

## Original Research

## Examining the role of life skills developed through Salvadoran physical education programs on the prevention of youth violence

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### ABSTRACT

El Salvador has the second largest homicide rate in the world and young males commit the majority of these homicides. Designing and implementing active learning education solutions to counter youth violence in El Salvador at an early age have been identified as effective intervention strategies. This study examined the link between aggressive behaviours and life skills development among Salvadoran school children and the potential role that physical education plays in the prevention of youth violence. A mixed-methods longitudinal design over a three year period was used to examine the development of life skills and aggressive behaviours amongst boys and girls attending schools that had PE teachers trained on the use of a life skills based approach to PE. Longitudinal results presented here highlighted that school-based physical education can help to foster healthy behaviours around life skills and aggressive behaviours, particularly for boys. Interviews with students, teachers, and school directors highlight the unique role that physical education can play in developing life skills and applying them. Results from this study suggest the need for targeted physical education interventions that adopt a life skills-based approach.

### BACKGROUND

El Salvador is one of the most violent countries in the world. Plagued by gang violence since the end of their civil war in 1992, El Salvador has averaged 10 homicides per day over the past 10 years, with the vast majority committed by young males during their adolescent and early adult years.<sup>1</sup> The Youth Homicide Rate in El

Salvador is estimated at 92.3 homicides per 100,000 youth, which is three times higher than the domestic homicide rate amongst adults.<sup>1</sup> Mortality rates for children and youth under the age of 25 cite intentional injuries as cause of death in 35% of cases. Shockingly, 50% of all deaths reported for males under the age of 25 were due to intentional injuries compared to 22% for females in the same age group.<sup>2</sup>

To date, El Salvador has yet to find a sustainable solution for its youth violence crisis. Punitive actions such as arresting individuals with tattoos who are suspected of being gang members as part of the government's "mano dura" or "iron fist" approach<sup>3</sup> and most recently declaring gang members terrorists<sup>4</sup> have not reduced the violence. Although a truce between the rivalling Mara Salvatrucha 13 (MS13) and Barrio 18 gangs resulted in a temporary decline in the homicide rate, the truce barely lasted a year and violence rates as of August 2015 reached their highest levels since the civil war with an average of 30 murders per day.<sup>5</sup>

Finding a sustainable solution to El Salvador's youth violence issue is of critical importance given that targeting the prevention of aggression at a young age particularly for boys is critical to the prevention of more violent behaviours later into adolescence and adulthood.<sup>6</sup> According to the World Health Organization, "... poor social skills, low academic achievement, impulsiveness, truancy, and poverty are among factors that fuel youth violence" and "... most violence appears to erupt in youths who have been aggressive early in life."<sup>7</sup> Effective education programs delivered by trained teachers in local schools

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have been identified as one of the most effective and sustainable strategies to combat these factors and reduce youth violence.

One of the educational solutions that has been suggested to help combat youth violence is the development of life skills. The World Health Organization<sup>7</sup> has defined life skills as: "...abilities for adaptive and positive behaviour that enable individuals to deal effectively with the demands and challenges of everyday life." They go on to highlight that "... interventions for developing life skills can help young people to avoid violence, by improving their social and emotional competencies, [and] teaching them to deal effectively and non-violently with conflict." Embedding life skills into existing curricula can help children and youth to "... learn self-protection, ways to recognize perilous situations, cope with and solve problems, make decisions and develop self-awareness and self-esteem."<sup>8</sup> Ekholm conducted a systematic review of 38 peer reviewed international articles examining the relationship between sport participation and crime prevention, which supports these outcomes.<sup>9</sup> He concluded that when sport adopts a social change-model of crime prevention by focusing on the educational and moral values that sport can offer, it is much more effective than competitively-oriented methods of sport delivery. However, the majority of Salvadoran children and youth leave the education system without the physical, social or cognitive skills necessary to make healthy choices particularly with respect to non-violent conflict resolution.<sup>10</sup> Previous research has suggested that intentionally teaching life skills through an educational context can be an effective way for young people to apply positive life skills on a day-to-day basis.<sup>11, 12</sup>

A quality physical education (PE) program has been identified as an important curriculum subject area that can directly influence the development of life skills in children and youth. In recent policy statements, UNESCO<sup>13, 14</sup> highlighted that a quality PE program plays an integral role in the development of life skills and the prevention of youth violence. This is supported by previous research that has highlighted the effectiveness of using sport and physical activity as an effective approach to learn life skills<sup>14, 15</sup> when behavioural changes through the development of life skills are the focus of the program.<sup>9, 16</sup> Learning life skills through sport during adolescence has also been shown to have a long-lasting impact upon individuals well into adulthood.<sup>10</sup>

Learning life skills through physical activity is supported by Don Hellison's Teaching Personal and Social Responsibility (TPSR) model.<sup>17</sup> Hellison's working theory

as he describes it outlines a number of components that can be fostered through participant-centered pedagogical approaches. These components include life skills such as self-control, conflict resolution, getting along with others, goal setting, caring and compassion, etc. Hellison's TPSR model is particularly relevant to this study because it has been demonstrated to be a highly effective pedagogical approach to fostering the development of life skills with youth at risk. For example, Caballero-Blanco<sup>18</sup> found evidence supporting the role of TPSR in reducing youth violence in programs run in the United States and Spain.

Despite the evidence surrounding the potential of physical activity programs on the development of life skills, there is a paucity of research particularly within schools of the role of PE on the development of life skills and its connection to the prevention of youth violence. Conducting research to determine the effectiveness of evidence-based strategies for Central America is critical given the paucity of research that has examined cost effective and sustainable youth violence prevention initiatives in the region.<sup>19</sup> The World Bank estimates that a 10% reduction in crime in El Salvador would result in a 1% growth in the economy. Given that 85% of children who register in Grade One reach the last year of Elementary School and 64% of youth attend Secondary School,<sup>20</sup> schools are the one place in Salvadoran society that can reach the majority of children and youth. Although somewhat limited, the growing body of literature presented previously (both empirical and theoretical) suggests that school-based PE can play an important role in the development of life skills, which in turn help to prevent youth violence. This study hypothesized that when trained teachers deliver PE programs with previous life-skills education training rooted in TPSR, PE can be a viable solution to violence prevention.

## METHODS

The study tracked recent graduates of a PE profesorado program in El Salvador following their completion of the three-year program and their employment as PE teachers in local schools throughout El Salvador. The PE profesorado program integrated Hellison's TPSR approach of teaching life skills and values through physical activities. This humanistic and student-centred approach to teaching PE uses the activity as a vehicle through which life skills are intentionally taught. It has been previously used successfully with inner-city youth as an effective pedagogical approach to address youth violence.<sup>21</sup> Previously published research that tracked pre-service teachers in El Salvador demonstrated that upon graduation,

they had developed both the confidence and competence to deliver a PE program rooted in the TPSR approach. The graduates of this PE profesorado program were the in-service PE teachers in this study.<sup>22, 23</sup>

A mixed-methods longitudinal design was used to test the hypothesis regarding the role of PE on the prevention of youth violence. The design was used to examine if there were any changes in the adoption of life skills and pro-social behaviours over time (i.e. quantitative data) and to understand what may (or may not) be contributing to any changes (or lack of change) over this time period (i.e. qualitative data). Following local research protocols in El Salvador, informed consent for the students to participate in the study was provided by the director at each school. At the time of the data collection, the standard research practice in El Salvador authorized school directors (principals) to provide third party consent for students at their school to participate in a research study. Each principal/ director “signed off” that they were in fact authorized to provide such consent in their informed consent to participate in the study. Teachers who participated in the study also provided informed consent for themselves. Due to the absence of a formal Research Ethics Review Board at the local Ministry-approved partner University in El Salvador at the time, a Research Ethics Board at a mid-sized comprehensive University located in Ontario, Canada initially approved the research protocols. The ethics application was approved following consultation with research affiliates and senior university administrators in El Salvador who have extensive experiences conducting research in school settings within the country. The Scientific Committee of a private University located in San Salvador, El Salvador subsequently approved all research protocols. In the absence of a research ethics protocol locally that mirrors the standard practice in the researchers’ home universities in developed nations, great attention was paid in this study to ensuring the goals of a research ethics process were met, that is, protection of the subjects of the study as well as the scientific integrity of study and its results. All data was collected by a team of Salvadoran researchers hired by Pedagógica University in San Salvador and supervised by both the lead author and the Senior Research Scientist at Pedagógica University (the third author).

## Questionnaire

A 54-item questionnaire was developed using selected items taken directly from a recommended bank of instruments that were included in the Center for Disease Control’s [CDC, 24] report on Measuring Violence-Related Attitudes, Behaviours and Influences among Youths. The

compendium of questionnaires included in the CDC’s publication had been previously used with children and youth and had demonstrated sound psychometric properties (i.e. validity and reliability). A professional, fluently bilingual translator in El Salvador translated all items into Spanish. Following informed consent from the school director, a local Salvadoran research team, trained and supervised by the authors of the study, administered the questionnaire. The research team was instructed to remind students that participation in the study was voluntary and that they could choose not to answer certain questions or could choose to withdraw from the study at any time. Members of the research team remained to answer any questions from the participants and then collected the completed questionnaires.

### *Sense of Safety*

[25 as cited in 24]. This scale measures “...feelings of safety at home, in or on the way to school, and in the neighbourhood.”<sup>24</sup> The scale ranges from 0 (never) to 2 (always) with a higher score indicating a higher sense of safety. Scores were averaged to calculate an overall mean score that can range from 0 to 2.0. The CDC<sup>20</sup> has reported its internal consistency to be .89.

### *Beliefs about Aggression and Alternatives*

[26 as cited in 24]. This scale includes twelve items on a four-point scale (1-4) that measures “... student beliefs about the use of aggression and endorsement of non-violent responses to hypothetical situations.”<sup>24</sup> Scores were averaged to calculate an overall mean score that can range from 1.0 to 4.0. A high score on the Beliefs about Aggression subscale indicates more favourable beliefs about the use of aggression when dealing with other people. The CDC<sup>14</sup> has reported its internal consistency to be .72 for this sub-scale. A high score on the Use of Nonviolent Strategies subscale indicates a higher level of support for using nonviolent strategies when dealing with others. The CDC<sup>14</sup> has reported its internal consistency to be .72 for this scale.

### *Conflict Resolution – Individual Protective Factors*

[27 as cited in 24]. Twelve items on a four point scale (1 – 4) measuring two conflict resolution skills: self-control and cooperation (6 items each). Scores for each subscale were added together to calculate an overall total score ranging from 6 to 24. The CDC<sup>24</sup> has reported its internal consistency to be .65 for both the self-control and cooperation scales. A high score on both these subscales indicate higher uses of these strategies to deal with conflict.

### *Aggression Scale*

[28 as cited in 24]. This scale includes 11 items measuring the frequency (ranging from 0 – 6) of self-reported aggressive behaviors over the past 7 days. Each point represents one aggressive behaviour reported over that time period. Scores can range from 0 to 66. The CDC<sup>20</sup> has reported its internal consistency to range from .88 - .90 for this scale.

### *Caring and Cooperation Scale*

[29 and 30 as cited in 24]. This scale consisted of eight items measuring the frequency (0 – 6) of caring/cooperation behaviour over the past 7 days. Each point represents caring/cooperative behaviour reported over the past 7 days. Scores can range from 0 to 48. These items were modified from a 30-day recall to a 7-day recall in order to be consistent with and to provide a comparison to Oprinas and Frankowski's<sup>28</sup> aggression scale format. The CDC<sup>24</sup> has reported its internal consistency to be .60 for this scale.

The questionnaires were administered at the beginning (T1) and end (T2) of the school year in Year 1 and at the beginning (T3) and end (T4) of the school year in Year 3 for a total of four data collection points. All data were initially screened for outliers to ensure that each variable was normally distributed. Each dependent variable was converted into a z-score and any score not between a z-score of -3.0 and 3.0 was eliminated<sup>31</sup> resulting in skewness and kurtosis values within acceptable ranges of +/- 2.0 and thereby conforming to assumptions of normal distribution required for analyses of variance.<sup>32</sup> This left a total of 242 (104 Males; 138 Females) participants from 11 schools remaining for further analysis (or 19% of the original population at T1). Sixty-two percent of participants were in Primary school (i.e. grades 3 to 6) at the start of the study with the remainder in Grades 7 to 9 (31%) and 10 to 12 (6%). Given that to be included for further analysis required participation in all four data collection points, there are a number of contributing factors for a high attrition rate of 80%. Some of these factors included the elimination of any outliers, dropouts from the study, dropouts from school, missing the day the questionnaires were administered, and in one case, when an entire school was closed due to a natural disaster in the area.

In addition to the quantitative methods, qualitative methods were used to examine what, if any, impact the school's PE program taught by a teacher with a PE degree who had training on the development of life skills through physical activity had upon the development of life skills and the prevention of youth violence. Semi-structured interviews were conducted with each school director (3 males, 8 females) and PE teacher (11 males). The semi-structured interviews focused upon the role that PE had within their school and within the community in general. The interview questions were not specific to a particular point in time over the previous three years, but rather the role of PE in general. A focus group of up to four students (2 males and 2 females per focus group) at each of the 11 schools was conducted at the end of the school year (i.e. T4). The students who participated in the focus group did not have to complete the questionnaire at each time period. PE teachers at each individual school chose the students who participated in the focus group. All interviews and focus groups were conducted by a trained research assistant from Pedagógica University in El Salvador and lasted anywhere from 10 to 30 minutes.

Interview transcripts were initially transcribed in Spanish by the person who conducted the interviews and then translated into English by the professional translator contracted to assist with this study. This resulted in a total of 13,505 total words transcribed into English (2479 from students, 6180 from teacher, and 4846 from the school director). A deductive analysis was used to first group the responses into one of three life-skill categories as defined by the World Health Organization.<sup>33</sup> These were 1) Coping and Self-Management Skills; 2) Communication and Interpersonal Skills; and, 3) Decision Making and Critical Thinking Skills. Once grouped within one of the three life skill categories, an inductive content analysis as described by Patton<sup>34</sup> was used to generate sub-themes within each life skill category (that had been deductively analyzed) in order to identify core consistencies and meanings. Table I provides a breakdown of each of the 3 main life skills and the sub-themes that emerged within each of them. It also provides an overview of the groups who indicated each of the sub-themes.\*

\*Results from interviews conducted with students, teachers, and principals after Year 1 (T2) of the study have been published previously in a separate article: Mandigo, J. L., Corlett, J., Ticas, P., & Vasquez, R. (2014). The role of physical education in the prevention of youth violence. A life-skills based approach in El Salvador. Chapter in K. Young & C. Okada (Eds.). *Sport, Social Development and Peace* (pp. 105-128). Bingley, UK: Emerald. The end of year interview results in this paper from Year 3 (T4) have not been previously published.

Table 1: Life skill categories and themes generated from exit interviews with students, teachers and school directors

	Students	Teacher	Director
<i>Coping and Self Management</i>			
Healthy Development	*		
Stress Management	*	*	*
Resilience	*		
Self Discipline		*	*
Diversion			*
Motivation			*
Leadership			*
<i>Communication and Interpersonal Skills</i>			
Teamwork	*	*	*
Get Along With Others	*		
Respect	*	*	*
Communication	*	*	
Help Others	*	*	
Tolerance		*	*
<i>Decision Making and Critical Thinking Skills</i>			
Problem Solving	*	*	*
Critical Thinking		*	

## RESULTS

A Repeated Measures 3 (Grade) x 2 (Sex) MANOVA was conducted. The repeated variable of Time had four levels representing each data collection point. Given that there were only 3 boys left in the analysis in Secondary School, they were removed from the examination of the interaction effect as this would have violated the assumption of a cell size being larger than the number of DVs. Pillai's Trace was used to test for significant differences due to the presence of unequal cell sizes.<sup>35</sup>

There was a significant multivariate effect of Time [ $\lambda$  (21, 216) = .190;  $p < .01$ ,  $\eta^2 = .19$ ] over the four data collection points. Table II provides a summary of the significant within-subject differences for time. Post-hoc analyses and trend lines suggest mixed results. While the use of non-violent strategies gradually improved year after year, the use of self-control and conflict resolution only increased at the end of the first school year (T2). Other variables such as the use of caring and cooperation actually showed a decline at T4 compared to previous data collection points, while sense of safety was back up to its baseline level by the time of the last data collection at the end of the 3<sup>rd</sup> year of the study.

The significant interaction effects, however, suggest that the changes in some of the variables may have affected certain groups more than others. Both the Time x Sex [ $\lambda$  (7, 230) = .790;  $p < .01$ ,  $\eta^2 = .08$ ] and Time x Grade [ $\lambda$  (7, 462) = .130;  $p < .01$ ,  $\eta^2 = .07$ ] multivariate interactions were significant along with overall between-subject differences. On average, across each four measurement times, boys reported significantly higher levels of Aggressive Beliefs [ $F$  (1,236) = 9.95;  $p < .01$ ,  $\eta^2 = .02$ ] and Use of Aggression [ $F$  (1,236) = 4.11;  $p < .05$ ,  $\eta^2 = .04$ ] than girls. However, when examining the interaction effect between Time x Sex presented in Table III, boys tended to start off the school year with high levels of aggressive behaviours and low life skills, but by the end of the school year (T2 & T4), these values had positively improved for the boys while the girls either remained the same or worsened slightly. For example, boys tended to have higher levels regarding beliefs about the use of aggression and self-reported use of aggressive behaviours and higher levels of self-control, cooperation, and conflict resolution skills at the beginning of each school year (T1 and T3) compared to the end of the school year (T2 and T4).



Table 2: Summary of significance ( $p < .05$ ) within subject differences by time

Variable	Trend	Df	F	Partial Eta <sup>2</sup>	Paired T-Test	Graph
Safety	Quadratic	1,236	7.93**	.03	T1 > T3*	
Non Violent Strategies	Linear	1,236	20.37**	.08	T3, T4 > T1**	
Self Control	Cubic	1,236	5.75*	.02	T2 > T1** T2 > T3*	
Conflict Resolution	Cubic	1,236	4.73*	.02	T2 > T1*	
Use of Caring and Cooperation	Quadratic	1,236	6.70	.03	T2, T3 > T4*	

\* $p < .05$ ; \*\* $p < .01$   
 Note: T1= Start of 2011 school year; T2 – End of 2011 school year; T3 = Start of 2013 school year; T4 = End of 2013 school year

Table 3: Summary of significance ( $p < .05$ ) within subject differences for time x sex (1,236)

Variable	Trend	F	Partial Eta <sup>2</sup>	Pairwise Comparisons ( $p < .05$ )	Graph
Aggressive Belief	Cubic	22.29**	.09	Boys T1,3 > T2 T3 > T4 Girls T2 > T1,3	
Self Control	Cubic	16.10**	.06	Boys T2 > T1, 3 Girls T3 > T4	
Cooperation	Cubic	5.09*	.02	Boys None Girls None	
Conflict Resolution	Cubic	14.81**	.06	Boys T2 > T1, 3 Girls None	
Use of Aggression	Cubic	5.96	.02	Boys None Girls T1 < T2,3,4	

\* $p < .05$ ; \*\* $p < .01$   
 Note: T1= start of 2011 school year; T2 – end of 2011 school year; T3 = start of 2013 school year; T4 = end of 2013 school year

With respect to Grade Level, there were several between subject differences. First, it is important to point out that the Grade Level is based upon the participants' grade at the start of Time 1 when they started the study. Hence, they would be two years older at the start of Time 3. Variables with significant differences included: Non Violent Strategies [ $F(2,236) = 3.96$ ;  $p < .05$ ,  $\eta^2 = .03$ ], Self-Control [ $F(2,236) = 9.44$ ;  $p < .001$ ,  $\eta^2 = .07$ ], Cooperation [ $F(2,236) = 6.06$ ;  $p < .01$ ,  $\eta^2 = .05$ ], Conflict Resolution [ $F(2,236) = 10.79$ ;  $p < .001$ ,  $\eta^2 = .08$ ] and Use of Aggression [ $F(2,236) = 5.38$ ;  $p < .01$ ,  $\eta^2 = .04$ ]. Post hoc analyses for these variables found that those initially in the Primary grades (i.e. 3 to 6) reported overall higher levels of self-control, cooperation and conflict resolution skills and lower use of non-violent strategies and aggressive behaviours than those in the Intermediate Grades (i.e. 7 to 9). However, the significant interactions between Time x Grade suggested that changes did occur over time. Pairwise comparisons of the changes suggested that those who started in the Primary Grades had

the most changes over time. For example, Primary students reported that their use of non-violent strategies increased and their belief in aggressive solutions to problems decreased by the end of the study compared to the start. However, this did not necessarily result in a change in aggressive behaviours, which actually increased from Time 1 to Time 4. Life skills such as self-control and conflict resolution increased at Time 2 compared to Time 1, but then decreased again in the following years. For those classified in the Intermediate grades, the use of non-violent strategies increased significantly by the end of Year 3 of the study. Those in the Intermediate grades also reported higher levels of conflict resolution at the start of Year 3 compared to the start of Year 1 and more aggressive behaviours at the end of Year 1 compared to the start of Year 1 and 3. Although there were no other significant changes for the secondary students (likely due to the low sample size), the trends were encouraging with the belief in aggressive behaviours and the use of aggressive behaviours being lower at the end of each

Table 4: Summary of significance ( $p < .05$ ) within subject differences for time x grade (2,236)

Variable	Trend	F	Partial Eta <sup>2</sup>	Pairwise Comparisons ( $p < .05$ )	Graph
Aggressive Belief	Cubic	3.22*	.03	Primary: T1 > T3,4 Intermediate: None Secondary: None	
Non-Violent Strategies	Linear	3.22*	.03	Primary: T4 > T1 Intermediate: T3,4 > T1 Secondary: T4,3 > T1	
Self-Control	Cubic	6.39**	.05	Primary: T2 > T1,3,4 Intermediate: None Secondary: None	
Conflict Resolution	Cubic	5.54**	.05	Primary: T2 > T1,3,4 Intermediate: T3 > T1 Secondary: None	
Use of Aggression	Cubic	8.05**	.06	Primary: T4 > T1 Intermediate: T2 > T1,3 Secondary: None	

\* $p < .05$ ; \*\* $p < .01$

Note: T1= start of 2011 school year; T2 – end of 2011 school year; T3 = start of 2013 school year; T4 = end of 2013 school year

school year compared to the beginning. Life skills such as self-control and conflict resolution followed a promising trend of being high at the end of the school year compared to the beginning.

For the qualitative interview results, prior to presenting the result of the thematic analysis specific to life skills (see Table 1), a number of observations were made when reviewing the interview transcripts with respect to the unique importance of PE that did not fit into the specific life skill categories. For example, one school director was quoted as saying “for the kids, PE is sacred more than religion. They like religion class but nothing like PE.” School directors and PE teachers regularly commented on the applied nature of PE to learn important life skills and their connection to violence prevention. For example, one teacher commented, “The role PE has is very fundamental. Through PE we can develop all the skills ... it also reduces violence and strengthens values.” Several school directors also commented on the importance of PE to learn through doing. Teachers highlighted that PE provided their students with an opportunity to learn and develop life skills and values in a safe manner by teaching through games. Teachers consequently identified helping students transfer what they learned in PE back into their daily lives within the community as an important component of PE. This made PE unique in comparison with other school subjects, which were often identified as very theoretical rather than hands-on in nature.

School directors, teachers and students also commented on the special bond that often formed between the PE teacher and his/her students. One teacher commented that he felt that he had an important role to play in watching out for his students who are recruited by gangs: “Because there are lots of different girls and all of them are different ... we need to watch out if gang members get close to them and they will try to influence them. It is good to be close to them, but this can be challenging because the girls might not want to talk to us. So we need to teach values to them as well.” School directors also commented on the positive rapport that the PE teacher had with their students in their school: “Students just love the class, and you sense it since the teacher comes in. They get so happy to see him. I think it only happens when they see him.”

PE is an applied subject that enables students to learn through doing in a safe manner. Just like students can learn to kick a soccer ball with proficiency in PE class, so too can they learn to develop important life skills. In addition, PE teachers are often viewed as mentors by their students and have a positive rapport with them. As a result, students often

look up to their PE teacher and go to them for advice and guidance. PE teachers also reported feeling obligated to keep an eye out for their students to ensure that they are safe both within and outside of school. Both of these findings suggest that PE teachers play an important role in the social fabric of a school. They often form an important bond with students that PE class can be an ideal place within educational settings to foster the development of life skills with students.

### Coping and Self-Management Skills

According to the World Health Organization,<sup>33</sup> coping and self-management skills include “skills for increasing confidence and abilities to assume control, take responsibility, make a difference, or bring about change ... managing feelings ... [and] ... managing stress.”. All three groups who were interviewed identified the role of PE in developing stress management skills. For example, one student commented: “I do believe it is important, just as the other theoretical classes, this one helps us not to be stressed.” However, stress management was the only sub-theme mentioned by all three groups of interviewees. The teacher and school director group identified self-discipline, while students identified healthy development and resilience as sub-themes. For example, several students commented on how being active is good for their health. They also commented on how it teaches them to never give up.

School directors identified diversion, motivation and leadership as key sub-themes related to coping and self-management skills. Several of the directors commented that PE class and after-school sport teams offers a diversion from more at-risk behaviors and encourages them to stay out of trouble because they were busy being active:

*... it is very important, it is part of the kids' development, and also because it keeps students active and busy, so they don't have time to do bad things and relate to bad people, if they like PE they want to participate and then they are busy.*

PE also provided a highly motivating experience for students. Another director commented on the importance that motivation through PE had on preventing students from joining gangs:

*They are doing something fun, they feel they all can and that is important. They don't feel left out. I believe one of the biggest reasons why kids join gangs is because they feel left out by their parents, friends, and teachers.*



Finally, a particularly powerful comment by a school director identified the role of PE to provide positive leadership skills to students as an alternative to participation in a gang: “Last year we had some students which belonged to a gang but we had them lead some of the games and they did great and the community saw that.”

### Communication and Interpersonal Skills

Teamwork and respect were the two sub-themes within Communication and Interpersonal skills that were reported by all three groups. Examples of quotes regarding teamwork included: “The values the teacher teaches us, like cooperation and team work, they are necessary to live better” (student); and “We need to teach how to work together. We as Salvadorans is very hard to work as a team. Everyone goes to different ways so I do work a lot on teamwork” (teacher). Respect was also a common interpersonal skill participants identified. For example, a director commented, “... we need to teach them how to follow rules. They need to learn how to listen so [that] once they are outside the school they can respect others.” A teacher supported this sentiment, and said that through PE, “...kids learn to respect each other. There are some kids that don’t even respect themselves, so as a teacher we need to tell them they are able to do it so for me respect is the key.”

Communication and helping others were two sub-themes under the broader Communication and Interpersonal Skills theme that were unique to the students and the teachers. For example, one of the students highlighted the unique feature of PE class as being the only class where they are encouraged to talk to other students, “this is the only class where we can all play together, even if we don’t talk to them in other classes.” PE class was also a place where students were encouraged to help each other. For example, a teacher said, “I encourage them to do things well, I encourage the ones which are very skillful to help the ones that are not, and that makes everyone feel better and comfortable.”

A sub-theme that was unique to teachers and school directors was tolerance. Given the holistic nature of PE and the fact that students’ performances are often on public display, this teacher used activities within PE to talk about the importance of tolerance of different abilities, “...respect, cooperation, tolerance, sometimes kids are very good at sports and some others are not so they have to be very tolerant.”

A final sub-theme that was unique just to the students was the role that PE played in helping the students get along. By

playing together, students commented that they often fight less with each other and get to know each other better and cooperate.

### Decision Making and Critical Thinking Skills

Two sub-themes emerged here: problem solving and critical thinking. All three groups commented on the role of PE in fostering problem-solving skills. Teachers in particular were very passionate about the role that PE can play in helping to reduce violence through appropriate problem solving skills, “For me the engine of our society is PE. Society needs to give more importance to PE, and we are not only talking about being fit physically but also mentally. If we were to join these two and we become aware we are creating better human beings, people capable to solve problems and as a consequence, society would be much better.”

Finally, one of the teachers commented on the important role that PE plays in helping to develop critical thinking skills, “We teach positive behaviour, we do a lot of mental work, not just exercises. The final objective is for them to critically think and to work in teams and know they have succeeded because they worked together.”

### DISCUSSION

The results from this study provide a descriptive account of changes seen over time in the use of life skills on the prevention of youth violence and the role that PE can play within schools to assist with the development of these life skills. For example, the results point to the potential impact that schools may have on decreasing aggressive behaviour, particularly for boys. The data in this study suggested that at the start of each of the school years, boys reported high levels of aggression and low levels of life skills. Such initial differences between boys and girls found at the beginning of the study are not uncommon. For example, female adolescents in Spain were more likely to report cooperative conflict resolution skills while male adolescents were much more likely to report aggressive conflict resolution skills.<sup>36</sup> Similarly, female adolescents in Mexico had higher understandings of conflict resolution and lower levels of competitiveness than males.<sup>37</sup> Some have suggested that girls acquire social-cognitive skills much earlier than boys and have better pro-social skills.<sup>38</sup> By the end of each of the school years, these levels had positively improved and in some cases were the same as the girls. Garaigordobil et al reported a similar finding with their violence prevention program in the Basque region of Spain.<sup>36</sup> Although the program had beneficial effects for both males and females, the males in the program improved more in the areas of

positive cognitions about pro-social values and behaviours. While levels of aggression and changes over time may be attributed to maturation, social factors can also play an important role with schools being a major place where students can learn and acquire the necessary life skills to control aggression.

The changes that occurred over the three-year period and the identification of the role of school-based PE to help encourage the development of positive life skills provide further support that schools provide an ideal place to foster the development of life skills at a young age. Schools can also play an important role in the desistence of aggression and violence. Erickson and Butters have shown that experiences with child and youth violence depend on whether they attend school or not.<sup>9</sup> Those attending school reported far less experience with violence than those who had left school or were held within the formal criminal justice system. In related research, Tanner and Wortley<sup>40</sup> found that Canadian students in school were three times less likely to be current gang members. Interrupted schooling, in addition to a lack of social and community support, is one of the main contributing factors to joining a gang.<sup>41</sup> For example, Olate, Salas-Wright, and Vaughn<sup>42</sup> reported that Salvadoran youth who had joined a gang were more likely to have dropped out of school than peers who had not joined a gang. In addition, at-risk youth and current gang members in San Salvador who had been expelled from school were more likely to participate in violent and delinquent behaviours.<sup>43</sup> Clearly, schools in El Salvador play a vital role in helping to develop these skills and serving as a safety-buffer between those of school age and the violence of the extracurricular environment in which some children and youth live.<sup>41</sup> School, then, is a key opportunity for social change, one that can determine positive attitudes about violence.

The results from the interviews provide further evidence to support the unique potential that PE has to foster the development of life skills within schools. Students, teachers and principals commented on the uniqueness of PE to learn life skills in an applied and enjoyable way. They also emphasized the important role that many PE teachers played as role models to their students. Many of the teachers taught life skills through games and activities so that students could practice and develop their own personal life skills. Previous research by Hanrahan and Ramm<sup>44</sup> reported that former gang members in Mexico who took part in active games that focused upon problem-solving and decision-making significantly improved happiness, life satisfaction, and self-concept. PE provides a unique opportunity for students to acquire, develop, apply the life skills they have learned, and also supports previous claims that “life skills must be taught,

not caught.”<sup>45</sup> Many of these life skills form the basic foundation for fewer aggressive behaviors and potentially less levels of violence.

In examining the themes that emerged from the exit interviews, it is interesting to note that school directors focused on the importance of PE in developing coping and self-management skills, while teachers and students more frequently focused on the development of communication and interpersonal skills. This may be attributed to the type of interaction that the school director has with the students compared to the PE teacher. While the director often identified fewer behavioural problems as a result of the PE program due to better coping and self-management skills, the teacher and students tended to focus more on examples of day-to-day interactions within the PE class related to the development of interpersonal skills that may not be as obvious to the school director. As well, more abstract life skills such as critical thinking and decision making were more obvious to teachers and school directors compared to the students who tended to report these less frequently and with less detail.

### Limitations and Future Directions

The current study did not directly measure aggression or life skill behaviours and instead relied upon the self-report of the students and retrospective recall through the interview process. Previous research has suggested that females may underreport aggression. For example, through direct observation of Canadian children, Pepler and Craig<sup>46</sup> reported that girls were just as likely as boys to bully other children. However, significantly fewer girls admitted to bullying than boys.<sup>47</sup> Future research that directly observes children and youth both during school and outside of school would be an ideal follow-up to confirm (or not) the results from this study.

Although the questionnaires used in this study had previously demonstrated acceptable psychometric properties, they were developed in English-speaking countries and were translated into Spanish for the purpose of this study. Hence, their level of relevance and representativeness of youth violence within a Salvadoran context cannot be determined. Specific modifications of current questionnaires or development of new questionnaires that take into consideration the unique nature of Salvadoran culture is therefore recommended in the future. In addition, although the interviews were conducted and then translated into English by a native Salvadoran research assistant, the transcriptions and subsequent analysis may have lost some of their original meaning. Therefore the richness and originality of the qualitative results may be lost

through translation and subsequent data analysis. This runs the risk of losing what Coalter<sup>48</sup> refers to as cultural and social interpretations connected to the context of the ideas presented during the interviews.

The design of this study was quasi-experimental and did not contain a control group. Rather, the baseline results at Time 1 were used for comparison purposes and the interviews were used to provide an understanding for any changes seen throughout the study. Therefore, it is difficult to isolate the exact impact that schools, and in particular PE had. There may be many other factors (e.g., biological, social, etc.) contributing to levels of aggression and life skill development outside of the school environment. Future researchers may wish to explore other contributing factors both within and outside of the education environment (e.g., role of families, religion, organized sport, etc.) with respect to the development of life skills and aggressive behaviours.

It is important to recognize the background of the PE teachers in this study. All of them had received training through their PE degree on the role of PE to foster the development of life skills. Throughout their PE degree, they developed the theoretical background on the importance of life skills as well as the practical experience of intentionally teaching life skills with children and youth. Although the teachers in this study were not monitored with respect to how they implemented their PE program nor were they compared to teachers without this type of training, it is important to situate the results within the context of PE programs delivered by trained PE teachers who had previous experience and background on intentionally teaching life skills through physical activities. Previous research had demonstrated their confidence and competence to deliver a program consistent with some of the basic tenants of TPSR. Despite this, due to the wide scope of the study, it was not possible to constantly monitor the teachers with respect to how they were implementing their PE program.<sup>22, 24</sup> Future research may wish to consider a more narrow and targeted scope to better understand the relationship between the pedagogical practices and curriculum being delivered by teachers and the impact on life skill development.

Finally, although longitudinal studies are an effective way to track changes over time, they are often prone to attrition of participants that are out of the control of the researchers. In this particular study, factors such as a school closing due to a natural disaster, the withdrawal of schools in the study after the PE teacher had left, students who left the school for various reasons (e.g., graduation, relocation, etc.), and simply absence on one of the data collection days

contributed towards a high attrition rate. The characteristics of those not included in the final data analysis or the exact reasons for their exclusion and/or drop out from the study were not analyzed.

## CONCLUSION

The current generation of children and youth of El Salvador today have lived through one of the most violent times in the country's 200-year history. If the trend of violence is to be truly reversed, the education system will need to take a targeted approach to support the development of life skills within Salvadoran schools. The results from this study provide support for the role of schools, and in particular PE, to help foster the development of life skills as an effective strategy in the reduction of youth violence within El Salvador. Although it should not be the only solution, there is sufficient evidence presented that when teachers are provided with appropriate training, learning life skills through PE can have a positive impact amongst students and across the school community. Such training ought to focus upon the intentionality of fostering life skills through PE and should not simply expect life skills to emerge on their own. PE teachers in this study had previously graduated from a PE University program in El Salvador that had demonstrated evidence of student-teachers who developed the knowledge and pedagogical skills needed to foster life skills through PE class.<sup>22, 23</sup> Future research may wish to compare the impact of different types of training and its relationship to implementation and student outcomes.

Given the high homicide levels amongst Salvadoran males and the significantly higher levels of male aggression, which includes both behaviours and beliefs, at the beginning of this study compared to females, there is a specific need to target effective developmentally appropriate violence prevention interventions with males of all ages. School-based interventions seem to have been particularly impactful given that by the end of the 3-year study with males and females reporting similar levels of aggressive behaviours. The trend of aggressive behaviours amongst adolescent males increasing from pre-adolescents amongst the general population across El Salvador is also of particular concern given that previous developmental research looking at aggressive behaviours suggests that physical aggression typically decreases from childhood to adolescence due to cognitive and social maturational influences.<sup>6</sup> This disturbing trend and the consistent calls for targeted school-based interventions at a young age highlight the sense of urgency to implement violence prevention programs in El Salvador for pre-adolescents. PE programs within schools appear to provide a unique opportunity to directly address

life skills development and violence reduction. Such interventions, particularly for disadvantaged youth are most effective both socially and economically when they start at a young age.<sup>49</sup>

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