic training in 15 countries, among which the Netherlands (30,000 trainers and over 2000 schools), Belgium, Australia, New Zealand, and China. Despite this broad implementation, there is only limited information available on the effectiveness of R&W. Results of a number of small-scale studies (qualitative or pre-post-test evaluation studies often without using a control group) on the effectiveness of R&W showed that participants feel more resilient, experience a more positive identity and use more active than passive coping styles when confronted with difficult situations after the R&W training (Ykema, Hartman, & Imms, 2006). A recent study on the effect of R&W on the prevention of sexual aggression (De Graaf, De Haas, Zaagsma, & Wijssen, 2015), in which use is made of a longitudinal quasi-experimental design with quantitative data, demonstrated a decrease of boys' self-reported coercive strategies and verbal manipulation. At follow-up, boys reported improvement in self-regulation and general own efficacy. Not much is known about possible changes in bullying after having participated in R&W. The present study therefore focused on different types of bullying and victimization.

Two important concepts that are fundamental to the R&W program were also examined: self-regulation and self-esteem. The program intends to make children more aware of their own body (body awareness) and the accompanying emotions (emotional awareness) and, in consequence, how to regulate these better. In this way, children in stressful situations might be better able to control their emotions and possibly improve their decision-making. This can positively influence the development of self-esteem. The exercises aim to contribute to the development of respect, caring, and solidarity, which can contribute to increasing levels of social cohesion (Ykema, 2002). The present study aimed to examine whether levels of self-regulation, global self-esteem, and self-esteem regarding social acceptance increase after having participated in the R&W program.

In addition, it was examined - as measure of well-being - whether children report improvements in depressive feelings after having participated in R&W. Other Dutch school-based anti-bullying programs showed beneficial effects for depressive feelings (Orobio de Castro et al., 2012). In the present study, depressive feelings were regarded as a secondary outcome since diminishing depressive feelings is not the main focus of the program. It is possible that changes in

bullying/victimization and changes in self-regulation and self-esteem contribute to the well-being of children.

Gender differences

It is important to examine whether boys and girls show a comparable development at the end of the R&W program or whether a gender specific program must be offered. There are indications that intervention effects on bullying and victimization might be different for boys and girls. Intervention effects on victimization have sometimes been larger for boys (Eslea & Smith, 1998; Olweus, 2004), whereas girls report a larger reduction in bullying (Olweus, 2004). Because bullying seems to have different social functions for boys and girls, findings might differ for the different forms of bullying. Boys, for example, strive for social dominance and social status, whereas girls focus on achieving close relationships through destroying such relations in others (Caravita & Cillessen, 2012; Espelage, Mebane, & Swearer, 2004). This suggests that intervention effects might show a larger decrease in physical bullying for boys and a larger decrease in relational bullying for girls.

In addition to gender differences in intervention effects on bullying and victimization, boys and girls might also differ in intervention effects on levels of self-regulation and self-esteem. Research demonstrates consistent gender differences in levels of self-regulation favouring girls over boys (Else-Quest, Hyde, Goldsmith, & Van Hulle, 2006; Matthews, Ponitz, & Morrison, 2009), while boys tend to have higher levels of self-esteem than girls (Huang, 2010; Kling, Hyde, Showers, & Buswell, 1999; Orth & Robins, 2014). It was therefore expected that boys would show a larger increase in self-regulation across time whereas girls would show a larger increase in self-esteem after having participated in the R&W program.

Regarding depressive feelings no gender differences were expected. Although girls, in general, report more depressive symptoms than boys (e.g., Ge et al., 2001; Hankin, 2019), research showed that this is particularly present during adolescence (e.g., Angold et al., 2002; Cole et al., 2002).

To summarize, the present study examined whether differences forms of bullying and victimization of primary school children decreased after the R&W program. Furthermore, it was also examined whether levels of self-regulation and self-esteem (global self-esteem and social acceptance) increased and whether depressive feeling decreased. Finally, it was examined whether there were gender differences in changes over time. It was expected that differences

would be found for physical and relational bullying and victimization, as well as for self-regulation and self-esteem.

Method

Procedure

Recruitment and design

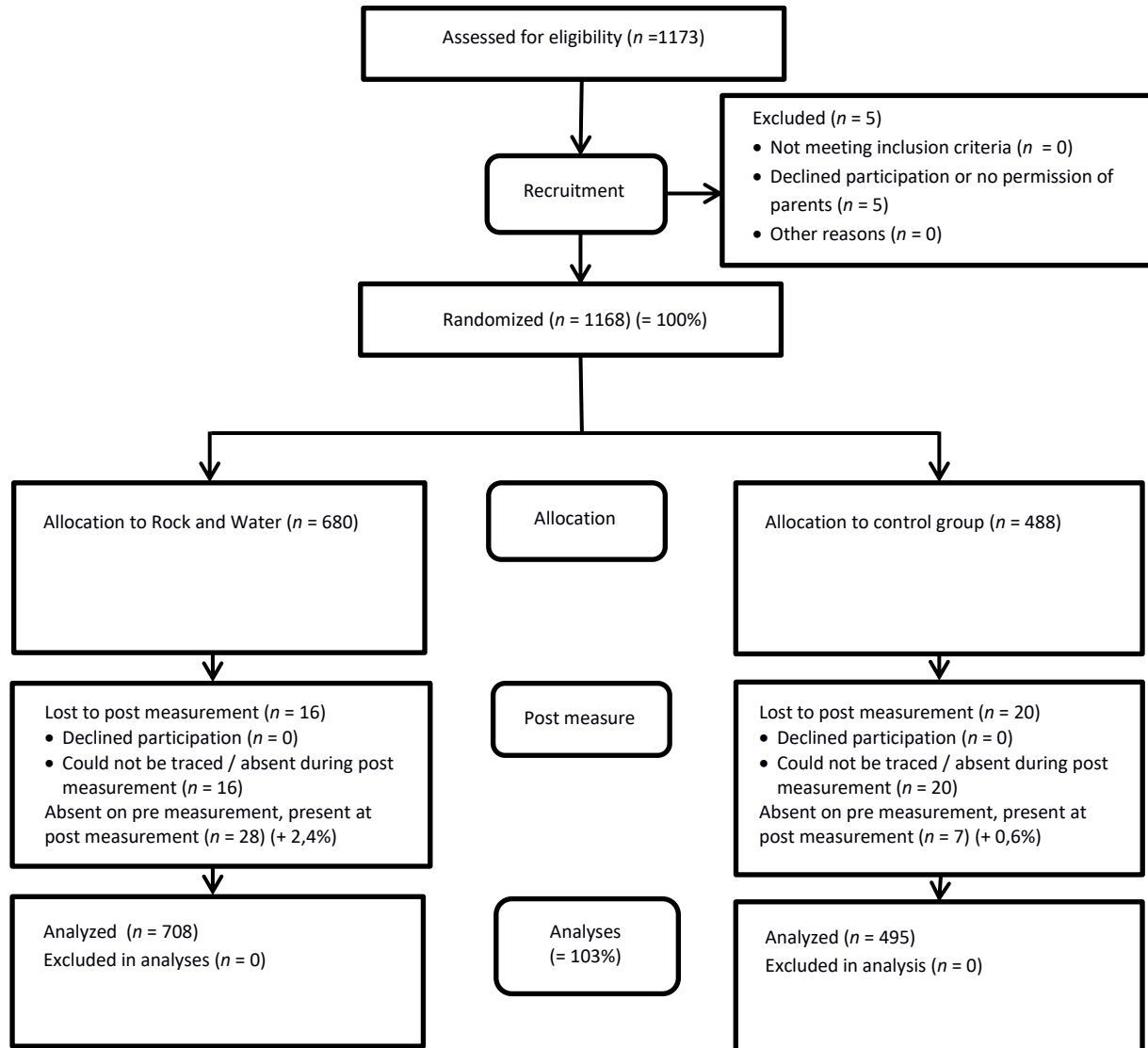
Regular primary schools (no special education schools) that did not already use R&W were eligible for participation. They were recruited through the network of the Gadaku Institute (the Rock and Water Institute in the Netherlands). Also, schools that applied for a grant at the Dutch National Institute for Public Health and the Environment (RIVM) to participate in a R&W training and did not receive the grant due to a surplus of applications, were approached by the Gadaku Institute and asked whether they would like to participate in the study. Participating schools (the schools in the control group after the study, all but one school made use of that) received a 50% discount on the training of teachers as well as free student exercise books, posters, R&W key rings (with stress ball) for all children and certificates for the children that followed the program. A total of 17 schools participated, located in different areas in the Netherlands, with a range of 31 to 150 children who participated per school.

Schools were randomly assigned to the intervention group or control group, by an independent notary, with a two-third chance to be assigned to the intervention group. Eleven schools were assigned to the intervention group and six schools were assigned to the control group. All parents of the children that were eligible for participation (Grades 4, 5, or 6¹) received a letter with information about the study and were given the opportunity to decline participation of their child. Less than 1% of the children ($n = 5$) had their participation withheld by their parents. The children could also decline participation at all times (no one refused to participate).

Paper and pencil questionnaires were administered to the children prior to the deliverance of the program (pre-intervention [October 2015], Time 1) and after the program was ended (post-intervention [March 2016], Time 2). The children completed the questionnaires in approximately 40 minutes, during regular school hours, under supervision of trained research assistants. All children received an incentive (key ring with stress ball) after participating in the

study. Some children were absent at T1 ($n = 35$) but did complete the questionnaire at T2; 36 children completed the questionnaire at T1 but not at T2 (Figure 1).

Figure 1. Flow chart



Training and program

The R&W program was implemented by trained teachers. The teachers received training from the Gadaku Institute two months (September 2015) before the program started. The training consisted of a continuous three-day training and one additional day including some retraining and more information about the study. During the implementation of the R&W program a coach from the Gadaku Institute was available for supervision. The R&W manual was used intensively

to guide classroom sessions. In total, the program consisted of 13 weekly classroom sessions (45 minutes per session) delivered between November 2015 and March 2016.

Participants

The total sample consisted of 1203 children between 7 and 14 years old (only one child was 13 years old and one child was 14 years old; $M = 10.08$; $SD = 0.97$), 585 girls (48,6%). The children were evenly distributed across Grades (Grade 4 31,5%; Grade 5 35,2%; Grade 6 33,3%). Table 1 shows characteristics of the sample, separately for intervention and control group. Because the number of non-Western children was higher in the control group, this was controlled for in the analyses. Gender is a moderator in the analyses.

Table 1. Characteristics of children at T1.

	Intervention group	Control group		
	n = 708	n = 495	χ^2 ^a	p
Gender (% girls)	327 (46)	258 (52)	4,107	.043
Age (SD)	10,04 (0,94)	10,14 (1,0)	-1,751	.080
Parents divorced (%)	127 (18)	74 (15)	2,213	.128
Birth region non-Western (%)	14 (2)	26 (5)	9,127	.003
Grade 4 (%)	227 (32)	152 (31)	0,271	.873
Grade 5 (%)	248 (35)	175 (35)		
Grade 6 (%)	233 (33)	168 (34)		

Note. ^a Difference in age is tested with an independent T-test.

Instruments

Bullying and victimization

To measure the different forms of bullying, the frequency with which children bullied other children at school was measured first. This was measured with one item from the Bullying and Victimization questionnaire (Olweus, 1996): 'Since the beginning of this school year how many times did you bully children from your school?' (at T2 'Since the Christmas holiday'). The item was rated on a 5-point scale (1 = *I did not bully* and 5 = *I bullied several times a week*). When children indicated that they bullied (answers 2-5) they were asked to complete 8 questions

about the form and frequency of bullying. The five forms of bullying were measured with 7 items: Verbal ('I bullied by calling others names, making fun of them, or laughed at someone'), Physical ('I bullied by kicking others, pushing them, hitting them or spitting on them'), Relational (measured with three items, e.g., 'I bullied by not letting others join in something, ignored them, or gossiped about them'), Damage to property ('I bullied by taking money or other things from others or destroyed things'), and Cyber ('I bullied on the Internet or the phone, by placing unpleasant messages or pictures'). Finally, a category 'Other' was formed on the basis of an eighth item of the questionnaire ('I bullied otherwise'). Ratings ranged from 1 (*not at all*) to 5 (*several times a week*). The reliability of Relational T1/T2 was .53/.60.

To measure the different forms of victimization, the same questions were used as for bullying but reformulated to apply to victimization instead of bullying. First, it was asked how frequently they were victimized and when they reported to be victimized (answer 2-5), they were consequently asked to complete 8 questions about the form and frequency of victimization, as described above (e.g., Verbal: 'I was victimized by being calling names, was making fun of, or was laughed at'). The reliability of Relational T1/T2 was .74/.76.

Self-regulation

To measure self-regulation the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004; Neumann, Van Lier, Gratz, & Koot, 2010;) was used, consisting of 15 items (e.g., 'When I am upset I have no control over my behavior'). Ratings ranged from 1 (*almost never*) to 5 (*almost always*). Scores were recoded so that a high score indicated a high level of self-regulation. The reliability was .89 at T1 and .91 at T2.

Global self-esteem

To measure feelings of global self-esteem, the global self-esteem scale of the Self-Perception Profile for Children (PCSC; Harter, 1985; Straathof, Treffers, Van den Bergh, & Ten Brink, 2004) was used, consisting of 6 items (e.g., 'I am satisfied with myself') that were rated on a 5-point scale (1 = *not at all true* and 5 = *completely true*). A high score indicated higher levels of perceived global self-esteem. The reliability was .82 at T1 and .84 at T2.

Social acceptance

To measure levels of experienced social acceptance, the social acceptance scale of Harter's Self-Perception Profile for Children (PCSC; Harter, 1985; Veerman et al., 2004) was used, consisting of 6 items (e.g., 'I have many friends') that were rated on a 5-point scale (1 = *not at all true* and 5

= *completely true*). A high score indicated higher levels of perceived social acceptance. The reliability was .72 at T1 and .76 at T2.

Depressive feelings

To measure the level of experienced depressive feelings, the Major Depression Disorder Scale (Chorpita, Yim, Moffitt, Umemoto, & Francis, 2000) was used, consisting of 9 items (e.g., 'I feel that I am worth nothing'), that was rated on a 4-point scale (1 = *never* and 4 = *always*). A high score indicated higher levels of depressive feelings. The reliability was .73 at T1 and .75 at T2.

Plan of analyses

IBM SPSS Statistics, version 24, was used for all analyses. First, paired T-tests were performed to examine differences between pre and post measures of bullying, victimization, self-regulation, global self-esteem, social acceptance, and depressive feelings, separately for the intervention group and the control group. In addition, it was examined whether changes over time differed between the intervention group and the control group. For this purpose, repeated measures ANCOVAs were performed with Time (T1 and T2) as within variable and condition (intervention and control) as between variable, controlled for ethnic background and gender as factor (moderator: time*condition*gender). Finally, to examine whether boys and girls differed in growth over time when they have participated in the R&W training (thus within the intervention group), repeated measures ANCOVAs were performed with Time (T1 and T2) as within variable and gender as between variable.

Results

The percentage of missing values in the dataset was less than 4%. Little's Missing Completely At Random test proved significant ($\chi^2 = 89435.326$, $df = 81828$, $p = .000$), indicating that missing data were not completely at random. The multiple imputation method in SPSS was therefore used to impute the missing values. Multiple imputation gives more correct results than listwise deletion even though the missing values are not completely at random (Schafer & Graham, 2002).

Table 2 Paired T-tests for intervention and control group and group comparisons in mean changes over time.

Variable	Intervention group (n = 708)		Control group (n = 495)		F	D		
	M	t	T1	T2			M	t
Bullying								
Verbal	1,08	1,07	1,127	1,08	1,05	1,542	0,096	0,02
Physical	1,04	1,02	1,626	1,06	1,03	1,514	0,354	0,04
Relational	1,05	1,03	3,424**	1,04	1,03	1,004	1,297	0,06
Damage to property	1,01	1,01	-0,145	1,01	1,01	-0,240	0,015	0,01
Cyber	1,01	1,01	0,875	1,03	1,02	0,710	0,134	0,02
Other	1,09	1,05	3,127**	1,05	1,06	-0,256	5,229*	0,13
Victimization								
Verbal	1,43	1,25	4,746***	1,34	1,25	1,859	2,279	0,09
Physical	1,21	1,10	4,284***	1,14	1,12	0,612	5,452*	0,14
Relational	1,25	1,16	4,559***	1,21	1,18	1,265	2,947	0,10
Damage to property	1,08	1,04	2,718**	1,07	1,06	0,296	1,759	0,08
Cyber	1,06	1,06	0,135	1,05	1,06	-0,104	0,172	0,02
Other	1,34	1,18	4,415***	1,30	1,16	3,338**	0,464	0,04
Self-regulation	3,73	3,91	-5,220***	3,82	3,80	0,518	11,661**	0,20
Global self-esteem	4,16	4,29	-3,914***	4,20	4,20	0,141	5,467*	0,14
Social acceptance	3,83	4,00	-5,722***	3,83	3,95	-4,145***	1,201	0,06
Depressive feelings	1,60	1,54	3,716***	1,59	1,57	1,152	4,598*	0,13

Note. * $p < 0,05$; ** $p < 0,01$; *** $p < 0,001$.

The results of the paired T-tests, separately for intervention and control group, are to be found in Table 2. In general, more differences were found between T1 and T2 for the intervention group compared to the control group. Regarding bullying, the intervention group reported less relational bullying and bullying in the category 'other' also declined over time. For the control group no differences were found between pre and post measures for the different forms of bullying. For victimization, the intervention group showed a decline in all forms, except for cyber victimization. The control group only showed a decline in the category 'other'. Finally, the intervention group reported an increase in levels of self-regulation, global self-esteem, and social acceptance, and a decline in levels of depressive feelings. The control group only reported an increase in social acceptance.

These results seem to suggest that the intervention group might partly benefit from the R&W program. With repeated measures ANCOVAs is subsequently examined whether differences in perceptions between intervention group and control group were significant (see Table 2).

Regarding the perception of bullying, the only difference that was found between the intervention group and the control group was for the category 'other'. The intervention group reported a decline, whereas the control group did not report a change over time. For victimization, a difference was found between the intervention group and the control group for physical victimization; The intervention group reported a stronger decline than the control group. For the other forms of victimization no differences were found between the two groups. Finally, differences were found between the intervention group and the control group in levels of self-regulation, global self-esteem, and depressive feelings. For all three variables the intervention group reported changes over time (an increase in self-regulation and global self-esteem, and a decrease in depressive feelings), whereas the control group did not report changes over time. The increase in social acceptance was approximately equally strong and the groups did not differ.

Gender differences

For the total group no moderator effects were found for gender. For none of the outcomes boys and girls did not differ in levels of change over time between the different conditions (intervention/control). When differences in growth were examined between boys and girls within the intervention group, no gender differences were found in changes over time for the different forms of bullying and victimization, contrary to expectations. Also for self-regulation,

global self-esteem, social acceptance, and depressive feelings, no differences were found between boys and girls in the reported changes after having participated in the R&W program. These findings suggest that the R&W program has similar effects for boys and girls.

Discussion

The present study examined whether levels of different forms of bullying and victimization of primary school children decreased, whether levels of self-regulation, global self-esteem, and social acceptance increased, and whether depressive feelings decreased after having participated in the R&W program. When comparing mean pre and post scores separately for the intervention group and the control group, children in the intervention group reported a decrease in two forms of bullying, a decrease in all but one form of victimization, reported higher levels of self-regulation, global self-esteem, and social acceptance, and lower levels of depressive feelings. In the control group only two changes were found. It seems that more profit is to be gained for the different forms of victimization compared to the different forms of bullying. This is in contrast to results from a meta-analytic review that showed that school-based intervention programs have similar effects for bullying and victimization (Ttofi & Farrington, 2011). Perhaps the psychophysical approach of R&W and the focus on the enlargement of the strength of the child and physical conscience causes more changes in the perception of victims of bullying. This corresponds to findings of Ykema et al. (2006) in which children felt more resilient, experienced a more positive identity, and used more active than passive coping styles when confronted with difficult situations after having participated in R&W. In previous research (e.g., Farrington & Ttofi, 2009) different intervention components were distinguished that related to the success of the program on bullying and victimization, including whole-school approach, parent involvement, training of teachers, etcetera. It is, however, unclear whether variation in program-*approach* (e.g., verbal cognitive, psychophysical, or more creative approaches by means of videogames or buddy-mentors) is meaningful for the effectiveness on bullying and victimization. This might be an interesting aspect for future meta-analyses and reviews on bullying.

When examining differences between the intervention group and control group in changes over time, it was found that the two groups differ on two forms of bullying (bullying 'other', physical bullying). Children who have participated in the R&W program reported stronger improvements than children in the control condition. This seems to indicate that, for these forms of bullying, R&W is meaningful. This is consistent with results of multiple reviews

showing effectiveness of school-based anti-bullying programs in reducing bullying and victimization (e.g., Ttofi & Farrington, 2011).

Because bullying can take different forms (Evans et al., 2014; Gladden et al., 2014), the present study distinguished several forms of bullying and victimization and results show that it is important to make this distinction. Besides differentiating these specific forms, there might be other forms of bullying and victimization or more subtle forms of bullying and victimization that are not covered with these forms. In the present study improvements were found for the category 'other' after having participated in R&W. There is no information, however, about the form of bullying that is applied. Future studies might give more attention to different forms of bullying of children to be able to make a better distinction in forms of bullying and victimization and also the possible different effects that intervention programs might have on these.

The larger decline in the perception of physical victimization in the intervention group compared to the control group is well imaginable considering the physical nature of the R&W program. Physical communication, making physical contact, respecting own and other's boundaries, learning to stand up for oneself and experiencing self-control, can lead to making use of alternative solution strategies and attitudes, which, in consequence, might make physical victimization less likely.

The perception of two important building stones of the R&W program, self-regulation and global self-esteem, improved over time for the intervention group but did not change for the control group. This is consistent with research on sexual aggression of boys (De Graaf et al., 2015), in which also improvements of self-regulation were found after having participated in R&W. These findings support the theoretical assumption that R&W contributes to the recognition/acknowledgment of boundaries, the own body and emotions, and the development of respect, sympathy, and solidarity, that might result in increasing levels of self-regulation and self-esteem. The level of experienced social acceptance improved in both intervention group and control group. It might be possible that schools already pay much attention to this, causing both groups to report equal changes over time.

Finally, compared to the control group, the intervention group reported a larger decrease in depressive feelings. This is consistent with results from research on other anti-bullying programs in the Netherlands (Orobio de Castro et al., 2012). Whereas diminishing depressive feelings is not the main goal of R&W, the intervention group reported more favorable

improvements in well-being. It is important to take this into account in follow-up studies of R&W.

Gender differences

The results did not show any gender differences in change over time. It was expected that boys would show a larger decrease for physical bullying because of their thrive for social dominance and status, and that girls would report a larger decrease in relational bullying because of their focus on intimate relationships (Caravita & Cillessen, 2012; Espelage et al., 2004). The absence of these results might be explained by the relatively young sample (primary school). During adolescence, social status becomes more important and relationships with peers will become more diverse and intimate. In addition, the puberty phase and the transition to adolescence is usually a phase in which children feel less self-confident. Future research has to prove whether R&W would have different effect on boys and girls in an older age group than is examined in the present study. On the basis of the present findings, there does not seem to be any indication for a gender specific approach of R&W for children in the last three grades of primary school.

Limitations

There are some limitations of the present study worth mentioning. First, all data were obtained through self-reports of children. This makes it difficult to untangle the contribution of method variance to the found effects. It is also not possible to infer whether the actual behavior of children is changed or only the perception of behavior. In addition, it is possible that children gave social desirable answers, especially for bullying and victimization. Because bullying is viewed as negative, children might not identify with this behavior or do not realize that their behavior might cause damage (Castro, Veerman, Koops, Bosch, & Monshouwer, 2002; Stassen Berger, 2007). This might have caused underreporting of bullying. Victims might also perceive or report on the situation incorrectly (Camodeca & Goossens, 2005). Pellegrini (2001) indicated that bullies and victims probably underreport when answers are confidential (as in the present study) instead of anonymous. In that case, the reported relations could be even stronger in practice.

Second, and perhaps related to social desirability, is the insufficient reliability of relational bullying at T1. Since different forms of bullying/victimization are not often examined and because three of the four reported alphas for relational bullying/victimization are sufficiently

reliable (0,60 for bullying and 0,74/0,76 for victimization T1/T2), it is chosen to keep this scale and report findings. Results regarding relational bullying (T1) should be interpreted with some caution. It is recommended to improve the reliability in future studies.

Third, the R&W trainers (teachers) implemented R&W for the first time. An advantage is that trainers are comparable in experience and baseline level. It might be possible, however, that more experienced R&W trainers cause larger changes.

Fourth, in the present study a short version of the R&W program is implemented and examined. Although the full program consists of thirty lessons, all themes were covered within the thirteen lessons that were given. In the full program there is more repetition and variation to the same themes, training skills of children to become more automated. It is unclear what consequences might be for the results of the program. Furthermore, although in the present study a control group was included and schools were randomly assigned to the conditions, only pre and posttests were performed. To be able to conclude more about the effectiveness of the R&W program it is recommended for future studies to examine the full R&W program, as well as including a follow-up measure to examine long term effects.

Conclusion

Notwithstanding the limitations, the findings are relevant for studies on school-based anti-bullying programs. There are indications that children improved on many of the studied variables after the R&W program. Compared to the control condition, children in the R&W condition reported a decline in physical victimization and bullying 'other', and a stronger improvement in levels of self-regulation, self-esteem, and well-being (less depressive feelings). Furthermore, the present study shows that distinguishing different forms of bullying and victimization is important, as well as the focus on bullying *and* victimization, which might explain the different results from meta-analyses on school-based anti-bullying programs. The present study offers some insights for future studies to gain more knowledge on the effectiveness of anti-bullying intervention programs and also shows that it is important to include self-regulation and self-esteem. The clinical practice can also benefit from the focus on different forms of bullying and victimization. Bullying is complex, multidimensional and dynamic social behavior and, depending of the form(s) of bullying or victimization that someone encounters, it might improve to determine what the emphasis should be on dealing with this. In addition, it is also wise to involve important characteristics of the child itself – self-regulation and self-esteem – because these might contribute to increasing feelings of social safety and well-being.

Note

1. Grade 4, 5, and 6: the last three years of primary school in the Netherlands.

References

- Angold, A., Erkanli, A., Silberg, J., Eaves, L., & Costello, E.J. (2002). Depression scale scores in 8–17-year-olds: Effects of age and gender. *Journal of Child Psychology and Psychiatry*, *43*, 1052–1063.
- Camodeca, M., & Goossens, F. A. (2005). Children's opinions on effective strategies to cope with bullying: the importance of bullying role and perspective. *Educational Research*, *47*, 93–105.
- Caravita, S.C.S., & Cillessen, A.H.N. (2012). Agentic or communal? Associations between interpersonal goals, popularity, and bullying in middle childhood and early adolescence. *Social Development*, *21*, 376–395. <https://doi.org/10.1111/j.1467-9507.2011.00632.x>
- Castro, B., Veerman, J., Koops, W., Bosch, J., & Monshouwer, H. (2002). Hostile attribution of intent and aggressive behavior: a meta-analysis. *Child Development*, *73*, 916–934.
- Chorpita, B.F., Yim, L., Moffitt, C., Umemoto, L.A., Francis, S.E. (2000). Assessment of symptoms of DSM-IV anxiety and depression in children: A revised child anxiety and depression scale. *Behaviour-Research-and-Therapy*, *38*, 835–855.
- Cole, D.A., Tram, J.M., Martin, J.M., Hoffman, K.B., Ruiz, M.D., Jacquez, F.M., et al. (2002). Individual differences in the emergence of depressive symptoms in children and adolescents: A longitudinal investigation of parent and child reports. *Journal of Abnormal Psychology*, *111*, 156–165.
- De Graaf, I., De Haas, S., Zaagsma, M., & Wijssen, C. (2015). Effects of Rock and Water: An intervention to prevent sexual aggression. *Journal of Sexual Aggression*, *22*, 4–19. <http://dx.doi.org/10.1080/13552600.2015.1023375>
- Else-Quest, N.M., Hyde, J.S., Goldsmith, H.H., & Van Hulle, C.A. (2006). Gender differences in temperament: A meta-analysis. *Psychological Bulletin*, *132*, 33–72. doi:10.1037/0033-2909.132.1.33
- Eslea, M., & Smith, P.K. (1998). The long-term effectiveness of anti-bullying work in primary schools. *Educational Research*, *40*, 203–218. doi:10.1080/0013188980400208
- Espelage, D.L., Mebane, S.E., & Swearer, S.M. (2004). Gender differences in bullying: Moving beyond mean level differences. In D.L. Espelage & S.M. Swearer (Eds.), *Bullying in*

- American schools: A social-ecological perspective on prevention and intervention* (pp. 15-35). Mahwah, NJ: Lawrence Erlbaum Associates.
- Evans, C.B.R., Fraser, M.W., & Cotter, K.L. (2014). The effectiveness of school-based bullying prevention programs: A systematic review. *Aggression and Violent Behavior, 19*, 532-544. doi:10.1016/j.avb.2014.07.004
- Ferguson, C.J., San Miguel, C., Kilburn, J.C., & Sanchez, P. (2007). The effectiveness of school-based anti-bullying programs: A meta-analytic review. *Criminal Justice Review, 32*, 401-414. doi:10.1177/0734016807311712
- Ge, X., Conger, R.D., & Elder, G.H., Jr. (2001). Pubertal transition, stressful life events, and the emergence of gender differences in adolescent depressive symptoms. *Developmental Psychology, 37*, 404-417.
- Gladden R.M., Vivolo-Kantor A.M., Hamburger M.E., & Lumpkin C. (2014). *Bullying surveillance among youths: Uniform definitions for public health and recommended data elements* (Version 1.0). Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention and U.S. Department of Education..
- Gratz, K.L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment, 26*, 41-54. <http://dx.doi.org/10.1023/B:JOBA.0000007455.08539.94>
- Hankin, B.L. (2009). Development of sex differences in depressive and co-occurring anxious symptoms during adolescence: Descriptive trajectories and potential explanations in a multiwave prospective study. *Journal of Clinical Child and Adolescent Psychology, 38*, 460-472.
- Harter, S. (1985). *Manual for the Self-Perception Profile for Children*. Denver, CO: University of Denver.
- Hong, J.S., & Espelage, D.L. (2012). A review of research on bullying and peer victimization in school: An ecological system analysis. *Aggression and Violent Behavior, 17*, 311-322. doi:10.1016/j.avb.2012.03.003
- Huang, C. (2010). Mean-level change in self-esteem from childhood through adulthood: Meta-analysis of longitudinal studies. *Review of General Psychology, 14*, 251-260. doi:10.1037/a0020543
- IBM Corp. (2016). *IBM SPSS Statistics for Windows, Version 24.0*. Armonk, NY: IBM Corp.
- Kling, K.C., Hyde, J.S., Showers, C.J., & Buswell, B.N. (1999). Gender differences in self-esteem: A meta-analysis. *Psychological Bulletin, 125*, 470-500.

- Matthews, J.S., Ponitz, C.C., & Morrison, F.J. (2009). Early gender differences in self-regulation and academic achievement. *Journal of Educational Psychology, 101*, 689-704. doi:10.1037/a0014240
- Merrell, K.W., Gueldner, B. A., Ross, S.W., & Isava, D.M. (2008). How effective are school bullying intervention programs? A meta-analysis of intervention research. *School Psychology Quarterly, 23*, 26-42. doi:10.1037/1045-3830.23.1.26
- Neumann, A., Van Lier, P.A.C., Gratz, K. L., & Koot, H.M. (2010). Multidimensional assessment of emotion regulation difficulties in adolescents using the Difficulties in Emotion Regulation Scale. *Assessment, 17*, 138-149. <https://doi.org/10.1177/1073191109349579>
- Olweus, D. (1993). *Bullying at school: What we know and what we can do*. Cambridge, MA: Blackwell.
- Olweus, D. (1996). *The revised Olweus bully/victim questionnaire*. Bergen, Norway: Research Center for Health Promotion (HEMIL Center), University of Bergen.
- Olweus, D. (2004). The Olweus Bullying Prevention Programme: Design and implementation issues and a new national initiative in Norway. In P.K. Smith, D. Pepler, & K. Rigby (Eds.), *Bullying in schools: How successful can interventions be?* (pp. 13-36). Cambridge, UK: Cambridge University Press.
- Orobio de Castro, B., Mulder, S., Van der Ploeg, R., Onrust, S., Van den Berg, Y., Stoltz, S, ... Scholte, R. (2018). *Wat werkt tegen pesten? Effectiviteit van kansrijke programma's tegen pesten in de Nederlandse onderwijspraktijk*. Eindrapport. Geraadpleegd op: <https://www.uu.nl/sites/default/files/eindrapport-wat-werkt-tegen-pesten.pdf>
- Orth, U., & Robins, R.W. (2014). The development of self-esteem. *Current Directions in Psychological Science, 23*, 381-387. doi:10.1177/0963721414547414
- Pelligrini, A. D. (2001). Sampling instances of victimization in middle school: A methodological comparison. In J. Juvonen & Graham (Eds.), *Peer harassment in school: The plight of the vulnerable and victimized* (pp. 125-146). New York: Guilford.
- Salmivalli, C. (2010). Bullying and the peer group: A review. *Aggression and Violent Behavior, 15*, 112-120. <https://doi.org/10.1016/j.avb.2009.08.007>
- Schafer, J.L., & Graham, J.W. (2002). Missing data: Our view of the state of the art. *Psychological Methods, 7*, 147-177. doi:10.1037//1082-989X.7.2.147
- Scholte, R., Nelen, W., De Wit, W., & Kroes, G. (2016). *Sociale veiligheid in en rond scholen*. Nijmegen: Praktikon.
- Smith, J.D., Schneider, B.H., Smith, P.K., & Ananiadou, K. (2004). The effectiveness of whole-school antibullying programs: A synthesis of evaluation research. *School Psychology Review, 33*, 547-560.

- Stassen Berger, K. (2007). Update on bullying at school: Science forgotten? *Developmental Review*, 27, 90–126. doi:10.1016/j.dr.2006.08.002
- Ttofi, M.M., & Farrington, D.P. (2011). Effectiveness of school-based programs to reduce bullying: A systematic and meta-analytic review. *Journal of Experimental Criminology*, 7, 27-56. doi:10.1007/s11292-010-9109-1
- Ttofi, M.M., Farrington, D.P., & Baldry, C.A. (2008). *Effectiveness of programs to reduce school bullying: A systematic review*. Stockholm, Sweden: Swedish National Council for Crime Prevention.
- Van de Laarschot, M., & Heusdens, W. (2012). Vakmanschap van de vmbo-docent in beeld: resultaten van een onderzoek naar het handelen van de vmbo-docent. *Tijdschrift voor lerarenopleiders*, 33, 10-18.
- Van der Gaag, M., & Duiven, R. (2013). *Landelijk onderzoek pesten 2012 primair onderwijs*. Zwolle: School & Innovatie Groep.
- Veerman, J.W., Straathof, M.A.E., Treffers, P.D.A., Van den Bergh, B.R.H., & Ten Brink, L.T. (2004). *Competentie Belevingsschaal voor Kinderen*. Amsterdam: Harcourt Test Publishers
- Ykema, F. (2002). *The Rock and Water perspective. Psychophysical training for boys* (Theory booklet). Schagen/The Netherlands: Gadaku Institute.
- Ykema, F. (2014). *Rock and Water Three Day Training. Practice manual of lessons and exercises. Psychophysical training for boys and girls*. Schagen/The Netherlands: Gadaku Institute
- Ykema, F., Hartman, D., & Imms, W. (2006). *Bringing it together: Includes 22 case studies of Rock & Water in practice in various settings*. Callaghan, Australia: University of Newcastle, Family Action Centre and Gadaku Institute.

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