Research Article

The effects of therapeutic group drumming with Korean middle school students on aggression as related to school violence prevention

Eun Sil Suh

Faculty of Music, Theatre, and Dance Department, Marywood University, 2300 Adams Ave, Scranton, PA 18509, United States

A B S T R A C T

This study examined which of three interventions was most effective in reducing aggression in middle school students in Korea: a lecture-based general prevention program, a therapeutic drumming group featuring collaborative work between a school music teacher and a music therapist, or an education-based drumming group. A non-randomized Repeated Measured ANOVA with one repeated factor and one between-groups factor was conducted to look for any statistically significant differences among the three groups (general prevention group, therapeutic drumming group, and education-based drumming group), between pre-and post-test, or in the interaction between group and time. The Korean version of the Aggression Questionnaire and its four subscales (physical aggression, verbal aggression, anger, and hostility) were examined in mixed models by time, group, and the interaction between time and group. Participants ($N = 231$) were the whole third-year classes of an urban middle school in Korea. The results suggested a significant Time × Group interaction on total Aggression scores, as well as on the physical aggression and hostility sub-scale scores; no significant differences were found for the verbal aggression or anger sub-scale scores. Post hoc analysis revealed that the therapeutic drumming group had significant reductions in total aggression scores and on the subscales of physical aggression and hostility compared to the education-based drumming group; however, no significant differences were found between the therapeutic drumming group and the general lecture group. These findings indicate that collaborations between school music teachers and music therapists may be used effectively to mitigate aggression related to school violence in middle school students in Korea.

Introduction

School violence is an issue of concern in the United States, Korea, and beyond. For the last several years, school violence has become a serious social issue and one of the major problems in schools in Korea (Lee & Oh, 2012; Ministry of Education, 2017).

School violence refers to aggressive and antisocial behaviors among students that result in physical or emotional harm (Juvonen, 2001; Sheehan, Kim, & Galvin, 2004). Physical harm, as an overt form of aggression, falls under the category of physical aggression (Paquette & Underwood, 1999), and emotional harm, as a covert form of aggression, tends to be understood as relational aggression (Owens, Shute, & Slee, 2000). Students who experience school violence may manifest a number of psychological and physical symptoms such as low self-esteem, school avoidance, low educational achievement, post-traumatic stress disorder, dropping out of school, and suicide (Esbensen & Carson, 2009; Hammond, Whitaker, Jutzker, & Chin, 2006; Peguero, 2011; Peguero & Popp, 2011).

School violence programs and aggression

A number of school violence prevention programs focus on decreasing aggression (Barnes, Smith, & Miller, 2014; Leff, Power, Manz, Costigan, & Nabors, 2001), and research has discussed the importance of having such programs in place (Esbensen & Carson, 2009; Hammond et al., 2006; Peguero & Popp, 2011, 2011; Stueve, O'Donnell, & Link, 2001). According to Barnes et al.' (2014) meta-analysis, cognitive-behavioral school-based interventions are widely used for reducing aggression, and research is currently examining the effectiveness of this approach. Another prevention approach based on social-emotional learning (SEL) has been shown to be effective in preventing bullying and aggression (Jones, Doces, Swearer, & Collier, 2013) based on Bandura's (1986) social learning theory, teaching self-regulation and communication skills to students (Shafer & Silverman, 2013). According to this theoretical basis, teaching social skills such as empathy, anger management, impulse control, and listening skills effectively reduces middle school students' aggression (Espelage, Low, Polanin, & Brown, 2013).

Most articles focus on describing the effects of school violence prevention programs on elementary school students. However, recent studies have examined the effects of specific programs on middle school students (Elsaesser, Gorman-Smith, & Henry, 2013; Nixon & Werner, 2010). Middle school students are widely recognized as an important population to study, as this age group has an increased risk of problematic behaviors such as bullying and aggressive behavior. Empirical studies have demonstrated that aggression increases during the middle school age (Scheithauer, Hayer, Petermann, & Jugert, 2006; The Multisite Violence Prevention Project, 2008; Werner & Hill, 2010), peaking mid-adolescence (Tolan & Gorman-Smith, 2002). This increase has been associated with the quality of both school engagement and family relationships, both of which tend to decrease as students are entering middle school (The Multisite Violence Prevention Project, 2008). According to social learning theorists, young adolescents learn from imitating repeatedly observed peer behavior (Bandura, 1986). Peer relationships become highly important during this development stage, making the perpetration of violence and victimization more likely (Savin-Williams & Berndt, 1990). Young adolescents may be more susceptible and socially influenced by peer-engaged problem behaviors (Miller-Johnson et al., 2003), especially from more aggressive peers (The Multisite Violence Prevention Project, 2008).

Rationale for group drumming

In response to the problem of bullying and peer violence in middle-school aged students, therapists and educators are increasingly exploring the possibility of expressive arts intervention. One promising intervention is group drumming, which may have a positive impact on reducing bullying and violence in this population. Previous studies have provided evidence of group drumming's success as a therapeutic intervention to reduce the incidence and impact of bullying and other forms of violence. Group drumming has been shown to reduce stress in both adults and adolescents (Bittman, Bruhn, Stevens, Westengard, & Umbach, 2003; Bittman, Dickson, & Coddington, 2009; Matney, 2008), to improve social-emotional functioning in low-income children (Ho, Tsao, Bloch, & Zeltzer, 2011), to assist in the rehabilitation of psychiatric patients (Longhofer & Floersch, 1993), to improve assertiveness and anger management in both adult and adolescent survivors of trauma (Slotoroff, 1994), and to alleviate post-traumatic stress in soldiers (Bensimon, Amir, & Wolf, 2008).

Mungas and Silverman (2014) conducted research on the immediate effects of group-based wellness drumming on affective states in university students, reporting significant positive effects on university students' scores along all five spectrums of affective state (i.e., wide awake–drowsy, relaxed–anxious, cheerful–depressed, friendly–aggressive, and clear-headed–confused). Slotoroff (1994) offered a case study in which a male adolescent participant with conduct disorder and aggressive behavior problems was able to identify his emotions (i.e., anger, weakness, and calmness) through playing and listening to drums, with identifying one's emotions supporting effective anger management. Currie (2012) explored the benefits of drum playing as a pathway for emotional expression in aggressive male adolescents. Many male students who have aggressive behavior problems and anger management problems tend to experience difficulties in speaking about their negative emotions (Streeck-Fischer & van der Kolk, 2000). Percussive drum playing assists aggressive and angry male adolescents to symbolically express negative feelings and inner experiences, bridging the gap between the physical experience of anger and the ability to speak about their experience (Currie, 2012). Drumming capitalizes on the fact that emotions are commonly described through body sensations, such as a pounding or racing heart (Rodocy & Boyle, 1997); emotions may also be awakened through awareness of one's bodily sensations (Gardner, 1990). Because drumming creates sound waves, it directly impacts the drum players' bodies, either through the air or through the mallets and instruments that the players hold (Gardner, 1990; Rodocy & Boyle,

1997). These bodily sensations may then impact instrument players' awareness of these emotions (Watson, 2002).

Dyadic and synchronizing drum playing have been reported to increase individuals' prosocial activity and social interactions. The positive results of synchronized drum playing were explored by Kokal, Engel, Kirschner, and Keysers (2011), who found that synchronized drumming enhanced prosocial activity if the rhythm was easy. In this study, participants were scanned using functional magnetic resonance imaging (fMRI) and were given a prosocial behavior test during and after synchronized and asynchronized drumming with their partner. The results showed that the right caudate of the brain (i.e., a reward center) was activated more for synchronous drumming with one's partner than for asynchronous drumming, and that participants engaging in synchronous drumming showed a high level of prosocial commitment.

Some studies have focused on the benefits of group drumming as a rehabilitation or treatment approach for at-risk adolescents. Group drumming was shown to provide learning and social experiences for at-risk adolescents who were isolated from their school or social systems (Snow & D'Amico, 2010); it was also shown to promote at-risk adolescents' social skills and to decrease behavioral incidents (Wood, Ivery, Donovan, & Lambin, 2013). As noted by Stone (2005), group drumming incorporated into family therapy was shown to reduce troubled adolescents' at-risk behaviors. In Bittman et al.'s (2009) study, adolescents who attended a juvenile court-referred treatment program that used a group drumming intervention demonstrated statistically significant improvements in social role performance, depression, negative self-evaluation, and anger. In Australia, a form of group drumming called DRUMBEAT (Discovering Relationships Using Music–Beliefs, Emotions, Attitudes, & Thoughts) was developed for the purpose of preventing substance abuse in adolescents. Participants significantly reduced their absenteeism rate in school, increased their emotional control and self-esteem, and improved their relationships with both adults and peers (Faulkner, Wood, Ivery, & Donovan, 2012).

Group drumming-based school violence prevention programs

Few research studies have been conducted to date on group drumming-based interventions to prevent school violence. Nőcher-Ribaupierre and Wőlfl (2010) researched a improvisational group drumming-based approach in Germany that aimed to help children and adolescents—especially immigrants—prevent school violence. The main focus of the study was using percussive instruments and improvisation—which requires cooperation, self-regulation, and affect regulation—to prevent violence. The intervention used active music making with simple and easy-to-play instruments to allow students to express their mental states and tension. In the study, actively playing music together was associated with increasing awareness of mental states, greater self-expression, and more control over both tension and aggression. Connecting creatively through music and improvisation allowed children and adolescents to experience aggression and violence intensely but safely. Shafer and Silverman (2013) suggested using structured body percussion and playing percussive instruments in prevention and intervention programs for bullies and victims of bullying as a possible approach for middle school students.

Collaborative work between music teachers and music therapists

Seung (2013) surveyed 504 teachers from 94 different elementary, middle, and high schools in Korea to examine expectations regarding music programs for reducing and preventing school violence. In this study, when asked what techniques were actually used, 43.4% of the teachers reported counseling activities, 37.2% reported lecture-type interventions, 11.4% reported gym activities, and only 2.5% reported music activities. When asked if a music program might help prevent school violence, 79.2% of the teachers strongly agreed or agreed. Based

on these findings, it seems that although teachers recognized music might be a viable way of preventing school violence, only a few teachers used music. Developing a music-based program for school violence prevention in Korea is therefore an important goal.

When qualified music therapists and music teachers work collaboratively in school settings, it is beneficial for school violence prevention (Rickson, 2012; Rickson & McFerran, 2014; Shafer & Silverman, 2013; Twyford & Rickson, 2013). Ross (2016) conduct a study in which interactive, rhythm-based strategies with percussive sound were utilized to treat students who had been diagnosed with emotional or behavioral disorders in the public-school setting. In this study, a school music teacher and a board-certified music therapist worked collaboratively, taking turns leading the group for nine months: The music therapist started by leading the session every other week, and the trained school music teacher then led following the same protocol one to two more times a week. The study concluded that while the music therapist-led group had greater improvement, students demonstrated increased appropriate self-expression and participation in both the school music teacher- and music therapist-led groups. Because school music teachers might have longitudinal relationships with students, collaborative work between school music teachers and music therapists in the school setting is essential (Carter, 2011).

Conclusion

Despite the fact that many research studies have shown the positive effects of drumming, there is a need for more research on therapeutic drumming approaches specific to school violence prevention. The purpose of this study was therefore to examine the effects of a therapeutic group drumming intervention on reducing aggression as related to school violence prevention in middle school students in Korea.

In this study, students' aggression levels were compared across three groups, focusing on the following research question: Which of three interventions: (1) A general violence prevention group, (2) a therapeutic drumming group facilitated collaboratively by a qualified music therapist and a school music teacher, or (3) an education-based drumming group (facilitated by another school music teacher, with members being taught how to play the percussion instruments, how to play certain rhythms, and how to match certain music in the music textbook) was most effective in reducing the aggression of middle school students in Korea?

A sub-question then sought to answer which of these three interventions was most effective in reducing 1) physical aggression, 2) verbal aggression, 3) anger, and 4) hostility in middle school students.

Methods

Participants

This study was conducted following written approval by the Institutional Review Board of Lesley University. Participants were the whole third year classes of an urban middle school in Daegu, the third largest city in Korea. The school is located close to downtown and in an area with a lower-to-middle socioeconomic class population. The school ran a school violence program once a year, and all students had to attend at least 10 weeks of violence prevention programming each year. A total of seven classes in the third year of middle school were divided into three groups: (1) a general prevention group; (2) a therapeutic drumming group; and (3) an education-based drumming group. Parental consent forms and student assents were obtained from 284 (98.6%) of 288 students. Fifty-three students (18.6% of the initial sample) were excluded for incomplete or invalid responses, such as filling out all the questions on the survey form with the same number or missing at least one survey within both pre- and post-testing. Data from a total of 231 participants (81.3% of the initial sample) were analyzed from a total of seven classes: Two classes participated in the general

prevention group led by the non-music teacher ($n = 70$, female = 35, male = 35), two classes participated in the therapeutic drumming group ($n = 65$, female = 30, male = 35), and three classes participated in the education-based drumming group ($n = 96$, female = 46, male = 50). The age range was 14 to 15 years old ($N = 231$, $M = 14.26$, $SD = .44$); both male ($n = 115$) and female ($n = 116$) students participated.

Measures

The Buss-Perry Aggression Questionnaire (AQ; Buss & Perry, 1992) is one of the most popular self-report measures of anger, aggression, and hostility (Morren & Meesters, 2002). While the AQ was designed in English, it has been translated into many languages, including Korean (K-AQ; Suh & Kwon, 2002), which was used in the present study. The AQ has been administered to adolescent offenders (Morren & Meesters, 2002), students (Becker, 2006), and adults, including for sub-populations such as those with alcohol dependency (McPherson & Martin, 2010). The Korean version of the AQ was developed by Suh and Kwon (2002). The internal reliability of subscales range from .67 to .86, with a mean of .76; test–retest reliability ranges from .60 to .83, with a mean of .81. The test is composed of 27 items: nine items that measure physical aggression, five items for verbal aggression, five items for anger, and eight items for hostility (Suh & Kwon, 2002). Each item is rated on a 5-point Likert-type scale ranging from 1 ("extremely uncharacteristic of me") to 5 ("extremely characteristic of me").

Procedure

In Korea, the school year begins in March and the first semester of the year ends in the middle of July. A trained research assistant explained to the participants that the pre-test, post-test, and survey results would not be reported to the school; that the results would not affect any school systems; and that findings would be used only for research purposes. Participants completed the pre-test in the beginning of May of the academic year, one week before the prevention programs were implemented, and did the post-test at the end of July, one week after the end of the programs.

Intervention

The therapeutic drumming group and the drumming group prevention programs were implemented in the music classroom because of the noise they produced, and the general prevention group was implemented in the regular classroom. The three groups took place weekly for 45 min during school days, for 10 consecutive weeks. The purpose of all three groups was violence prevention, but the intervention types and the facilitators who led the groups were different. The non-music teacher took Group 1 (general prevention group), the music teacher who collaborated with an experienced and qualified music therapist took Group 2 (therapeutic drumming group), and another music teacher who did not collaborate with a music therapist took Group 3 (drumming group). Groups 2 and 3 attended 10 consecutive weeks of in-school music-based violence prevention while Group 1 (general prevention) attended standard prevention classes (i.e., lecture-based) without music interventions during the same period of time, also 10 sessions over 10 weeks.

Group 1 (General prevention group)

This group received standard prevention classes led by the science teacher. The theme of each class was identified to participants. The program was lecture-based followed by completing a worksheet. Participants then had discussions based on the worksheet they had filled out.

Group 2 (Therapeutic drumming group)

The music teacher led the group with a qualified music therapist as a consultant. The music therapist was both a US board-certified and Korean certified music therapist who had 8 years of experience working in a school setting.as a consultant. Prior to the beginning of the intervention, the music teacher participated in 21 h of music therapy group sessions led by a music therapist. These sessions gave the teacher an opportunity to experience a group music therapy program and to learn about music interventions that can be used with middle school students in Korea. The therapeutic drumming prevention program was developed by the music therapist, and the program was discussed with the school music teacher who ran the program. The music therapist attended the session every other week. Sessions were video recorded, and the music teacher and the music therapist met every week for one hour prior to the therapeutic drumming intervention; during these meetings they watched a video of the previous session, discussed the interventions, and provided feedback for the upcoming session. All the therapeutic drumming interventions were related to each week's theme of preventing aggression, and the students had a chance to discuss what they had experienced. Students were given opportunities to engage in dyadic and synchronizing drum playing, which Kokal et al. (2011) found promoted prosocial skills. Students also received individual attention from others during each session, from such as call and response or reflective improvisational drumming interventions, as adapted from *The Use of Percussion in Music Therapy* (Matney, 2008). Example of the basic intervention techniques used are described below (See Appendix A for complete study interventions).

Group 3 (Education-based drumming group)

A music teacher with 10 years of experience led the third group, an education-based drumming group. This music teacher did not collaborate with a music therapist and used a purely music educational approach. This group experienced drumming with the same instruments as Group 2, but the activities were strictly music-education based. The participants were taught how to play the percussion instruments, how to play certain rhythms, and how to match certain music in the music textbook. In order to play the drums successfully as a whole group, practice time was given in every class.

Data analysis

In the first phase, SPSS (Statistical Program for the Social Science) version 21.0 was used to analyze the results of the K-AQ and its four subscales (physical aggression, verbal aggression, anger, and hostility). A non-randomized Repeated Measured ANOVA (rANOVA) with one repeated factor and one between-groups factor was conducted to look for any statistically significant differences between the three groups (i.e., general prevention group, therapeutic drumming group, and education-based drumming group), between pre-and post-test, or in the interactions between group and time. The total K-AQ scores and each of the subscales were examined in mixed models by time, group, and the interaction between time and group.

Results

This study examined the effects of a therapeutic group drumming intervention on school violence prevention in middle school students. Participants were the whole third-year classes of an urban middle school in Daegu, the third largest city in Korea. Both male ($n = 115$) and female ($n = 116$) students participated and a Chi-square test showed that there was no significant difference between the group and gender ($\chi_2 (2) = 1.09, p = .579$, see Table 1). A measure of aggression and its subscales—physical aggression, verbal aggression, anger, and hostility—were compared for the general prevention group, therapeutic

drumming group, and education-based drumming group.

To examine the effects of group on middle school students' aggression level, an rANOVA was conducted. According to an ANOVA conducted on pretest scores, the groups were not equivalent in this study; rANOVA could then demonstrate if there were significant changes between pre-test to post-test scores between the groups. The between-subjects factor was type of intervention: general prevention group, therapeutic drumming, or education-based drumming group. The repeated-subjects factor was time: pre-test vs. post-test. Results showed a significant effect of the Group × Time interaction on total K-AQ scores ($F_{(2,228)} = 4.65, p < .05, \eta^2 = .039$; see Table 3, Fig. 1). There were significant group ($F = 7.38, p < .01, \eta^2 = .061$) and time differences ($F = 26.52, p < .001, \eta^2 = .104$) on total K-AQ scores. Although the therapeutic drumming group had the greatest reduction in total aggression score, post hoc analysis revealed that there were no significant differences between the therapeutic drumming group and the general prevention group; however, the drumming group demonstrated significantly less change than the other two groups.

Results also showed a significant effect of the Group × Time interaction on physical aggression ($F_{(2,228)} = 3.21, p < .05, \eta^2 = .027$; see Table 4, Fig. 2). The analysis of physical aggression yielded a significant main effect of Group ($F = 7.15, p < .01, \eta^2 = .059$), and Time was also significant ($F = 14.22, p < .001, \eta^2 = .059$). The therapeutic drumming group had the greatest reduction in physical aggression score, the general prevention group had the second greatest, and the education-based drumming group had the smallest reduction. Post hoc analysis revealed that there were no significant differences between the therapeutic drumming group and the general prevention group; however, the education-based drumming group demonstrated significantly less change than the other two groups.

Table 5 and Fig. 3 present the analysis of verbal aggression scores, which indicate that no significant effect was found for the Group × Time interaction ($F_{(2,228)} = 1.76, p > .05, \eta^2 = .015$). There were significant differences by group ($F = 4.08, p < .01, \eta^2 = .059$), and time ($F = 12.37, p < .01, \eta^2 = .051$) on the verbal aggression K-AQ sub-scale.

For anger, the analysis did not show a significant effect of the Group × Time interaction that was reported in Table 6 and depicted in Fig. 4 ($F_{(2,228)} = 2.71, p > .05, \eta^2 = .023$), there were significant differences for Time ($F = 9.14, p < .01, \eta^2 = .039$) but not for Group ($F = 1.41, p > .05, \eta^2 = .012$) on the anger K-AQ sub-scale. However, anger changed for all participants between pre and post-test regardless of intervention type.

Table 7 and Fig. 5 present the results that suggested a significant effect of the Group × Time interaction on hostility ($F_{(2,228)} = 3.18, p < .05, \eta^2 = .027$). The effect of both Group (i.e., type of intervention; $F = 5.49, p < .01, \eta^2 = .046$, and Time were significant ($F = 23.70, p < .001, \eta^2 = .094$) on the hostility subscale. The therapeutic drumming group had the greatest reduction in hostility score, the general prevention group had the second greatest, and the drumming group had the smallest reduction. Post hoc analysis revealed that there were no significant differences between the therapeutic drumming group and the general prevention group; however, the drumming group demonstrated significantly less change than the other two groups.

These results suggest a significant Group × Time interaction on K-AQ total scores and on physical aggression and hostility sub-scale scores, with no significant differences on verbal aggression and anger sub-scale scores. Post hoc analysis revealed that the therapeutic drumming group showed more reduction in total aggression, physical aggression, and hostility compared to the education-based drumming group. The general prevention group also showed more reduction in total aggression, physical aggression, and hostility than the drumming group. However, no significant differences were found between the therapeutic drumming group and the general prevention group, although the therapeutic drumming intervention group had the greatest

Table 1
Participant Group Information (N = 231).

	GP (n = 70) n (%)	TD (n = 65) n (%)	ED (n = 96) n (%)	Total (N = 231) N	χ₂
Male	35 (50)	30 (46)	50 (52)	115	1.09 (p = .579)
Female	35 (50)	35 (54)	46 (48)	116	

Note. GP = General Prevention Group; TD = Therapeutic Drumming Group; ED = Education-Based Drumming Group.
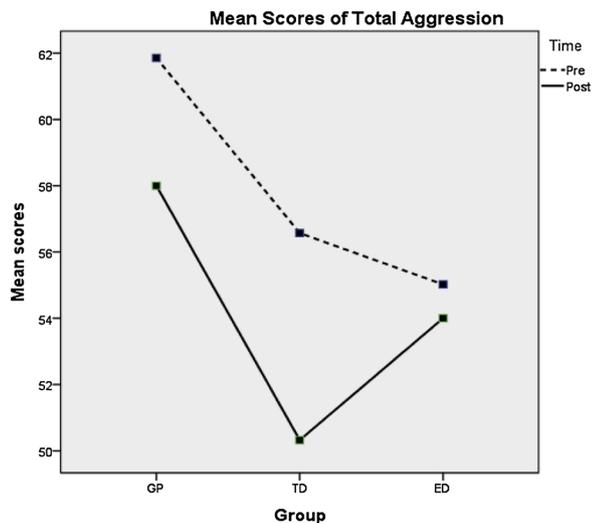

Fig. 1. Total Aggression Questionnaires (K-AQ) Scores by Time and Group. GP = General Prevention Group, TD = Therapeutic Drumming Group, and ED = Education-based Drumming Group.
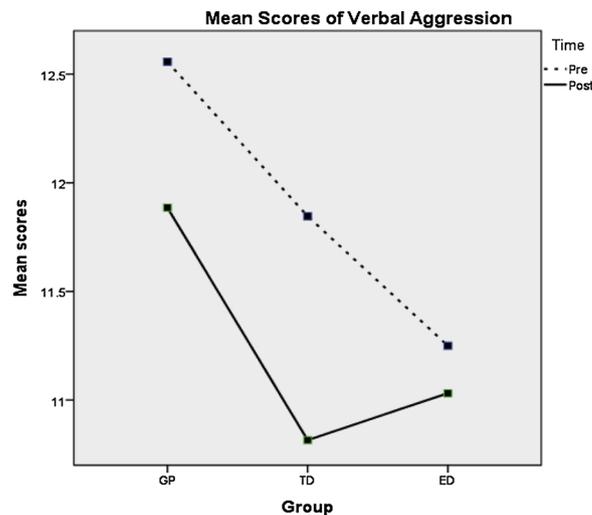

Fig. 3. Verbal Aggression K-AQ Sub-Scale Scores by Time and Group. GP = General Prevention Group, TD = Therapeutic Drumming Group, and ED = Education-based Drumming Group.
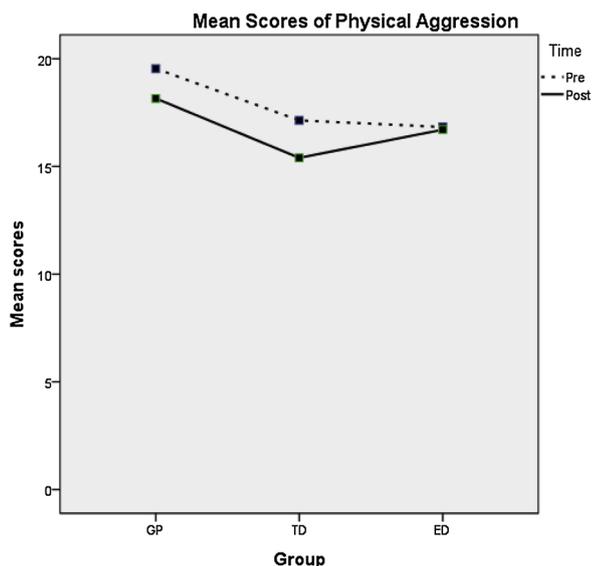

Fig. 2. Physical Aggression K-AQ Sub-Scale Scores by Time and Group. GP = General Prevention Group, TD = Therapeutic Drumming Group, and ED = Education-based Drumming Group.
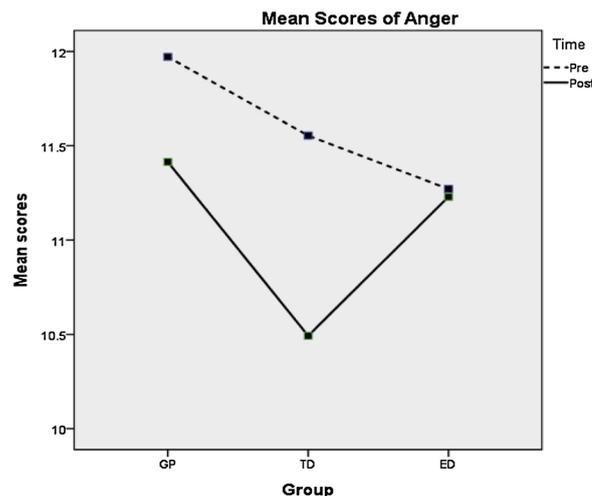

Fig. 4. Anger K-AQ Sub-Scale Scores by Time and Group. GP: General Prevention. TD: Therapeutic Drumming. ED: Education-based Drumming.

positive change on total K-AQ scores and on all subscales of aggression (see Table 2). For the subscale of anger, all participants reported decreased anger between pre and post-test, regardless of group; however, since these changes were very small and the sample was so large (N = 231), it would be hard to argue that they were significant. In the verbal aggression subscale, both group and time were associated with significant differences; however, no interaction was found between time and group.

The therapeutic drumming intervention group had the greatest positive change on total K-AQ scores (6.25) and on all subscales of aggression (see Table 2). The general prevention group had the next-greatest positive change on total K-AQ scores (3.86) and on all subscales of aggression. The drumming group had the smallest positive change on total K-AQ scores (1.02) and on all subscales of aggression. Table 2 lists the means and standard deviations for pre- and post-tests, and the differences in pre- and post-mean scores for the subscales of the Aggression Questionnaire.

This study found significant differences in aggression scores by male or female gender. Male students' mean total aggression scores were higher (n = 115, pre-test M = 59.71, post-test M = 56.27) than female
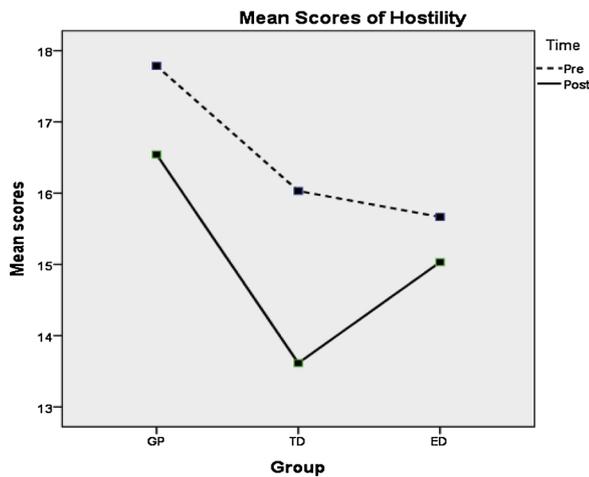
Fig. 5. Hostility K-AQ Sub-Scale Scores by Time and Group.
GP = General Prevention Group, TD = Therapeutic Drumming Group, and ED = Education-based Drumming Group.

Table 2
Comparison of Means and Standard Deviations Over Time on the Subscales of the Aggression Questionnaire (N = 231).

	Pre		Post		Pre M – Post M
	M	SD	M	SD	
General prevention group ($n = 70$)					
Total aggression	61.86	12.76	58.00	12.58	3.86
Physical aggression	19.54	5.82	18.16	5.01	1.38
Verbal aggression	12.56	3.18	11.89	3.11	0.67
Anger	11.97	2.97	11.41	3.00	0.56
Hostility	17.79	5.11	16.54	5.23	1.25
Therapeutic drumming group ($n = 65$)					
Total aggression	56.57	12.34	50.32	9.53	6.25
Physical aggression	17.14	4.54	15.40	3.53	1.74
Verbal aggression	11.85	3.01	10.82	2.28	1.03
Anger	11.55	2.66	10.49	2.10	1.06
Hostility	16.03	5.07	13.62	4.18	2.41
Education-based drumming group ($n = 96$)					
Total aggression	55.02	11.13	54.00	13.21	1.02
Physical aggression	16.83	4.47	16.71	5.03	0.12
Verbal aggression	11.25	2.53	11.03	2.85	0.22
Anger	11.27	2.63	11.23	2.88	0.04
Hostility	15.67	4.93	15.03	4.82	0.64

Table 3
Total Aggression Questionnaires (K-AQ) Scores by Time and Group (N = 231).

	SS	Df	MS	F	η^2
Group	3424.60	2	1712.32	7.38**	.061
Time	1543.47	1	1543.471	26.52***	.104
Group × Time	542.00	2	271.00	4.65*	.039
Error	13266.29	228	58.18		

*$p < .05$, **$p < .01$, ***$p < .001$.

Table 4
Physical Aggression K-AQ Sub-Scale Scores by Time and Group (N = 231).

	SS	df	MS	F	η^2
Group	527.48	2	263.74	7.15**	.059
Time	131.67	1	131.67	14.22***	.059
Group × Time	59.50	2	29.75	3.21*	.027
Error	2110.82	228	9.25		

*$p < .05$, **$p < .01$, ***$p < .001$.

students' total aggression scores ($n = 11$, pre-test $M = 55.36$, post-test $M = 52.10$). Independent t-tests comparing male and female students' aggression scores showed that the male students' total aggression ($t = 2.97$, $p < .01$), physical aggression ($t = 4.82$, $p < .001$), and verbal aggression scores ($t = 2.02$, $p < .05$) were significantly higher than female students' aggression scores; however, mean scores for anger and hostility were not significantly different. Male students demonstrated no significant difference on Group × Time interaction for either total aggression or for any of the four subscales of the aggression scores; however, female students demonstrated significant differences on Group × Time interaction for total aggression ($F = 4.75$, $p < .05$, $\eta^2 = .078$), physical aggression ($F = 5.78$, $p < .05$, $\eta^2 = .065$), and verbal aggression scores ($F = 3.97$, $p < .01$, $\eta^2 = .093$), but no significant difference for anger and hostility scores.

Most of the students reported finding the drumming activity fun and interesting, in that the activities were not for the purpose of academic results. However, one student complained that he did not like the drumming class because the class did not directly relate to the academic goal of getting better results on tests.

Discussion

This study investigated how therapeutic group drumming influenced students' aggression as related to school violence prevention. The Aggression Questionnaire (Korean Version) K-AQ was used to gather data. Although participants in all three groups reported reduced aggression scores, those in the therapeutic drumming group had a greater reduction in aggression scores compared to the other two groups. Post-hoc analysis revealed that the therapeutic drumming group had a more significant positive effect than the education-based drumming group, and there was no significant difference between the therapeutic drumming group and the general prevention group. Group drumming has been recognized as an activity that can enhance students' social-emotional functioning (Ho et al., 2011), anger management (Slotoroff, 1994), self-esteem, leadership skills (Sharma & Jagdev, 2012), peer relationships (Suh, 2017; Wyatt, 2000), and active listening, helping them to build a healthy community in schools (Camilleri, 2002; Moore & Ryan, 2006). However, depending on the way drumming interventions are conducted, the results may vary. Possible reasons why the therapeutic drumming group intervention was more effective than the drumming group to reduce aggression are as follows:

First, while the education-based drumming group was more focused on group playing and education-based approaches to play successfully as a group, the therapeutic drumming group gave participants individual attention from the whole group (e.g., each student had to play the drum synchronically with his or her partner during the dyadic playing activity, and each student had the opportunity to explain the reasoning behind his or her playing). This finding is in line with Kokal et al.'s (2011) study, which used the results of an fMRI scan to show that dyadic and synchronized drum playing activated the part of the brain associated with prosocial behaviors. In the present study, through dyadic and synchronized drum playing, students had opportunities for individualized attention. The therapeutic drumming group led the group to concentrate on each student's sound or movement at least once in each session, while students assigned to the education-based drumming group listened to the sound of a whole group most of the time, not to individual sounds. Actively and interactively listening to each other during dyadic synchronizing drumming may enhance prosocial behaviors, which have been associated with a reduction in aggressive behaviors among middle school students (Espelage et al., 2013).

Second, the music teacher who led the therapeutic drumming group collaborated with the music therapist at every stage, from planning to evaluating the interventions, whereas the music teacher who led the drumming group did not. As mentioned previously, Seung (2013) surveyed 504 teachers from elementary, middle, and high schools in Korea and found that only 2.5% of school teachers used music as the medium

Table 5
Verbal Aggression K-AQ Sub-Scale Scores by Time and Group (N = 231).

	SS	df	MS	F	η^2
Group	101.16	2	50.58	4.08[*]	.059
Time	46.02	1	46.02	12.37[**]	.051
Group × Time	13.15	2	6.57	1.76	.015
Error	847.89	228	3.71		

*p < .05, **p < .01, ***p < .001.

Table 6
Anger K-AQ Sub-Scale Scores by Time and Group (N = 231).

	SS	df	MS	F	η^2
Group	31.86	2	15.93	1.41	.012
Time	34.38	1	34.38	9.14[**]	.039
Group × Time	20.41	2	10.21	2.71	.023
Error	857.42	228	3.71		

*p < .05, **p < .01, ***p < .001.

Table 7
Hostility K-AQ Sub-Scale Scores by Time and Group (N = 231).

	SS	df	MS	F	η^2
Group	422.60	2	211.30	5.49[**]	.046
Time	229.94	1	229.94	23.70[***]	.094
Group × Time	61.69	2	30.85	3.18[*]	.027
Error	2211.44	228	9.69		

*p < .05, **p < .01, ***p < .001.

for school violence prevention, even though 79.2% of these teachers agreed that music might be a possible medium for school violence prevention. This gap may be due to the fact that teachers had difficulty integrating music-based activities with the goal of school violence preventions. Carter (2011) pointed out the importance of school music teachers, as these teachers not only have longitudinal relationships with students, but also musical skills that she or he could align with school violence policies and prevention programming. Collaborations between music therapists and music teachers in school settings might thereby have a positive and synergetic effect on preventing school violence (Shafer & Silverman, 2013).

Third, the therapeutic group drumming provided acceptance and a safe space to every participant, giving each individual a turn to play; in contrast, the education-based drumming group provided highly structured and rule-oriented drumming, teaching students to play the drums in certain ways. The therapeutic group drumming taught participants prosocial behaviors and relational skills, and the teacher was supervised on an ongoing basis by the experienced board-certified music therapist. Students who feel unsafe are more likely to engage in aggressive behavior (Camilleri, 2002); a positive and safe classroom climate should therefore logically be associated with less aggressive behavior.

The manner and degree to which students express their anger may vary depending on cultural differences. For example, Asians tend to be less expressive than their European or American counterparts (Mesquita, 2001; Roseman, Dhawan, Rettek, Naidu, & Thapa, 1995; Roseman, Dhawan, Rettek, Thapa et al., 1995). Korean adolescents may be especially less likely to express their anger, as the expression of anger is overall considered inappropriate in this culture (Park et al., 2010). In the present study, given this cultural context, even though students were explicitly asked to express their emotions by playing the drums, these students might feel inhibited to express negative emotions in front of their teachers. In Suh's (In Press) pilot study, the music therapist was not only an outsider (meaning that students might be

more willing to be open than around teachers they knew) but had also been trained to focus on helping individual to express their emotional status.

Schools should also consider what their population is and what type of students they are targeting. For example, the present study offered a universal approach appropriate for all students. However, interventions directly facilitated by professional therapists would be much more appropriate for treating students who had already demonstrated high levels of aggression and problematic behavior.

In the present study, at pre-test, male students demonstrated significantly greater scores in overall aggression, as well as in the subscales of physical aggression and verbal aggression when compared with female students; however, no significant differences were found for the anger or hostility sub-scores. For the therapeutic drumming intervention specifically, female students demonstrated significantly greater changes in their total aggression, physical aggression, and verbal aggression; in contrast, male students did not show any significant changes from pre- to post-test. These results were in line with multiple other studies, which have reported male students as being more aggressive (Crick & Grotpeter, 1995; Leff et al., 2001; Nansel et al., 2001; Stueve et al., 2001). More recent research has moved from just looking at overt aggression (e.g., physical violence) and has instead focused on covert aggression (e.g., lying or playing the victim), concluding that females and males have similar rates of covert forms of aggression (Juliano, Werner, & Cassidy, 2006; Waasdorp & Bradshaw, 2009; Waasdorp, Bagdi, & Bradshaw, 2010). In the present study gender did come up in participants responses: One male participant complained that he did not want to follow the females' direction because the energy level was too low and different. On the other hand, some female students complained about how loudly some male students' played their drums.

Limitations and suggestions

Several methodological restrictions may have negatively impacted the present study and should be addressed in future studies.

First, randomly assigning students to intervention groups instead of assigning whole classes to different groups would be preferable, as the effect of different classroom instructors (and the unique competencies and relationships with students) might have influenced the results.

Second, some of the participants complained that it was too loud when the whole class of 30 students played drums at the same time, indicating that smaller groups might have been less overwhelming and promoted more feelings of safety. Smaller groups would also allow more time to provide individual attention to each student.

In future studies, interviewing participants after each session might yield interesting information about their experiences and could help researchers to better understand the process and impact of therapeutic drumming. A follow-up assessment measuring long-term impact would also strengthen similar future studies, as the present study only measured short-term effectiveness.

Conclusion

The results of this study suggest that collaborative work between school music teachers and music therapists may be used effectively to mitigate aggression as related to school violence in middle school students in Korea. This intervention was held in a real-world school context, and a staff music teacher (rather than an outside music therapist) facilitated the interventions. Especially as so few experimental studies have been conducted regarding music-based approaches to school violence prevention, the author hopes that the results of the study may be informative and meaningful in promoting effective school violence prevention.

Appendix A

Therapeutic Drumming Group Program

Sessions 1-2 Goal: To improve self-expression

Intervention Strategy: Drumming improvisation

Warm-up	(1) The teacher introduces the instruments and demonstrates how to play them.
	(2) Each student is asked by the teacher to select and play an instrument.
	(3) The group is asked to try to make sounds with the instruments.
Focus	(4) The teacher gives hand directions to make the sound softer or louder, to stop, to play the drum with a beat, or to rumble.
	(5) The group is asked to improvise drumming with the grounded rhythm, to do call and response, and to do matching (a form of simultaneous play).
	(6) The group is asked to play the instruments expressing their emotions and stress without facilitation by the teacher.
Closing	(7) The teacher gives hand directions to make the group slowly stop their playing.
	(8) The group is asked to collect the instruments.
	(9) The group is asked to discuss their experience.
Intervention Materials	Djembes, Hand drums, Sound shape drums, paddle drums, Cowbells, Agogobells, Wood blocks

Intervention Strategy: Structured Percussive Melodic Instrument Playing

Warm-up	(1) The teacher introduces the resonator bells and demonstrates how to play them.
	(2) Students are divided into four groups and each group is assigned a different chord (C, Am, Dm, and G).
Focus	(3) The teacher gives hand directions to each group in order.
	(4) Following the teachers' keyboard accompaniment of chord progressions, each group takes a turn playing the resonator bells in order (C-Am-Dm-G).
	(5) Students are then asked to play the resonator bells freely, expressing their emotion that day when it is their turn to play.
Closing	(6) The group is then asked how they felt when each one played to make harmony or improvised freely.
	(7) The group is asked to collect the instruments.
Intervention Materials	Resonator bells, Mallets, Keyboard or Piano

---

Session 3 Goal: To improve anger management

Intervention Strategy Dyad playing with secure distance

Warm-up	(1) Each member of the group is asked to pick an instrument.
	(2) The group is asked to play the emotions of that day using their instruments.
	(3) The group is divided into dyads, so each student has a partner.
Focus	(4) One of the students holds drumsticks while the other student holds the drum.
	(5) The student who has a drumstick stands some distance away from his or her partner and then walks to the partner who has a drum until the partner says, "Stop."
	(6) The student who has drumsticks play the drum that their partner is holding until their partner says "stop."
	(7) Partners then exchanges roles.
Closing	(8) The group is asked how they felt when they were players or responders, as well as how they felt when they had to stop playing on their partner's request.
	(9) The group is asked to collect the instruments.
Intervention Materials	Sound shape drums, Mallets

Sessions 4-5 Goal: To control aggressive behavior and increase assertiveness skills

---

Intervention Strategy: Being a conductor of the drumming group

Warm-up	(1) Each student is asked to select and play an instrument.
	(2) The group is asked to play the emotions of that day with their instruments.
Focus	(3) The teacher gives hand directions to make the sound softer or louder, to stop, to play the drum with a beat, or to rumble.
	(4) The group is asked to improvise drumming with the grounded rhythm, do call and response, and do matching (a form of simultaneous play).
	(5) The group is asked to play the instruments expressing their emotions and stress without facilitation by the teacher.
	(6) The teacher selects one student to be a leader and asks him or her to stop the group using hand signals, more students then take turns being the leader.
Closing	(7) The group discusses how they felt when each one was a leader and a responder.
	(8) The group is asked to collect the instruments.
Intervention Materials	Djembes, Hand drums, Sound shape drums, Paddle drums, Cowbells, Agogobells, Wood blocks

---

Sessions 6-8 Goal: To improve empathy

Intervention Strategy: Call and response/Matching

Warm-up	(1) Each student is asked to select and play an instrument.
	(2) The group is asked to play the emotions of that day with their instruments.
Focus	(3) One student is selected as leader and asked to play his or her improvised rhythm, which the rest of the group members echo back (a call and response type activity).
	(4) The leader then plays two beats at first, and then extends to play sets of four beats. The leader may also change the volume.
	(5) The leader selected by the teacher then improvises without a structured beat; the rest of the group plays their drums with matching beat and reflects the leader's expression.

Closing	(6) The group discusses how they felt when each one was a leader and a responder.
	(7) The group is asked to collect the instruments.
Intervention Materials	Djembes, Hand drums, Sound shape drums, Paddle drums, Cowbells, Agogobells, Wood blocks
Intervention Strategy: Dyadic drum playing	
Warm-up	(1) Each student is asked to select and play an instrument.
	(2) The group is asked to play their emotion of that day with their instruments.
	(3) The group is divided into dyads.
Focus	(4) One partner expresses the physical tension of their hands and arms, and the other partner plays the drum, reflecting the tension by controlling the volume and tempo.
	(5) Partners then exchanges roles.
Closing	(6) The group discusses how they felt when each one is a leader and a responder.
	(7) The group is asked to collect the instruments.
Intervention Materials	Hand drums, Sound shape drums, Mellets, Paddle drums

Sessions 9-10 Goal: To increase awareness of others and team building

Intervention Strategy: Boom whackers group playing	
Warm-up	(1) The group is asked to play boom whackers, each student has two notes.
	(2) The group is asked to play the emotion of that day with their instruments.
	(3) The group is divided into three sub-groups, each with a different chord.
Focus	(4) The sub-groups play different parts of a 12-measure blues piece according to the teacher's hand directions.
	(5) While playing the boom whackers, the group is asked to express their stress and anger.
	(6) Each sub-group is then asked to play separately while trying to listen to others' playing.
Closing	(7) The group discusses how they felt when they expressed their stress and anger, listened to others playing, and harmonized.
Intervention Materials	Boom whackers percussion tube sets
Intervention Strategy: *Nanta* (adapted from Korean traditional group drumming)	
Warm-up	(1) Instruments (*Buk* and *Nanta* drum) are distributed to students by the teacher.
	(2) The group is asked to play the emotion of that day with their instruments.
Focus	(3) The group is given simplified sheet music, which uses white and black circles and square shapes of different sizes. These notes represents whether the center or edge of the drum is played (squares = playing the edge of the drum), as well as the volume of the drum (black circles = loud; white circles = soft; differences in the size of the symbols signify greater or lower volume).
	(4) This activity is a modified version of *Nanta* for beginners.
Closing	(5) The group discusses how they felt when they played the drums simultaneously with the same rhythm versus when they played free improvisation.
Intervention Materials	*Buk* (Korean traditional drum with a mallet),
	Nanta drum (Korean fusion traditional drum with two mallets)

References

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice Hall.

Barnes, T. N., Smith, S. W., & Miller, M. D. (2014). School-based cognitive-behavioral interventions in the treatment of aggression in the United States: A meta-analysis. *Aggression and Violent Behavior, 19*(4), 311–321.

Becker, G. (2006). The Buss-Perry Aggression Questionnaire: Some unfinished business. *Journal of Research in Personality, 41*(2), 434–452. https://doi.org/10.1016/j.jrp.2006.05.004.

Bensimon, M., Amir, D., & Wolf, Y. (2008). Drumming through trauma: Music therapy with post-traumatic soldiers. *The Arts in Psychotherapy, 35*(1), 34–48.

Bittman, B. B., Bruhn, K. T., Stevens, C., Westengard, J., & Umbach, P. O. (2003). Recreational music-making: A cost-effective group interdisciplinary strategy for reducing burnout and improving mood states in long-term care workers. *Advances in Mind–Body Medicine, 19*(3), 4–15.

Bittman, B., Dickson, L., & Coddington, K. (2009). Creative musical expression as a catalyst for quality-of-life improvement in inner-city adolescents placed in a court referred residential treatment program. *Advances, 24*(1), 8–19.

Buss, A. H., & Perry, M. (1992). The aggression questionnaire. *Journal of Personality and Social Psychology, 63*(3), 259–452.

Camilleri, V. (2002). Community building through drumming. *The Arts in Psychotherapy, 29*, 261–264.

Carter, B. A. (2011). A safe education for all: Recognizing and stemming harassment in music classes and ensembles. *Music Educators Journal, 97*(4), 29–32.

Crick, N. R., & Grotpeter, J. K. (1995). Relational aggression, gender, and social psychological adjustment. *Child Development, 66*(3), 710–722.

Currie, M. (2012). Donging anger differently: Two controlled trials of percussion group psychotherapy for adolescent reactive aggression. *Journal of Adolescence, 35*(4), 843–853.

Elsaesser, C., Gorman-Smith, D., & Henry, D. (2013). The role of the school environment in relational aggression and victimization. *Journal of Youth and Adolescence, 42*(2), 235–249.

Esbensen, F., & Carson, D. (2009). Consequences of being bullied: Results from a longitudinal assessment of bullying victimization in a multi-site sample of American students. *Youth & Society, 41*(2), 209–233.

Espelage, D. L., Low, S., Polanin, J. R., & Brown, E. C. (2013). The impact of a middle school program to reduce aggression, victimization, and sexual violence. *Journal of Adolescent Heath, 53*(2), 180–186.

Faulkner, S., Wood, L., Ivery, P., & Donovan, R. (2012). It's not just music and rhythm: Evaluation of a drumming based intervention to improve the social wellbeing of alienated youth. *Children and Society, 37*(1), 31–39.

Gardner, K. (1990). *Sounding the inner landscape: Music as medicine.* Stonington, MA: Caduceus Publications.

Hammond, W. R., Whitaker, D. J., Jutzker, J. M., & Chin, P. M. (2006). Setting a violence prevention agenda at the centers for disease control and prevention. *Aggression and Violent Behavior, 11*(2), 112–119.

Ho, P., Tsao, J. C. I., Bloch, L., & Zeltzer, L. (2011). The impact of group drumming on social-emotional behavior in low-income children. *Evidence-Based Complementary and Alternative Medicine.* https://doi.org/10.1093/ecam/neq072.

Jones, L., Doces, M., Swearer, S., & Collier, A. (2013). *Kinder & Braver World Project: Research series. Implementing bullying prevention programs in schools: A how-to guide.* Cambridge, MA: Born.

Juliano, M., Werner, R. S., & Cassidy, K. W. (2006). Early correlates of preschool aggressive behavior according to type of aggression and measurement. *Journal of Applied Developmental Psychology, 27*(5), 395–410.

Juvonen, J. (2001). *School violence: Prevalence, fears, and prevention.* Rand Education Issue Paper. Retrieved from http://www.rand.org/publications/IP/IP219.

Kokal, I., Engel, A., Kirschner, S., & Keysers, C. (2011). Synchronized drumming enhances activity in the caudate and facilitated prosocial commitment – If the rhythm comes easily. *PloS One, 6*(11), e27272. https://doi.org/10.1371/journal.pone.0027272.

Lee, S. Y., & Oh, I. S. (2012). School violence in South Korea: An overview of school violence and intervention efforts. In S. R. Jimerson, A. B. Nickerson, M. J. Mayer, & M. J. Furiong (Eds.). *Handbook of school violence and school safety: International research and practice* (pp. 541–553). (2nd ed.). New York, NY: Routledge/Taylor & Francis Group.

Leff, S. S., Power, T. J., Manz, P. H., Costigan, R. E., & Nabors, L. A. (2001). School-basedaggression prevention programs for young children: Current status and implications for violence prevention. *School Psychology Review, 30*, 343–360.

Longhofer, J., & Floersch, J. (1993). African drumming and psychiatric rehabilitation. *Psychosocial Rehabilitation Journal, 16*(4), 3–10.

Matney, B. (2008). *Tataku: The use of percussion in music therapy.* Denton, TX: Sarsen Publishing.

McPherson, A., & Martin, C. (2010). A contemporary review of the alcohol/aggression relationship and the Buss-Perry Aggression Questionnaire for use in an alcohol de-pendent population. *Journal of Aggression, Conflict and Peace Research, 2*(1), 45–56. https://doi.org/10.5042/jacpr.2010.0004.

Mesquita, B. (2001). Emotions in collectivist and individualist cultures. *Journal of Personality and Social Psychology, 80*, 68–74.

Miller-Johnson, S., Costanzo, P. R., Coie, J. D., Rose, M. R., Browne, D. C., & Johnson, C. (2003). Peer social structure and risk-taking behaviors among African American early adolescents. *Journal of Youth and Adolescence, 32*, 375–384.

Ministry of Education (2017). *School violence prevention.* Retrieved fromhttp://www.mest.go.kr/web/60880/ko/board/list.do?bbsId=292.

Moore, S., & Ryan, A. (2006). Learning to play the drum: An experiential exercise for management students. *Innovations in Education and Teaching International, 43*(4), 435–444.

Morren, M., & Meesters, C. (2002). Validation of the Dutch version of the Aggression Questionnaire in adolescent male offenders. *Aggressive Behavior, 28*(2), 87–96. https://doi.org/10.1002/ab.90010.

Mungas, R., & Silverman, M. J. (2014). Immediate effects of group-based wellness drumming on affective states in university students. *The Arts in Psychotherapy, 41*, 287–292. https://doi.org/10.1016/j.aip.2014.04.008.

Nansel, T. R., Overpeck, M., Pilla, R. S., Ran, W. J., Simons-Morton, B., & Scheidt, P. (2001). Bullying behaviors among US youth. *Journal of the American Medical Association, 285*, 2094–2110.

Nixon, C. L., & Werner, N. E. (2010). Reducing adolescents' involvement with relational aggression: Evaluating the effectiveness of the creating a safe school (CASS) inter-vention. *Psychology in the Schools, 47*(6), 606–620.

Nőcher-Ribaupierre, M., & Wőlfl, A. (2010). Music to counter violence: A preventative approach for working with adolescents in schools. *Nordic Journal of Music Therapy, 19*(2), 151–161.

Owens, L., Shute, R., & Slee, P. (2000). "Guess what I just heard!" Indirect aggression among teenage girls in Australia. *Aggressive Behavior, 26*(1), 67–83.

Paquette, J. A., & Underwood, M. K. (1999). Gender differences in young adolescents' experiences of peer victimization: Social and physical aggression. *Merrill-Palmer Quarterly, 45*(2), 242–265.

Park, Y. J., Ryu, H., Han, K. S., Kwon, J. H., Kim, H. K., Kang, H. C., et al. (2010). Anger, anger expression, and suicidal ideation in Korean Adolescents. *Archives of Psychiatric Nursing, 24*(3), 168–177.

Peguero, A. A. (2011). Violence, schools, and dropping out: Racial and ethnic disparities in the educational consequence of student victimization. *Journal of Interpersonal Violence, 26*(8), 3753–3772.

Peguero, A. A., & Popp, A. M. (2011). Youth violence at school and the intersection of gender, race, and ethnicity. *Journal of Criminal Justice, 40*(1), 1–9.

Rickson, D. (2012). Music therapy school consultation: A unique practice. *Nordic Journal of Music Therapy, 21*(3), 268–285.

Rickson, D., & McFerran, K. (2014). *Creating music cultures in the schools: A perspective from community music therapy.* Gilsum, NH: Barcelona Publishers.

Rodocy, R. E., & Boyle, J. D. (1997). *Psychological foundations of musical behavior* (3rd ed.). Springfield, IL: Charles C. Thomas.

Roseman, I. J., Dhawan, N., Rettek, I. S., Naidu, R. K., & Thapa, K. (1995). Cultural differences and cross-cultural similarities in appraisals and emotional response. *Journal of Cross-Cultural Psychology, 26*, 23–48.

Roseman, I. J., Dhawan, N., Rettek, S. I., & Thapa, N. K. (1995). Cultural differences and Cross-cultural mimiaries in appraisals and emotional responses. *Journal of Cross-Cultural Psychology, 26*(1), 23–48.

Ross, S. (2016). Utilizing rhythm-based strategies to enhance self-expression and parti-cipation in students with emotional and behavioral issues: A pilot study. *Music Therapy Perspectives, 34*(1), 99–105.

Savin-Williams, R. C., & Berndt, T. J. (1990). Friendship and peer relationships. In S. S. Feldman, & G. R. Elliott (Eds.). *At the threshold; The developing adolescent* (pp. 277–307). Cambridge, MA: Harvard University Press.

Scheithauer, H., Hayer, T., Petermann, F., & Jugert, G. (2006). Physical, verbal, and re-lational forms of bullying among German students: Age trends, gender differences, and correlates. *Aggressive Behavior, 32*(3), 261–275.

Seung, Y. H. (2013). A study of music program development for reducing and preventing school violence. *Journal of Learner-Centered Curriculum and Instruction, 13*(5), 565–586.

Shafer, K. S., & Silverman, M. J. (2013). Applying a social learning theoretical framework to music therapy as a prevention and intervention for bullies and victims of bullying. *The Arts in Psychotherapy, 40*(5), 495–500.

Sharma, M., & Jagdev, T. (2012). Use of music therapy for enhancing self-esteem among academically stressed adolescents. *Pakistan Journal of Psychological Research, 27*(1), 53–64.

Sheehan, K., Kim, L., & Galvin, M. S. (2004). Urban children's perceptions of violence. *Archives of Pediatric and Adolescent Medicine, 158*(1), 74–77.

Slotoroff, C. (1994). Drumming technique for assertiveness and anger management in the short-term psychiatric setting for adult and adolescent survivors of trauma. *Music Therapy Perspectives, 12*(2), 111–116.

Snow, S., & D'Amico, M. (2010). The drum circle project: A qualitative study with at-risk youth in a school setting. *Canadian Journal of Music Therapy, 16*(1), 12–39.

Stone, N. N. (2005). Hand-drumming to build community: The story of the Whittier drum project. *New Directions for Youth Development, 2005*(106), 73–83. https://doi.org/10.1002/yd.120.

Streeck-Fischer, A., & van der Kolk, B. A. (2000). Down will come baby, cradle and all: Diagnostic and therapeutic implications of chronic trauma on child development. *The Australian and New Zealand Journal of Psychiatry, 34*(6), 903–918.

Stueve, A., O'Donnell, L., & Link, B. (2001). Gender differences in risk factors for violent behavior among economically disadvantaged African American and Hispanic young adolescents. *International Journal of Law and Psychiatry, 24*(4-5), 539–557.

Suh, E. S. (2017). The use of group drumming with Korean middle school students in school violence prevention. *Journal of Music and Human Behavior, 14*(1), 85–108.

Suh, S. G., & Kwon, S. M. (2002). Development and preliminary validation of a Korean version of the Aggression Questionnaire. *Journal of Korean Psychology Association, 21*(2), 487–501.

The Multisite Violence Prevention Project (2008). The multisite violence prevention project: Impact of a universal school-based violence prevention program on social-cognitive outcomes. *Society for Prevention Research, 9*(4), 231–244.

Tolan, P. H., & Gorman-Smith, D. (2002). What violence prevention research can tell us about developmental psychopathology. *Development and Psychopathology, 14*(4), 713–729.

Twyford, K., & Rickson, D. (2013). In their element! Students responses to the work of a music therapist in music therapy school consultation. *Music Therapy Perspectives, 31*, 127–136.

Waasdorp, T. E., & Bradshaw, C. P. (2009). Child and parent perception of relational aggression within urban predominantly African American children's friendships: Examining patterns of concordance. *Journal of Child and Family Studies, 18*(6), 731–745.

Waasdorp, T. E., Bagdi, A., & Bradshaw, C. P. (2010). Peer victimization among urban predominantly African American youth: Coping with relational aggression between friends. *Journal of School Violence, 9*(1), 98–116.

Watson, D. M. (2002). Drumming and improvisation with adult male sexual offenders. *Music Therapy Perspectives, 20*(2), 105–111.

Werner, N. E., & Hill, L. H. (2010). Individual and peer group normative beliefs about relational aggression. *Child Development, 81*(3), 826–836.

Wood, L., Ivery, P., Donovan, R., & Lambin, E. (2013). "To the beat of a different drum": Improving the social and mental wellbeing of at-risk young people through drum-ming. *Journal of Public Mental Heath, 12*(2), 70–79.

Wyatt, J. (2000). *Drumming for violence prevention: The effects of group music therapy on self-esteem and peer relationships in high school students.* Detroit, MI: Michigan State University.