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PROGRESS REPORT OF THE MULTICENTER PROJECT ON VIOLENCE (PROJECT ACTIVA)

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Who is violent?
Factors associated with aggressive behaviors in Latin America and Spain

Running head: Model evaluation

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Who is violent?
Factors associated with violence in Latin America and Spain.

Violence in the Region of the Americas has been a source of concern among different social sectors, including governmental and non-governmental organizations. In addition, violence has been defined as a major source of worry in population surveys among residents of large cities. Violence is one of the greatest threats to public health and social security, since it is not only the cause of numerous premature deaths, but also a cause of injury and disability.

Only recently has the problem of violence been seen through the eyes of public health (Koop and Lundberg, 1992). Professionals of multiple disciplines have turned to public health as a method to reduce and prevent violence. This public health approach to solve problems includes four steps: the definition of the problem, the identification of risk factors, the development and evaluation of interventions in defined populations, and the application of strategies proven effective in the prior stage to the whole community. Public health, using an epidemiological model, assumes that the majority of violence does not occur by chance, that violence has causal factors that can be identified and prevented, and that these factors could vary among different populations and places.

In Latin America, a serious limitation for the development of interventions to prevent violence has been the lack of information to clearly define the problem among different social groups and to identify risk factors associated with the acquisition, maintenance, and enactment of violence. With the objective of identifying risk factors associated with violence that could be used to orient policies and develop prevention programs, the Pan American Health Organization undertook project ACTIVA. ACTIVA is a comparative study of cultural norms and attitudes associated with aggressive behaviors toward children, the partner, and non-family members, in different cities of the Region of the Americas and Spain.

Aggression toward children by parents and caretakers in the form of corporal punishment is of special concern, due to its long-lasting and deleterious effects. Corporal punishment of children is defined as spanking or slapping toddlers, children, and adolescents. Corporal punishment has been part of the experience of most children in the U.S., since about 80% of the parents spank their children (Murray, 1996). From 1968 until the present, several national surveys have asked parents whether they approve spanking. The most frequently asked question is: “Do you strongly agree, agree, disagree, or strongly disagree that it is sometimes necessary to discipline a child with a good hard spanking?” Results have shown a general decrease in approval of spanking. In 1968, 94% of the parents approved spanking (strongly agreed or agreed to the previous question), while in 1994, 68% of the parents approved spanking. Although the reduction is important, still the percentage of parents approving spanking is high. Approval is stronger among men than women, and among African Americans than whites (Straus and Mathur, 1996).

The long-term consequences of corporal punishment are of concern. Abusive discipline methods of children are strong predictors of adolescent and adult violence (Farrington, 1989) and of male delinquency (Loeber and Dishion, 1983). Physical punishment during childhood is a risk factor for depression, hopelessness, alcohol abuse, suicide, violence against peers, physical abuse of their own children, physical assaults on wives, and lower probability of college graduation (Murray, 1996; Straus, 1994, 1996, 1997). In addition, corporal punishment does not correct antisocial behavior. In fact, longitudinal studies have shown that spanking increases the likelihood of antisocial behavior (Straus, Sugarman, and Giles-Sims, 1997).

The most endemic form of violence against women is abuse by male partners. Cross-cultural research has shown that violence against women is an integral part of virtually all cultures. A review of 35 prevalence studies in industrial and developing countries showed that one-quarter to more than half of the women report having been physically abused by a male partner. Although some studies were based on convenience samples, most were based on probability samples with large numbers of respondents (Heise, Pitanguy, and Germain, 1994). In a review of the literature in the USA, Plichta (1992) found that the prevalence of woman abuse by partners living together ranged between 10% and 35%, and that rates of severe abuse ranged between 6% and 11%. It is not possible to obtain one measure of prevalence of abuse. Each study that assesses abuse may be individually valid, but they are not directly comparable because they use different questions to evaluate abuse, have different time frames, or use different methods to collect the data. Reports of abuse are highly dependent on the method used to ascertain abuse. For example, percentages of women reporting being physically abused can widely range: 4% and 6% using a mailed questionnaire (VandeCastle et al., 1994), 7% using a self-reported questionnaire filled at the clinic (McFarlane et al, 1991), and 26% using a personal interview (McFarlane et al., 1992). Finally, experts agree that violence against women is largely underreported.

The most frequent measure of interpersonal violence is homicide. Interpersonal violence, however, is not only a problem that should be measured by its final consequence: death. Direct aggressive behaviors can be ordered in a continuum that could range from an aggressive word to homicide. This continuum implies a hierarchic progression, in which an individual can progress in time from mild forms of aggression to serious aggression. A larger group of people will display milder forms of aggression, while a smaller group will continue toward delinquent behaviors (Loeber, 1990). The concept of early prevention is supported not only by this continuum of aggressive behaviors, but also by the growing evidence that verbal aggression can have permanent negative psychological consequences.

Risk factors associated with violence are multiple, as described below in the theoretical background section. Attitudes and skills, one subset of these risk factors, are the focus of this research. Attitudes and skills can influence whether or not the person will choose to respond with aggression. Comparisons across countries will yield information to understand the relative importance of these risk factors. The main purpose of this paper is to evaluate the strength of the association between attitudes and skills for alternatives to violence and aggressive behaviors. An attitude will be

defined as an enduring evaluation - positive or negative - of people, objects, ideas, behaviors, or situations. In this study, we evaluated attitudes toward specific behaviors and attitudes toward the environment. We will evaluate the additional effect of two violence-related behaviors, firearm-carrying and alcohol inebriation, which can act as facilitators of the aggressive behavior. Thus, the final model will include attitudes, skills, firearm carrying, inebriation, plus three demographic variables (gender, age, and education). We expect that people with attitudes that support violence, with low levels of skills for alternatives to violence, who have been inebriated, and who carry firearms will show higher aggression. To develop this model, two initial steps will be taken. First, we will describe the prevalence of aggressive behaviors across different targets (partner, child, and non-family member). Second, we will analyze the bivariate relationship between physical aggression and the predictors of violence.

Theoretical Background

The identification of factors that predict or regulate aggression could provide clues for the development of intervention strategies and the orientation of government policies. In the ACTIVA project, the selection of determinants of aggressive behaviors was based on Social Cognitive Theory. According to this theory, factors in the environment where the person lives, personal factors, and other behaviors associated with aggression influence and determine each other (Bandura, 1986). These factors can also be organized into three broad phases. First, the acquisition phase consists of early predictors of aggression and factors associated with the learning process of aggression. Second, the maintenance phase consists of personal and environmental factors associated with how aggression is maintained over time. Finally, the performance phase consists of factors that instigate or facilitate aggression in the moment it is performed (Bandura, 1973) (Figure 1).

The characteristics of the environment that promote violence include living in subcultures that provide the opportunity for violence to be observed and learned (Bandura, 1986). It is important to differentiate between the real and perceived environment. The environment will influence people more strongly according to their perception of the environment than according to its actual conditions. For this reason, it is necessary to evaluate the subjective perception of social institutions, which does not necessarily reflect the actual conditions of the institutions but how they are perceived and, therefore, how people will act toward them. The hypothesis to be evaluated is that people who trust the social institutions that control violence (such as the police) will be less likely to take justice into their own hands and, therefore, would be less aggressive. People who do not trust the police or the legal system would prefer personal vengeance rather than looking for a legal solution. In addition to the prevalence of violence in the community, the development of aggressive behaviors in some subcultures is also influenced by cultural norms that accept and promote violence (Nisbett, 1993). An important aspect of these norms is the justification of illegal acts, under the assumption that aggressive people, or people who live in communities that

accept aggression as a way to solve conflicts, will tend to justify illegality more than non aggressive persons.

The process of learning violence is sometimes done not through the observation of real people in the community, but though the observation of models in mass media. Violent models on television provide a large repertoire of aggressive behaviors that people can imitate, as well as norms that accept violence. Television may have an important role both in the acquisition and in the performance of violence (Rule and Ferguson, 1986; Huesmann and Eron, 1984; Wood et al., 1991; Donnerstein, Slaby, and Eron, 1996).

Within the environment, a wide range of rewards and punishments, as well as the availability of alternative means of securing goals, will influence whether or not people will behave aggressively under given circumstances. Social Learning Theory (Bandura, 1986) distinguishes three forms of reinforcement that control aggression: external reinforcement, vicarious or observed reinforcement, and self-reinforcement.

People receive external reinforcement for their aggressive behaviors in a variety of ways: thieves obtain money or possessions, aggressive persons may increase their status, and aggressors receive attention. The victim's expression of pain can be an external reinforcement or a deterrent. It has been associated with increased aggression, but only among people with established histories of aggression and delinquency (Perry and Perry, 1974). Aggressive behavior can also be reinforced when it removes a painful experience, reduces an attack, or destroys fear of future victimization (Bandura, 1973).

By observing others, we learn what behavior is rewarded, ignored, or punished. Observed outcomes influence behavior as much as much as consequences experienced directly. Observed rewards increase the tendency to behave in a similar way as the model, and observed punishments decrease this tendency. The absence of anticipated punishment conveys permissiveness and reduces fear; thus, behavioral restraints are reduced and aggressive actions are performed more readily (Bandura, 1986).

People regulate their actions to some extent by self-produced consequences. People learn to evaluate their own behavior partly on the basis of how others have reacted to it. Parents and other socialization agents describe norms of what is worthy and what is reprehensible. Parents approve their children when they meet moral standards and reprimand them when they do not meet these standards. As a result, children come to respond to their actions with self-approval or self-criticism. Systems of self-reinforcement can also be transmitted through modeling (Bandura, 1986).

The effectiveness of punishment in controlling the aggressive behavior is determined by a number of factors: level of reward achieved by the aggressive behavior; availability of alternative means of securing the goals; the likelihood that aggression will be punished; the nature, severity, and duration of the aversive consequences; the time elapsing between aggressive actions and outcome; the level of instigation to aggression; and the characteristics of the punishing agents (Bandura,

1973). Considering all these determinants we could predict what will be the effect of punishing aggression in a given circumstance.

The use of punishment to reduce aggression has several problems: antisocial aggression is more likely to persist when the reward it produces outweighs the occasional punishment, when the person that punishes frequently models the aggressive behaviors that he or she wants to discourage in others, when punishment inhibits the aggressive behavior only when the agent of punishment is present, and when punishment does not provide information about the right behavior (Bandura, 1973). When individuals deter from behaving aggressively mainly by fear of negative consequences, conditions that reduce anticipated risk of punishment weaken restraints over aggressive responding.

When people have alternative means to get what they want, aggressive modes of behavior that carry high risk of punishment are rapidly discarded. The availability of means interacts with the effectiveness of punishment. Control of aggression through punishment is more problematic when aggressive actions are socially or tangibly rewarded, while alternative means are unavailable, less effective, or not within the capabilities of the aggressor. In addition, legal threats are probably a better deterrent for the more advantaged segment of the population, who have legitimate options to achieve rewards and who would suffer greater loss from the punishment (Bandura, 1973).

Structural violence, another aspect of the environment that influences violence, includes economic and social inequality, racism and other forms of discrimination, police brutality, corruption of the legal system and government, violation of human rights, and unequal access to education and jobs (Chassin, 1997). For example, violence affects disproportionally the poor and the uneducated. Crime rates are higher in low socioeconomic neighborhoods, and the risk of being the victim of crime increases for people of low socioeconomic status (Maguire and Pastore, 1997; Farrington, 1989).

Several personal characteristics, both psychological and biological, are associated with violence. Aggressive adolescents have stronger attitudes and beliefs that support violence as a way to solve conflicts and have less ability to solve conflicts in nonviolent ways than non aggressive adolescents (Boldizar, Perry, and Perry, 1989; Guerra and Slaby, 1989; Nisbett, 1993; Slaby and Guerra, 1988; Neel, Jenkins, and Meadows, 1990). Attitudes can be a strong predictor of aggression if we measure attitudes toward specific behaviors such as insulting, hitting or killing someone in specific situations rather than more general attitudes (Aronson, Wilson, and Akert, 1994). In addition to psychological risk factors, biological and genetic risk factors are associated with aggression. These include attention deficit hyperactivity disorder, learning disability, poor motor-skill development, prenatal and perinatal complications, minor physical anomalies, head injury, and parental criminality (Buka and Earls, 1993; DiLalla and Gottesman, 1991).

Demographic variables, which represent an intersection between biological factors and culture, define the groups of highest risk for aggression. Prevalence studies of

direct forms of aggression such as homicide or fighting have shown that men are more aggressive than women (Hammett et al., 1992; CDC, 1991; CDC, 1992; Hyde, 1984), young people are more aggressive than older people, people who belong to minority groups are more aggressive than people who belong to the majority, and people with low education are more aggressive than people with higher education (Maguire and Pastore, 1997).

Violence is not an isolated event in people's lives. Other behaviors, such as weapon carrying, alcohol abuse, and negative arguments or verbal insults, are also risk factors for violence, since they facilitate the performance of aggressive behaviors. Weapon-carrying or having easy access to weapons is a strong predictor of violence (Webster, Gainer, and Champion, 1993; Callahan and Rivera, 1992; Saltzman, et al., 1992). The primary basis for the extremely high death rate from firearms is the lethality of the weapons rather than the characteristics of the people who kill or are killed (Rice, MacKenzie, and Associates, 1989). Alcohol and drugs are also a major risk factor for being the victim or the perpetrator of violence (Kingery, Pruitt and Hurley, 1992; Drugs and Crime Facts, 1992). Although some evidence supports the notion that alcohol and aggression are related, the strength and casual nature of the relationship remains unclear. Models that explain this relationship can be classified in two types: pharmacology-based and expectancy-based. However, the relationship between alcohol and aggression cannot be entirely explained by a pharmacological model (Brain, 1986). Weapon carrying, alcohol consumption, and arguments act as facilitators of the enactment of aggression. Arguments are the precipitating factor in one-third to one-half of all homicides, especially among teenagers and adults (CDC, 1982; Rice, MacKenzie, and Associates, 1989). Most homicides are committed with a firearm, occur during an argument, and occur among people who are acquainted with one another (AMA, 1990).

Methodology

Design

Project ACTIVA used a cross-sectional design to survey a sample of the population between 18 and 70 years of age living in households in the metropolitan areas of selected cities. This household survey was conducted in eight metropolitan areas of Latin America and Spain: Rio de Janeiro and Salvador of Bahia, Brazil; Santiago, Chile; Cali, Colombia; San José, Costa Rica; Madrid, Spain; San Salvador, El Salvador; and Caracas, Venezuela. Between September 1996 and March 1997, a representative sample was selected in each city by socioeconomic stratum, using a multistage sampling procedure. The sample was stratified by clusters and was proportional in terms of socioeconomic condition and population density. The sample size was estimated at 1200 individuals per city. Individuals were selected in households by systematic sampling without substitution. This calculation assumed a variance and maximum error of a 95% confidence level. Data were collected using a common questionnaire.

Sample

The survey was administered to a sample of adults of eight cities: El Salvador-Bahia (n=1384) and Rio de Janeiro (n=1114), Brazil; Santiago, Chile (n=1212); Cali, Colombia (n=2288); San José, Costa Rica (n=1131); San Salvador, El Salvador (n=1290); Madrid, Spain (n=1105); and Caracas, Venezuela (n=1297). The total sample for these eight cities was 10,821 persons. Due to sampling problems, in two cities, Santiago and Cali, the sample had to be adjusted for socio-economic status and gender so that the sample would represent the distribution of the population. The definitions of socio-economic status by city are in Chapter 4 (Methodology and Objectives). In all cities, women were slightly over represented. A total of 4,735 men (43.8%) and 6,086 women (56.2%) were surveyed (Table 1). In all cities, except Madrid and San José, over 50% of the sample was obtained from areas defined as low socio-economic status. Non response rates varied by city and socioeconomic status, being highest in the high socioeconomic stratum and lowest in the low stratum.

Questionnaire

A common survey was developed by the principal investigators of each city, with the technical support of the Pan American Health Organization and the WHO Collaborating Center at the University of Texas-Houston. The final questionnaire included a wide range of socio-demographic characteristics of the interviewees and their families, prevalence of aggressive behaviors and of other violence-related behaviors, personal attitudes toward aggressive behaviors, skills for alternatives to violence, perception of social institutions and the government, and victimization both in the family and in the community.

The dependent variables of this study were physical aggression against non-family members, the partner, and children. To evaluate the frequency of aggressive behaviors against non family members, three questions measuring different levels of

aggression were used: insulted in connection with some problem, threatened to seriously harm, and assaulted or hit a non family member. To evaluate the frequency of aggressive behaviors against the partner, three questions measuring different levels of aggression were used: shouted in anger, struck or slapped, and struck with an object that could have hurt the partner. The time frame for aggression against non-family members and partner was the prior year and possible responses ranged between 0 and 6 or more times. To evaluate the frequency of aggressive behaviors against children, three questions measuring different levels of aggression were used: shouted, spanked, and hit the child somewhere on the body other than the buttocks with an object such as a strap or a stick. The time frame was the prior month and possible responses were "Never," "less than 4 times in the month" "1-2 times per week," and "3 or more times per week." The questions of corporal punishment of children were limited in the survey to children from 2 to 15 years of age, and included both parents and caretakers.

To evaluate attitudes and skills, seven scales were created. All scales were composed of summated items divided by the total number of items. Thus, all scores ranged between 1 (strongly disagree) and 5 (strongly agree). Higher numbers represent a stronger support for aggression and lower skills for alternatives to violence. The specific items of each scale and the internal consistency of the scores, measured by Cronbach's Alpha, are presented in Table 2.

Five scales and one item measured attitude toward behaviors: attitude toward killing others, slapping the partner, hitting the partner because of unfaithfulness (or hit the woman who is "stealing the husband"), using firearms to increase security, accepting some illegal behaviors, and corporal punishment as being necessary to bring up children properly. Responses ranged between "strongly agree" and "strongly disagree" in a five-point scale.

One scale and three items measured attitude toward the environment. The scale was a measure of social intolerance, that is, whether neighborhoods should be composed of persons of similar social class, religion, ethnic group, and political ideas. One item evaluated respondents' perception of efficiency of the police, in a 5-point scale ranging between "very good" and "very bad." One item evaluated perceptions of democracy. Respondents chose among three alternatives: "Democracy is the best political system under any circumstances," "In certain circumstances a dictatorship could be good," and "Whether we live in a democracy or in a dictatorship makes no difference to people like me." Another question measured their perception of the conditions of the country within five years. Possible alternatives were "Better off than now," "As well off as now," and "worse off than now." The last question measured their perception of the conditions of the country now. Possible alternatives were "the social system should be kept as it is," "some reforms should be made," and "the system should be totally changed."

Skills for alternatives to violence was measured by one scale, which combined three items.

Alcohol inebriation was measured by one item from the Center for Disease Control and Prevention's Youth Risk Behavior Survey (Kolbe, 1990). The question measures the frequency of drinking five or more alcoholic drinks in a row, within the month prior to the study. Responses ranged from 0 to 10 or more times. Since firearm-carrying is

illegal in most countries, firearm-carrying was organized into three categories: does not have a firearm nor wants to have one, does not have a firearm but would like to have one, and has a firearm (for sports, profession, or personal protection).

Finally, three demographic variables were included in the model: gender, age, and education. Age was measured as a continuous variable. Education was organized into three levels: elementary education or less, high school education (complete or incomplete), and some college or technical education.

Statistical Analyses

To evaluate whether physical aggression against the one target group (child, partner, or non-family member) was associated with physical aggression against a different target group, we calculated odds ratios (OR) and the 95% confidence intervals (CI). The OR represents an estimate of the risk of hitting someone, given that the person has hit someone from a different target group. Given that not all respondents had a partner or took care of a child, these analyses were based on the subsamples that reported taking care of a child between 2 and 15 years of age and/or having a partner, depending on the analysis. Approximately one third of the sample reported both taking care of a child and having a partner (Table 1).

Type of physical aggression, target of the aggression, and city presented the prevalence of physically aggressive behaviors. In addition, demographic characteristics of the sample, inebriation, firearm carrying, efficiency of police, support for democracy, perception of the future of the country, and whether they would like to change the social system described frequency of aggressive behaviors. Chi-square was computed to evaluate bivariate association between variables. In addition, analysis of variance was used to compare mean scores of those who hit someone vs. those who did not hit on all seven scales, as well as support for the item on corporal punishment. Frequencies and means were described by target of the aggression and by city.

Finally, the predictive power of the model was examined using linear regression. All analyses were done separately for each city and for each target of aggressive behavior. Variables were entered in three blocks. The first block was composed of attitudes toward the behaviors, attitudes toward the environment, and skills. The item evaluating democracy was dichotomized into democracy is the best system vs. all others. In the second block, inebriation and firearm carrying were added. Inebriation was recoded so that codes would reflect the mid points of the range of the possible response (e.g., “never” was coded as “0,” “1 to 2 times” was coded as “1.5,” etc.). Two dummy variables were created for firearm carrying: carried a firearm vs. all other and would like to carry a firearm vs. all other. The default was “does not have a firearm nor would like to have one.” In the third block, the three demographic variables were added. The final standardized beta weights are described for each city. Standardized beta weights allow for comparisons of the relative importance of each variable within each city. The percentage of the variance explained for each additional block was also described.

For the dependent variable of the regression analyses, we developed a logarithmic scale that accounted for both the frequency of the aggression and the relative seriousness of the three different aggressive acts. The logarithmic scale was computed by taking the log of the sum of the weighted items. To account for the seriousness of the acts, items were weighted by the inverse of their relative frequency. The relative frequency was calculated by city, giving the same weight to each gender. To avoid extreme values, the median of the eight cities was used as the weight. Three scales were computed: one for each target of violence (non-family member, partner, and child). All analysis was done using SPSS-PC (SPSS Inc, Chicago, and Ill).

Results

Aggressive behaviors across different targets and behavioral contexts

The association between aggression against the partner and aggression against a non-family member was strong. The overall risk of hitting the partner was on average 7.2 times higher (range among cities: 2.7 to 14.8) for those who had hit a non-family member. In six of the eight cities, the association between aggression against the partner and aggression against a child was also strong. The risk of hitting the child was on average 3.5 times higher (range among cities: 1.5 and 5.3) for those who had hit their partner. The association between hitting the child and hitting a non-family member was weaker and statistically non-significant for all cities except Rio de Janeiro. All associations were stronger in Rio than any other city (Table 3).

Within each target group, aggressive behaviors were organized in a clear hierarchy of violence (Figure 2). Highly aggressive behaviors were less frequent than less aggressive behaviors, e.g., physical aggression was less frequent than verbal aggression. Those who reported the strongest form of aggression (e.g., hitting with an object) also reported the other forms of aggression, but not all who reported verbal aggression reported physical aggression. Less than 2% of the sample reported that they never insulted a non-family member but did threaten to hit one (range among cities: 0.9% and 2.7%) or that they did hit a stranger but never threatened one (range among cities: 0.9% and 3.7%). Approximately 1% of the sample reported that they never shouted at the partner but did slap the partner (range among cities: 0.1% and 0.9%) or that they did hit the partner but never slap him or her (range among cities: 0.3% and 3.4%). Less than 5% of the sample reported that they never shouted at a child but did spank the child (range among cities: 1.2% and 7.3%), and approximately 2% of the sample hit the child with an object but did not spank him or her (range among cities: 0.4% and 4.3%).

Among those who had a partner and took care of a child between 2 and 15 years of age, the overall prevalence of having hit two or more persons (child, partner, non family member) was low, less than 5% in half of the cities (Table 4). The highest prevalence was in Cali, followed by Salvador of Bahia.

Prevalence of physical aggression by characteristics of the respondents

Gender. On average, 6.5% of the men and 2.8% of the women hit a non-family member during the year prior to the study. The prevalence of hitting a non-family member was higher for men than women ($p < .05$ to $p < .001$) in all cities, but this difference did not achieve statistical significance in Rio de Janeiro nor in Santiago (Table 4). Among those who did hit others, the mean number of times they hit did not vary significantly by gender. The highest reported prevalence of hitting non-family members was among men in Caracas, Cali, and Salvador of Bahia.

On average, 3.8% of the sample slapped their partner and 2.4 % hit their partner with an object during the year prior to the study. No statistically significant differences were observed by gender, except in Santiago where women reported more frequently than men that they slapped or hit their male partners ($p = .005$) (Table 4). Among those who did hit their partner, the mean number of times they hit was significantly higher among women than men only in Salvador of Bahia ($p = .05$). For both men and women, the prevalence of partner battering was highest in Cali and Salvador of Bahia.

The prevalence of corporal punishment to discipline children was high. Among men, on average, 15% had spanked a child and 6% had hit a child with an object during the month prior to the survey. Among women, on average, 24% had spanked a child and 11% had hit a child with an object during the month prior to the survey. Only in Salvador of Bahia and Madrid, no significant differences in corporal punishment were observed by gender. In all other cities, women were more likely than men to use corporal punishment with their children ($p < .01$ to $p < .001$) (Table 4). Among those who did hit their children, the mean number of times they hit was significantly higher among women than men from Salvador of Bahia ($p = .06$), Cali ($p = .03$), San José ($p = .01$), and San Salvador ($p = .02$). Prevalence of corporal punishment was highest in Cali, Salvador of Bahia, and San Salvador.

Age. As expected, physical aggression against non-family members was significantly higher among younger than older adults in all cities (Table 5a). The age group between 18 and 24 years old accounted for 21% of the total sample and reported 42% of the hitting of non-family members.

Physical aggression against the partner was also more common among younger than older adults. The mean age difference was statistically significant in all cities except Salvador of Bahia, San José, and San Salvador (Table 5b). The age group between 18 and 24 years old who had a partner accounted for 8% of the total sample and reported 18% of partner battering.

Physical aggression against children was also more common among younger than older adults, but the age difference was statistically significant in only half of the cities (Table 5c). The age group between 18 and 24 years old who took care of a child accounted for 8% of the total sample and reported doing 13% of corporal punishment, and the age group between 25 and 44 years old who took care of a child accounted for 66% of the total sample and reported doing 72% of corporal punishment.

Education. The relationship between educational level and aggression was confounded by age, since those with the lowest education (elementary education or less) were significantly older than those more educated (Figure 3). Among the youngest group (18-24 years old), low education was significantly associated with physical aggression toward non-family members in Salvador of Bahia (p =.06), Caracas (p =.07), and Madrid (p =.005). In addition, a very strong trend, which did not achieve statistical significance, was observed in Cali (Table 5a). Among those 25 and older, aggression toward non-family members was not associated with educational level.

Physical aggression against the partner and physical aggression against children was associated with lower educational level only in Santiago, both among the young and older adults (Tables 5b and 5c). In addition, a trend of higher prevalence of physical aggression against children among those less educated, which was statistically significant only among those 25 and older, was observed in Salvador of Bahia (p = .09), Cali (p = .04), and Caracas (p = .04).

Facilitators of aggression: inebriation and firearm carrying. Prevalence of physical aggression toward non-family members significantly increased as the frequency of alcohol inebriation increased ($p < .0001$ to $p < .05$) (Table 5a). Physical aggression toward the partner was associated with alcohol inebriation only in half of the cities: Salvador of Bahia, Cali, Rio de Janeiro, and San José (Table 5b).

In all cities except Santiago, respondents who "did not have a firearm nor wanted to have one" had a significantly lower prevalence of hitting a non-family member than respondents in the other two groups ($p<.0001$ to $p=.034$). Violence against the partner followed a different pattern. In Cali ($p<.0001$), Caracas ($p=.007$), and Rio ($p=.028$), respondents who "did not have a firearm but would like to have one" had a significantly higher prevalence of hitting the partner than respondents in the other two groups. Firearm carrying was not associated with violence against children in any city.

Attitudes and skills for alternatives to violence. In most cities, a strong association between attitudes toward specific behaviors and aggression was observed. Mean scores in scales and specific items were significantly higher among those who reported hitting others than among who did not, that is, those who reported hitting others were more likely to hold attitudes that support violence. As expected, more specific attitudes were more strongly associated with the behavior. Consequently, a positive attitude toward killing others or firearm-carrying was more strongly associated with aggression toward non family members, a positive attitude toward slapping or hitting the partner was more strongly associated with aggression toward the partner, and a positive attitude toward corporal punishment was more strongly associated with aggression toward children (Table 6). When we compared the strength of attitudes and prevalence among cities, we found that the mean support for corporal punishment in each city was strongly associated with the prevalence of corporal punishment in that city (pearson r= 0.84) (Figure 4). However, the association between other attitudes and the prevalence of aggression among cities was generally low.

The association between attitudes toward the environment and reported aggression was weaker. Those who perceived the efficiency of the police as "very bad"

or “bad” were more likely to hit a non-family member than those who had a better perception of the police in Salvador of Bahia, Cali, Madrid, and San Salvador. In general, those who stated that democracy was a better system showed a lower prevalence of aggression than those who preferred a dictatorship (Table 5). Mean scores in social intolerance were higher among those who reported hitting others than among those who did not, that is, those who reported hitting others were more likely to support segregated neighborhoods, but this difference was not always statistically significant (Table 6).

Low skills for alternatives to violence were also associated with increased aggression in all cities, but this difference was not always statistically significant (Table 6).

Regression model

The percentage of variance explained by the final model varied greatly by city and by target of the aggressive behavior. For aggression toward non-family members, the variance explained by attitudes and skills ranged from a low 7% in Santiago to a high of 19% in Salvador of Bahia and Cali. The overall model explained an average of 20% of the total variance (range among cities: 14% to 27%). The variables with a stronger association with aggression toward a non family member in all cities were lack of skills for alternatives to violence, frequency of inebriation, being young and male, and holding an attitude that killing others is acceptable. In all cities, the lack of skills was one of the variables most strongly associated with aggression. The addition of behavioral and demographic variables doubled the predictive power of the model in Caracas, Rio de Janeiro, San José and Santiago, and tripled it in Madrid (Table 7a).

For aggression toward the partner, the variance explained by attitudes and skills ranged from 6% in San Salvador to 15% in Rio de Janeiro and Santiago. These same cities had lowest and highest, respectively, percentage of variance explained by the overall model. The overall model explained an average of 15% of the total variance (range among cities: 7% to 21%). The variables with a stronger association with aggression toward the partner in all cities were lack of skills for alternatives to violence, being young, and holding an attitude that slapping or hitting the partner is acceptable. In all cities, the lack of skills was one of the variables most strongly associated with aggression. The addition of behavioral variables that facilitate aggression did not improve the model significantly, except for Cali, where inebriation and would like to have a firearm improved the model by 36%. In Caracas, Madrid, Rio de Janeiro, San José, and Santiago the addition of demographic variables improved the model by a third (Table 7b).

For aggression toward children, the variance explained by attitudes and skills ranged from a low 7% in Caracas to a high 21% in Santiago. For most cities, the variance explained was about 9%. The overall model explained an average of 17% of the total variance (range among cities: 11% to 25%). The variables with a stronger association with aggression toward children in most cities were lack of skills for alternatives to violence, being young and female, and holding an attitude that corporal

punishment is necessary. In five cities, low education was also associated with corporal punishment. The addition of behavioral variables that facilitate aggression did not improve the model significantly. The demographic variables, however, did significantly increase the predictive power of the model. In Cali, Caracas, and Rio de Janeiro the addition of demographic variables doubled the percentage of variance explained by the model, while in Salvador of Bahia and San José demographic variables increased it by two-thirds and a half, respectively (Table 7c).

A final question that needs to be addressed is what are the characteristics of the people who reported hitting someone in more than one group. Of the 3847 people who had a partner and took care of a child, 181 persons (4.7%) reported hitting the child and the partner or the child and a non family member, and only 32 persons (0.8%) reported hitting the partner and a non family member or members of all three groups. Of these 32, 11 were from Cali and none from San José. Given the small sample size of the group who hit more than one target and its uneven distribution across cities, data should be analyzed with caution. Thus, we report here only some trends. When we compared the group who reported hitting more than one target with the group who reported hitting only one target, some differences were observed. Those who reported hitting two or more groups were younger, less educated, more likely to be inebriated, had stronger attitudes toward specific behaviors that support violence, showed a higher support for dictatorship, and had less skills for alternatives to violence than those who reported hitting only one target.

Conclusions

The main purpose of this paper was to evaluate a psychosocial model of aggression, based on Social Learning Theory, in selected cities of the Region of the Americas and Spain. The model evaluated the strength of the association between aggressive behaviors and attitudes and skills for alternatives to violence, plus the additional effect of behaviors that facilitate the performance of aggression and demographic variables. The nature of this study, a cross-sectional evaluation, does not allow, however, the establishment of causative relationships between attitudes and aggressive behavior. It only allows us to measure the strength of the association. The measurement model showed in Figure 1 shows that attitudes influence aggressive behavior. This model arbitrarily assumes that aggression is the dependent variable and that attitudes are the independent variables. This model is useful for program development since it provides a guide on how to intervene to reduce violence. However, in real life, aggressive behaviors will also influence personal attitudes. Additional limitations are a result of the household interview methodology employed in this study, which may have increased socially desirable responses. Thus, the prevalence of aggressive behaviors and attitudes that support violence may be underreported. Prevalence may also be artificially lower than actual levels due to non-random refusal to respond, where the most violent or prejudiced persons may be the least likely to participate in this type of survey.

The prevalence of violence varied greatly by city. The prevalence of all forms of violence was highest in Cali, Salvador of Bahia, and San Salvador, and was lowest in Madrid, Santiago, San José, and Rio de Janeiro. Caracas had the highest prevalence of hitting non-family members among men, while violence against the family was much lower. The cities with the highest reported frequency of violence also have the highest homicide rates. For example in 1996, the homicide rate for Cali was 102/100,000 and for San Salvador was 140/100,000, while the homicide rate for Santiago was only 6/100,000 and for Madrid was 3.3/100,000. Of special concern is the high prevalence of corporal punishment, especially hitting children with an object, which could be considered a form of child abuse. Over one-fourth of the women in Cali reported hitting children with an object. Hitting children with objects was also high in Salvador of Bahia, San Salvador, and Caracas, the same cities with high violence against non-family members and high homicide rates. Since violence against children perpetuates the cycle of violence and may increase antisocial behavior, reducing violence against children may be an important venue for prevention of violence.

The predictors of aggression toward non-family members were not surprising: young men who reported inebriation, who held attitudes that support violence, and who had low skills for alternatives to violence. Similar predictors of homicide have been found in the USA, where arguments (which can be a reflection of low skills to solve conflicts) and alcohol play a fundamental role in homicide among young men. However, one more component must be added to this equation to transform a dispute

into a deadly event: a firearm. Those who hit others were significantly more likely to either carry a firearm or, if they did not have one, they were more likely to want to carry a firearm. In some cities, those who hit their partner were also more likely to want to have a firearm. Therefore, those who would like to carry firearms are not a random sample of the population. Important policy implications for control of firearms derive from these results. Countries should have strict laws that limit the access to and the availability of firearms.

The perception of a poor efficiency of the police was a predictor of violence against non-family members in the three cities with the highest prevalence of violence: Cali, Salvador of Bahia, and San Salvador. When people do not trust the police system or perceive that the police will not protect them, they may be more likely to take justice in their own hands. The trust in the police system was not related to family violence. The lack of support for democracy was also significantly associated with violence against non-family members in four cities, although in all cities those who supported democracy had a lower prevalence of reported aggression.

Violence against children was most common among young, uneducated women who held attitudes that corporal punishment is a way to discipline children, and who had low levels of skills to solve conflicts without violence. Only in Santiago was low education was a predictor of all forms of violence, while in Caracas it was associated only with family violence. In most cities, low education was associated with violence against children. Interestingly, those who supported dictatorship also had a much higher prevalence of violence against children. This may be a reflection of the way they perceive the family relations, with a “dictator” (the parents) and the children who must obey by force. Although women reported hitting their children more frequently, the reported prevalence of hitting children among men was still high. In addition, men may be more likely to hit their children harder than women. Thus, men and women should be the focus of prevention programs. Future research should include questions about injury due to family violence to assess the seriousness of the problem.

Lack of skills for alternatives to violence was strongly associated with all forms of violence. People who reported aggression were less likely to know how to solve conflicts without violence. In addition and as expected, attitudes toward specific behaviors were also associated with aggression. For example, the attitude that it is OK to hit a child was associated with aggression toward the child, and the attitude that it is OK to slap the spouse was associated with aggression toward the partner. The overall model explained a fifth of the variance of aggression toward non-family members, and somewhat less variance of violence against the family. Given that violence is determined by multiple factors and that this model evaluated only certain components, the percentage of variance explained is good. In addition, the model supports a “dose effect,” that is, those who aggress harder, more frequently, or to more than one target, were more likely to hold stronger attitudes that support violence and have less skills solve conflicts. These findings are specially promising for the development of violence prevention interventions. Additional studies need to be done in each country to describe more specific attitudes within each culture associated with aggression. These attitudes and training of skills for alternatives to violence could be the target of future

prevention programs at the individual level. At a societal level, results indicate the need for stronger support for the development of a good police system people can trust and for increasing attitudes that support the democratic system.

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Fig. 1: Evaluation model of psychosocial variables associated with aggression

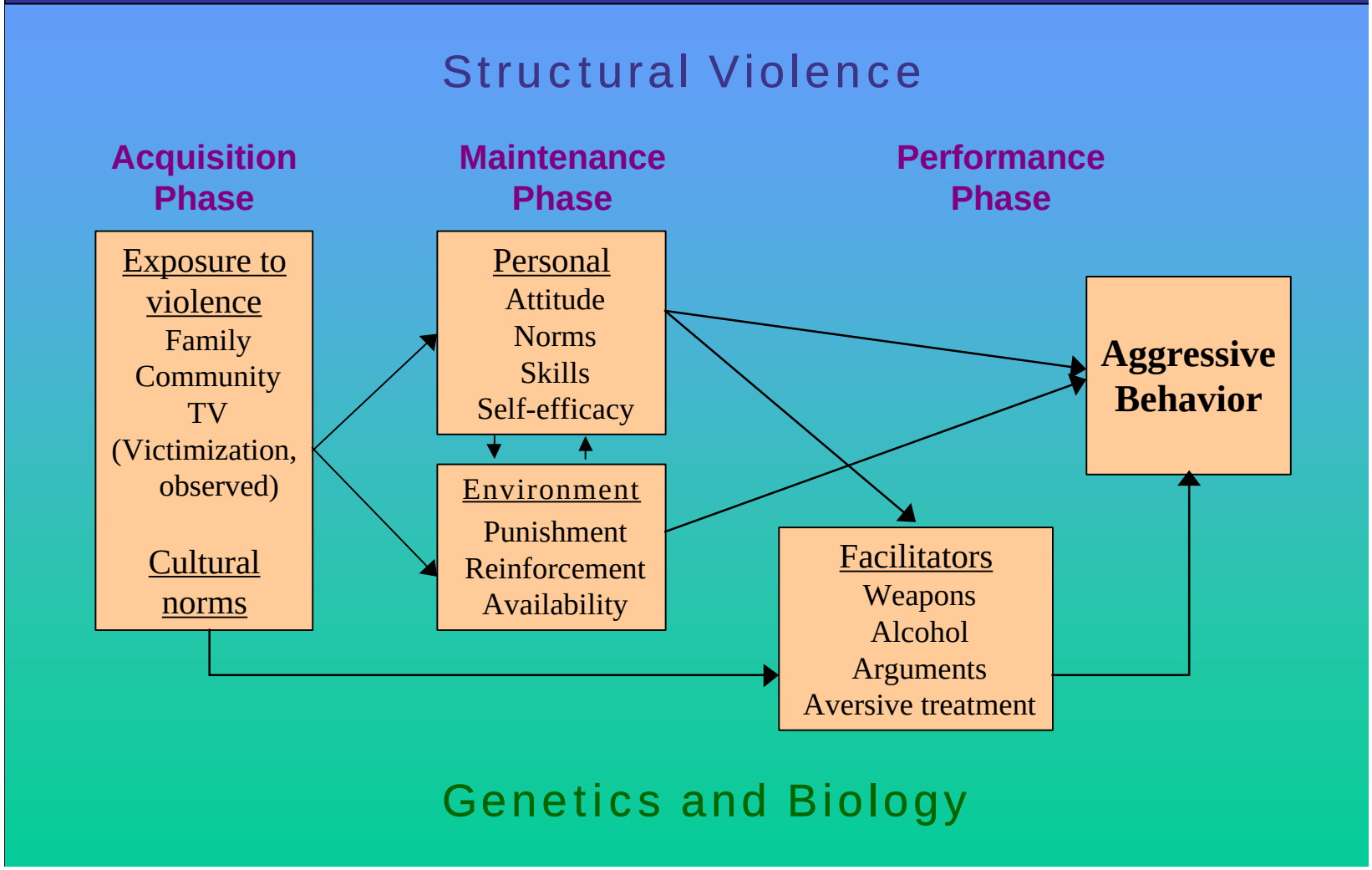

Figure 2. Levels of aggressive behaviors

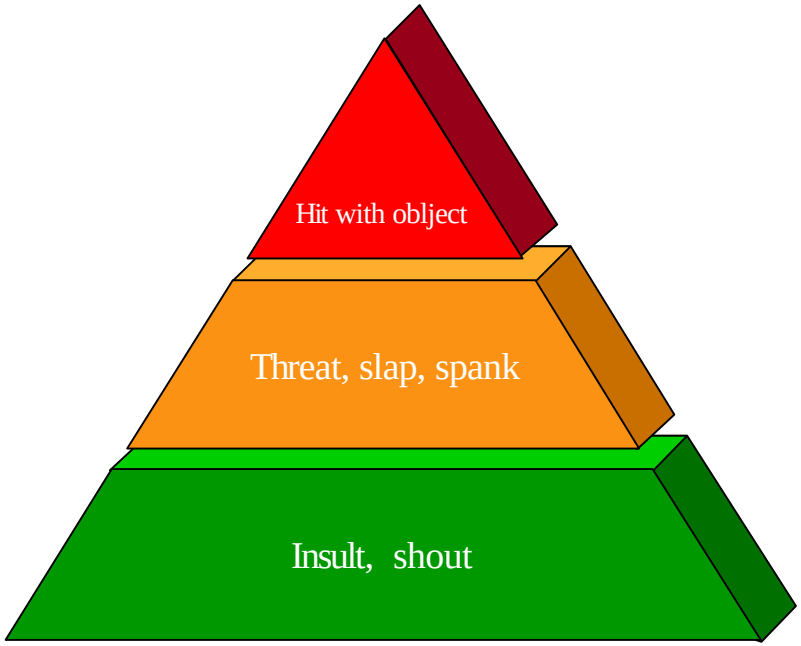

Fig. 3 Mean age by education

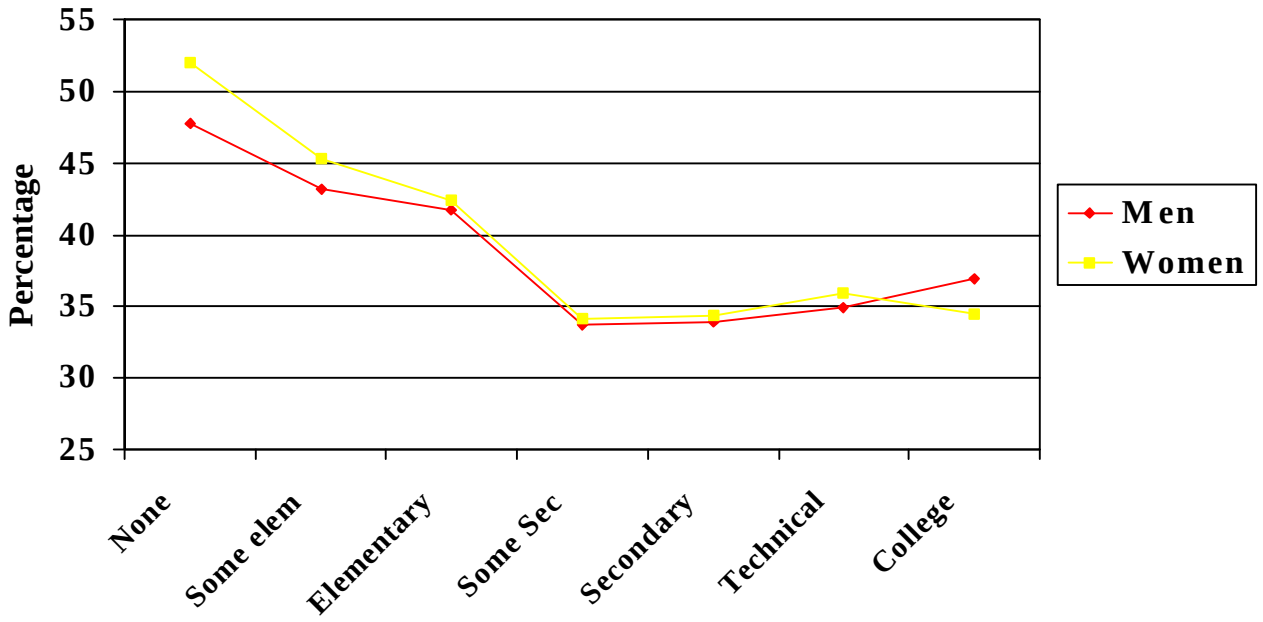

Fig. 4 Prevalence and attitude toward corporal punishment by city

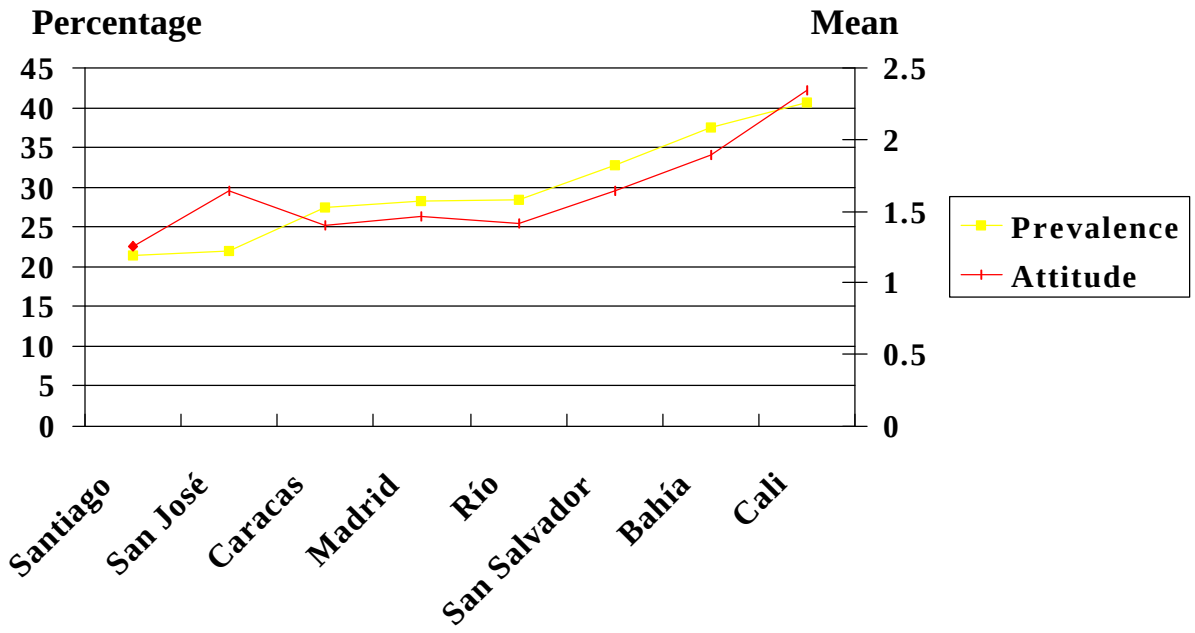

Table 1. Demographic characteristics of the sample by city - Project ACTIVA, 1997

	Salvador of Bahia, Brazil (n=1384) %	Cali, Colombia (n=2288) %	Caracas, Venezuela (n=1297) %	Madrid, Spain (n=1105) %	Rio de Janeiro, Brazil (n=1105) %	San José, Costa Rica (n=1131) %	San Salvador, El Salvador (n=1290) %	Santiago, Chile (n=1212) %
Gender								
Men	45.7	46.4	39.0	38.9	43.4	42.4	44.7	46.8
Women	54.3	53.6	61.0	61.1	56.6	57.6	55.3	53.2
Age								
18-24	22.5	22.5	21.7	20.0	18.1	20.1	20.8	20.4
25-44	51.5	52.6	49.5	43.4	46.9	43.5	50.1	49.7
45-65	23.3	21.5	24.1	28.8	29.3	29.1	24.7	24.8
65+	2.7	3.3	4.8	7.9	5.7	7.3	4.5	5.1
Socio-economic status								
High	8.2	9.9	2.3	19.8	14.5	13.6	12.6	13.9
Medium	36.6	41.5	24.2	59.8	27.2	51.0	35.4	28.8
Low	55.2	48.6	73.5	20.4	58.3	35.4	51.9	57.3
Education								
Elementary or less	24.1	23.2	13.7	26.4	34.9	19.4	26.7	11.9
Secondary	53.3	60.5	44.8	38.3	35.1	39.3	40.3	56.4
College or technical	22.7	16.3	41.5	35.3	30.0	41.3	33.0	31.7
Living arrangement								
No partner, no child	37.5	32.6	36.3	32.4	27.4	30.2	26.3	28.5
Lives with partner, no child	18.1	19.8	20.4	27.5	24.0	24.6	19.2	22.0
Lives with child, no partner	14.0	11.4	11.3	11.7	10.1	11.9	11.6	7.0
Lives with partner and child	30.4	36.1	32.0	28.4	38.5	33.2	42.9	42.4

Table 2. Scale items and reliability coefficients by city - Project ACTIVA, 1997

Scales and items	Salvador of Bahia, Brazil (n=1384) Alpha[a]	Cali, Colombia (n=2288) Alpha	Caracas, Venezuela (n=1297) Alpha	Madrid, Spain (n=1105) Alpha	Rio de Janeiro, Brazil (n=1105) Alpha	San José, Costa Rica (n=1131) Alpha	San Salvador, El Salvador (n=1290) Alpha	Santiago, Chile (n=1212) Alpha
ATTITUDES								
Killing others								
OK to kill rapist of child	0.72	0.64	0.64	0.68	0.70	0.68	0.66	0.70
OK to kill threat to community								
Right to kill to defend family								
Right to kill to defend property								
Slapping the partner	0.70	---	0.72	0.90	0.76	0.67	0.70	0.76
Sometimes is justified: men slap wife								
Sometimes is justified: women slap husband		NA						
Hitting because of unfaithfulness	0.59	0.68	0.16	0.67	0.59	0.63	0.56	0.70
Unfaithful woman: deserves to be beaten.								
OK to hit woman who is stealing husband.								
Weapon-carrying								
Gun in home makes home safer	0.73	0.83	0.85	0.75	0.65	0.86	0.81	0.77
Gun makes the person safer								
Illegal behavior	0.42	0.57	0.44	0.56	0.40	0.57	0.55	0.50
Ok to take law in your own hands								
Police has the right to enter a home without a warrant[b]								
Police can detain young because of appearance								
Police can torture suspects to obtain information								
Street children should be put in jail.				NA				
Social intolerance	0.73	0.78	0.75	0.90	0.75	0.77	0.83	0.68
Neighborhoods should be of the same social class.								
Neighborhoods should be of the same religion.								
Neighborhoods should be of the same ethnic group.								
Neighborhoods should be of the same political ideas.								
SKILLS								

Table 3. Association between different targets of violence by city - Project ACTIVA, 1997

	Salvador of Bahia, Brazil OR (CI)[a]	Cali, Colombia OR (CI)	Caracas, Venezuela OR (CI)	Madrid, Spain OR (CI)	Rio de Janeiro, Brazil OR (CI)	San José, Costa Rica OR (CI)	San Salvador, El Salvador OR (CI)	Santiago, Chile OR (CI)
Partner/non family member	7.4 (3.4, 16.2)	3.0 (1.7, 5.2)	5.5 (2.1, 14.6)	13.1 (2.5, 69.1)	14.8 (4.4, 49.3)	6.9 (1.4, 33.9)	2.7 (0.9, 8.1)	4.0 (1.1, 14.7)
Partner/child	2.8 (1.6, 5.1)	2.0 (1.3, 3.2)	2.8 (1.2, 6.6)	1.5 (0.2, 8.9)	9.3 (3.6, 24.0)	1.8 (0.5, 6.1)	3.1 (1.7, 5.9)	5.0 (2.4, 10.2)
Non family member/child	2.2 (1.0, 4.7)	1.2 (0.7, 2.0)	1.3 (0.5, 3.4)	2.2 (0.7, 6.8)	6.0 (1.8, 19.6)	0.3 (0.0, 2.5)	2.3 (1.0, 5.3)	2.1 (0.8, 5.7)

[a] CI= 95% confidence interval for the odds ratio.

Table 4. Prevalence of physical aggressive behaviors by type, gender, target of violence, and city - Project ACTIVA, 1997

	Salvador of Bahia, Brazil %	Cali, Colombia %	Caracas, Venezuela %	Madrid, Spain %	Rio de Janeiro, Brazil %	San José, Costa Rica %	San Salvador, El Salvador %	Santiago, Chile %
Hit non family member								
Men	7.4 **	9.6 ***	11.1 ***	5.8 ***	3.3	5.9 ***	5.6 *	3.4
Women	4.0	5.1	2.3	2.1	1.9	1.2	3.1	2.5
Total	5.7	7.4	6.7	3.9	2.6	3.5	4.3	2.9
Hit partner								
Men - total	10.0	9.0	5.4	3.1	4.9	3.7	7.0	3.3 **
Slapped	6.9	1.8	4.9	3.1	2.8	2.9	5.1	3.3
Hit w/object	3.2	7.1	0.4	0.0	2.2	0.7	2.0	0.3
Women - total	10.1	10.6	5.6	2.2	5.5	3.1	7.3	8.4
Slapped	5.0	4.6	3.0	2.1	4.9	2.1	3.4	5.0
Hit w/object	5.3	6.1	2.8	0.0	0.5	1.1	3.9	3.4
Total	10.1	9.8	5.5	2.7	5.2	3.4	7.2	5.9
Hit children								
Men - total	34.4	27.3 ***	11.2 ***	24.7	12.7 ***	15.7 **	25.8***	12.4 ***
Spanked	26.6	14.0	6.5	22.0	11.9	12.4	16.1	10.2
Hit w/object	7.9	13.3	4.8	2.6	0.9	3.4	9.6	2.1
Women - total	39.0	49.7	34.6	29.8	39.8	25.5	37.5	27.0
Spanked	27.3	22.9	19.8	26.9	33.8	18.5	22.1	22.8
Hit w/object	11.8	26.9	14.7	2.9	6.0	7.1	15.4	4.4
Total	37.4	40.6	27.5	28.3	28.4	22.1	32.8	21.4
Hit 2-3 groups [a]								
Men	9.3	7.6	1.5	1.0	3.9	0.7	6.3	0.0
Women	8.3	11.1	4.7	1.9	6.7	1.3	5.4	7.0

* p<.05, ** p<.01, *** p<.001 (significant difference between men and women for total hitting)

Table 5a. Frequency of hitting non family members by demographic, ehavioral, and personal characteristics and by city - Project ACTIVA, 1997

	Salvador of Bahia, Brazil %	Cali, Colombia %	Caracas, Venezuela %	Madrid, Spain %	Rio de Janeiro, Brazil %	San José, Costa Rica %	San Salvador, El Salvador %	Santiago, Chile %
Age								
18-24	11.0 ***	10.5***	13.2 ***	7.2 ***	7.5 ***	8.0 ***	7.8 **	8.5***
25-44	4.2	7.4	5.0	4.6	2.5	2.8	4.0	1.8
45-65	2.8	4.3	1.6	0.3	0.0	0.9	1.9	1.3
65+	10.5	1.3	0.0	0.0	0.0	1.2	1.7	0.0
Education (18-24 years old)								
Elementary or less	21.4	15.4	42.9	21.1 **	2.9	5.9	10.8	0.0
Secondary	9.4	10.8	12.4	9.0	7.5	9.1	6.1	9.6
College or technical	7.7	5.0	13.1	0.0	5.3	6.3	10.1	8.8
Inebriation (past month)								
Never	2.7 ***	4.8***	3.7 ***	1.9 **	1.4 ***	1.6 ***	3.7 *	1.8 ***
1-2 times	6.4	9.9	6.6	5.2	3.2	6.5	3.9	4.0
3-4 times	9.5	14.4	8.5	11.7	8.4	14.0	7.7	9.1
5 + times	13.9	13.3	11.5	15.8	7.5	21.1	10.6	13.8
Firearm-carrying								
Does not have	3.6 ***	5.4***	3.5 ***	2.8 **	1.9 ***	2.3 *	2.9 ***	2.5
Would like to have	11.1	11.2	9.6	8.6	6.7	4.0	7.6	3.5
Has a firearm	11.0	19.0	9.2	5.9	0.0	6.5	8.0	4.5
Efficiency of Police								
Bad	7.3 *	11.5***	6.2	6.3 *	3.7	3.4	9.1 ***	4.3
Fair	4.0	6.1	5.8	3.7	2.6	2.9	3.3	2.6
Good	6.7	5.1	4.9	2.2	1.7	3.6	3.0	2.8
Democracy								
Democracy is best	4.9	--	5.1	2.4 ***	1.2 ***	2.7 **	3.7	2.7
Other	6.7	--	6.8	8.9	4.9	7.3	5.4	3.3
Future country								
Better	4.9	12.0 *	5.1	2.4 **	1.4 *	3.3	6.2	3.0
Same	7.8	6.5	7.2	2.5	4.8	3.6	3.4	2.4
Worse	5.3	8.1	5.4	6.4	3.5	3.0	4.2	3.5
Social system								

Keep as is, some reforms	3.4 ***	8.4	5.0	2.9 *	1.9	2.8	3.4 *	3.3
Totally change	8.3	8.4	6.3	6.3	3.4	4.1	6.1	2.3

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

Table 5b. Frequency of hitting the partner by demographic, behavioral, and personal characteristics and by city - Project ACTIVA, 1997

	Salvador of Bahia, Brazil %	Cali, Colombia %	Caracas, Venezuela %	Madrid, Spain %	Rio de Janeiro, Brazil %	San José, Costa Rica %	San Salvador, El Salvador %	Santiago , Chile %
Age								
18-24	5.7	18.5 **	14.8***	23.1 ***	18.4 ***	9.5	9.6	25.0 ***
25-44	11.6	9.4	6.6	1.7	6.3	3.6	8.5	5.5
45-65	8.1	8.3	2.0	2.9	1.3	2.2	4.1	3.2
65+	8.3	3.9	0.0	0.0	2.6	2.2	3.7	0.0
Education (18-24 years old)								
Elementary or less	0.0	18.2	25.0	33.3	37.5	0.0	12.5	33.3 **
Secondary	2.9	18.2	17.1	16.7	14.3	11.1	11.8	34.3
College or technical	0.0	40.0	0.0	0.0	0.0	12.5	6.3	0.0
Inebriation (past month)								
Never	8.1 ***	8.5 **	5.4	2.4	4.2	2.6**	6.5	6.1
1-2 times	6.9	10.1	4.9		9.8	4.1	11.3	5.9
3 + times	18.1	17.3	6.9	5.9	6.6	11.9	9.7	5.6
Firearm-carrying								
Does not have	9.5	7.3 ***	4.0**	2.7	4.3 *	2.9	6.8	6.0
Would like to have	14.1	19.0	10.2	0.0	11.1	4.9	8.1	7.9
Has a firearm	6.7	8.6	3.2	2.1	5.9	3.8	9.1	1.3
Efficiency of Police								
Bad	9.0	10.9 **	3.8	2.1	3.9	2.5	9.4	7.8
Fair	11.1	11.3	5.9	2.1	5.7	4.3	7.2	6.1
Good	12.7	4.8	7.2	2.9	7.1	2.8	6.3	5.7
Democracy								
Democracy is best	9.4	--	5.2	2.1	5.0	3.3	7.4	3.3 ***
Other	9.5	--	6.3	4.2	6.0	4.3	6.8	10.6
Future country								
Better	7.8	5.9 *	1.8**	3.1	4.3	2.9	9.8	3.1 **
Same	8.9	9.3	5.6	0.5	8.1	4.5	5.2	5.2
Worse	12.5	13.2	8.4	2.9	4.0	3.2	7.7	9.3

Social system								
Keep as is, some reforms	9.6	10.9	5.5	2.0	5.7	3.3	7.2	5.2
Totally change	10.9	11.0	5.7	4.4	4.8	3.7	7.3	8.0

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

Table 5c. Frequency of hitting children by demographic, behavioral, and personal characteristics and by city - Project ACTIVA, 1997

	Salvador of Bahia, Brazil %	Cali, Colombia %	Caracas, Venezuela %	Madrid, Spain %	Rio de Janeiro, Brazil %	San José, Costa Rica %	San Salvador, El Salvador %	Santiago, Chile %
Age								
18-24	45.5	52.2 ***	27.1	21.4 *	48.9 ***	21.3 ***	32.6	33.3 **
25-44	39.3	30.0	29.2	33.1	34.7	27.9	35.4	22.4
45-65	29.2	29.8	20.8	17.3	6.9	8.8	26.2	12.3
65+	25.0	30.0	36.4	31.3	8.3	5.9	30.8	
Education (18-24 years old)								
Elementary or less	66.7	56.7	40.0	16.7	63.6	20.0	56.3	0.0 *
Secondary	44.0	54.9	29.4	24.3	37.5	18.5	25.7	46.9
College or technical	33.3	20.0	18.8	15.4	50.0	20.8	27.8	20.0
Inebriation (past month)								
Never	37.1	43.0 **	29.4 **	30.6	29.8	22.6	32.9	19.7
1-2 times	34.8	40.2	32.0	19.0	31.7	15.7	42.3	23.4
3 + times	41.1	28.6	16.2	18.8	18.8	25.0	22.2	31.5
Firearm-carrying								
Does not have	36.4	40.7	27.4	27.8	27.7	20.2	32.9	20.2
Would like to have	41.1	41.9	28.4	28.6	35.4	29.2	31.3	26.0
Has a firearm	41.7	30.5	24.5	38.5	13.6	22.2	37.0	17.0
Efficiency of Police								
Bad	34.2	42.1	28.8	31.4	27.9	23.2	29.1	19.4 *
Fair	37.1	42.6	26.0	30.2	28.0	21.8	35.9	26.3
Good	48.7	34.5	29.9	26.0	27.9	20.0	30.9	17.2
Democracy								
Democracy is best	30.7 ***	--	24.6	27.4	27.7	21.7	34.5	15.1***
Other	45.4	--	32.1	33.3	29.9	24.5	27.8	28.3
Future country								
Better	28.5 **	36.8	23.2	32.9	26.7	22.2	27.3	22.0
Same	36.9	37.6	29.3	24.8	25.5	18.2	34.4	20.3
Worse	42.6	42.8	29.8	26.1	31.8	23.2	33.0	21.2

Social system								
Keep as is, some reforms	37.1	38.1	29.4	27.7	28.5	23.0	33.6	23.0
Totally change	38.0	44.7	26.3	31.6	29.2	19.7	32.4	18.9

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

Table 6a. Mean scores on attitudes and skills by hitting non family members and by city - Project ACTIVA, 1997

	Salvador of Bahia, Brazil %	Cali, Colombia %	Caracas, Venezuela %	Madrid, Spain %	Rio de Janeiro, Brazil %	San José, Costa Rica %	San Salvador, El Salvador %	Santiago, Chile %
Killing others								
No hit	3.09 ***	2.86 ***	3.52 ***	2.37 ***	3.10 *	2.94 **	3.06 ***	3.20
Hit	3.83	3.28	3.95	2.94	3.54	3.42	3.70	3.36
Weapon-carrying								
No hit	1.70 ***	2.00 ***	2.00 ***	1.89 *	1.62	2.14	1.73 ***	2.05
Hit	2.79	2.56	2.64	2.28	1.95	2.54	2.39	1.89
Slapping the partner								
No hit	1.19 ***	1.53 ***	1.44 ***	1.28 ***	1.24 *	1.25	1.27 *	1.33 ***
Hit	1.67	2.26	1.84	1.77	1.57	1.40	1.47	1.89
Hitting because of unfaithfulness								
No hit	1.59 ***	1.85	2.12 *	1.43 **	1.64 ***	1.35 *	1.36 **	1.61
Hit	2.08	1.99	2.39	1.73	2.41	1.63	1.66	1.69
Illegal behavior								
No hit	1.77	1.86 ***	2.00 ***	1.90 *	1.83	2.00 **	1.95 ***	1.71 *
Hit	1.93	2.44	2.51	2.15	2.09	2.40	2.36	1.43
Corporal punishment is necessary								
No hit	1.87 **	2.32 **	1.40	1.45 *	1.40	1.64	1.64	1.26
Hit	2.32	2.63	1.46	1.77	1.71	1.75	1.65	1.14
Social intolerance								
No hit	1.57	1.74 ***	1.71 **	1.74 ***	1.55	1.47	1.83 ***	1.68
Hit	1.71	2.06	2.03	2.26	1.72	1.53	2.45	1.73
Skills for alternatives								
No hit	1.88 ***	1.70 ***	1.52	1.93	1.88 ***	1.67	1.86 **	1.75 ***
Hit	2.51	2.19	1.63	2.07	2.35	1.89	2.17	2.19

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

Note: all scores range between 1 (strongly disagree) and 5 (strongly agree). Higher numbers represent a stronger support for aggression

Table 6b. Mean scores on attitudes and skills by hitting the partner and by city - Project ACTIVA, 1997

	Bahia, Brazil %	Cali, Colombia %	Caracas, Venezuela %	Madrid, Spain %	Rio de Janeiro, Brazil %	San José, Costa Rica %	San Salvador, El Salvador %
Killing others							
No hit	3.09	2.92	3.54 ***	2.40	3.10	2.94	3.13
Hit	3.32	2.82	4.09	2.83	3.21	2.75	3.03
Weapon-carrying							
No hit	1.66	2.00 *	1.98 **	1.84 *	1.57	2.02	1.73 **
Hit	1.84	2.28	2.63	2.37	1.71	2.45	2.16
No hit	1.15 ***	1.55 ***	1.39 ***	1.25 ***	1.19 ***	1.17 ***	1.24
Hit	1.39	2.03	2.28	2.37	1.82	1.68	1.34
No hit	1.59 **	1.82 ***	2.16 *	1.45 ***	1.62 ***	1.33 ***	1.37
Hit	1.99	2.47	2.54	2.20	2.72	1.93	1.51
Ilegal behavior							
No hit	1.77 *	1.89 **	2.03	1.92	1.80	2.01	1.97
Hit	1.99	2.08	2.30	2.25	1.94	1.76	2.13
No hit	1.93	2.38	1.38	1.50 *	1.38	1.65 *	1.64 *
Hit	2.16	2.73	1.47	1.93	1.61	2.27	2.03
Social intolerance							
No hit	1.58	1.77 ***	1.75	1.77 **	1.58	1.47	1.83
Hit	1.57	2.06	1.88	2.42	1.61	1.58	1.99
No hit	1.86 ***	1.71 ***	1.51 ***	1.97	1.86 **	1.64	1.79 **
Hit	2.28	2.12	2.04	1.98	2.21	2.00	2.09

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

Note: all scores range between 1 (strongly disagree) and 5 (strongly agree). Higher numbers represent a stronger support for aggression

Table 6c. Mean scores on attitudes and skills by hitting children and by city - Project ACTIVA, 1997

	Bahia, Brazil	Cali, Colombia	Caracas, Venezuela	Madrid, Spain	Rio de Janeiro, Brazil	San José Costa Rica	San Salvador, El Salvador	Santiago, Chile

	%	%	%	%	%	%	%	%
Killing others								
No hit	3.05 ***	2.92	3.57	2.36	3.16	2.87 *	3.00	3.16 ***
Hit	3.43	2.88	3.56	2.45	3.12	3.13	3.16	3.53
Weapon-carrying								
No hit	1.69	2.05	2.00	1.75	1.60	1.93 *	1.56 *	1.95
Hit	1.79	2.07	2.08	1.92	1.76	2.24	1.78	2.04
Slapping the partner								
No hit	1.19	1.53	1.46	1.21	1.20 *	1.19 *	1.23	1.26 ***
Hit	1.24	1.56	1.52	1.20	1.35	1.37	1.29	1.65
Hitting because of unfaithfulness								
No hit	1.58 **	1.93	2.21	1.34	1.56 ***	1.30***	1.28 ***	1.58 ***
Hit	1.88	1.87	2.23	1.42	2.05	1.57	1.49	2.12
Ilegal behavior								
No hit	1.74 **	1.88	2.07	1.85	1.81 *	1.90	1.85 ***	1.77 **
Hit	1.91	1.95	2.06	1.98	2.00	2.07	2.17	2.02
Corporal punishment is necessary								
No hit	1.75	2.26 ***	1.35 **	1.33 ***	1.29 ***	1.45***	1.61 **	1.23 ***
Hit	2.28	2.88	1.58	1.67	1.85	2.16	1.87	1.58
Social intolerance								
No hit	1.58	1.72	1.85	1.67	1.54 *	1.44	1.73 ***	1.68
Hit	1.55	1.83	1.76	1.80	1.73	1.54	2.08	1.79
Skills for alternatives								
No hit	1.86 ***	1.67	1.51	1.91	1.84 ***	1.67 *	1.78 **	1.74 **
Hit	2.09	1.73	1.59	2.04	2.14	1.90	1.99	1.94

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

Note: all scores range between 1 (strongly disagree) and 5 (strongly agree). Higher numbers represent a stronger support for aggression.

Table 7a. Standardized beta weights for predictors of aggression toward non family members and percentage of variance explained by city - Project ACTIVA, 1997

Model	Salvador of Bahia, Brazil Beta	Caracas, Colombia Beta	Madrid, Venezuela Beta	Rio de Janeiro, Spain Beta	San José, Brazil Beta	San Salvador, Costa Rica Beta	Santiago, El Salvador Beta	Chile Beta
Attitude toward behaviors								
OK to kill	0.074	0.122	0.079	ns	0.098	0.107	0.070	0.052
Weapons increase security	0.154	ns	ns	ns	ns	ns	ns	ns
OK to slap partner	0.114	ns	0.090	0.126	ns	ns	0.070	0.074
OK to hit partner	0.070	ns	ns	ns	ns	ns	ns	0.081
Corporal punishment	ns	0.083	ns	ns	ns	ns	0.058	ns
Ilegal behaviors	ns	0.151	0.088	ns	ns	0.092	0.093	-0.059
Attitude toward environment								
Social intolerance	ns	ns	ns	0.088	ns	ns	0.068	ns
Police is efficient	-0.106	-0.159	ns	ns	ns	ns	-0.074	ns
Dictatorship is OK	ns	---	0.054	0.106	0.114	0.151	ns	ns
Condition of country now	ns	ns	ns	ns	ns	ns	ns	ns
Condition of country in 5 years	ns	ns	ns	ns	0.079	ns	ns	ns
Skills								
Alternatives to violence	0.213	0.228	0.121	0.133	0.209	0.150	0.128	0.142
Related behaviors								
Inebriation	0.095	0.066	0.051	0.131	0.135	0.103	0.077	0.190
Has a firearm	ns	ns	0.065	ns	0.067	0.055	0.056	0.068
Would like to have firearm	ns	ns	ns	0.114	0.084	0.057	0.054	ns
Demographic								
Gender (female)	ns	-0.100	-0.121	-0.110	-0.073	-0.144	-0.107	-0.109
Age	-0.118	-0.119	-0.246	-0.359	-0.197	-0.224	-0.156	-0.163
Education	ns	0.048	ns	-0.106	ns	ns	ns	-0.055
Variance explained by model								
Attitude/skills	19.12%	18.62%	7.77%	9.02%	11.03%	9.99%	8.95%	7.02%
Attitude/skills/behaviors	20.06%	18.62%	10.48%	16.97%	14.24%	13.10%	10.29%	11.75%
All	21.71%	22.30%	17.08%	27.28%	21.41%	20.36%	13.73%	16.80%

Table 7b. Standardized beta weights for predictors of aggression toward the partner and percentage of variance explained by city - Project ACTIVA, 1997

Model	Salvador of Bahia, Brazil	Cali Colombia	Caracas, Venezuela	Madrid, Spain	Rio de Janeiro, Brazil	San José, Costa Rica	San Salvador, El Salvador	Santiago, Chile
	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta
Attitude toward behaviors								
OK to kill	ns	ns	0.114	0.108	ns	ns	ns	ns
Weapons increase security	ns	-0.079	ns	ns	ns	ns	ns	ns
OK to slap partner	0.081	ns	0.248	0.148	0.196	0.116	0.092	0.117
OK to hit partner	ns	0.109	ns	0.119	0.133	0.165	ns	0.128
Corporal punishment	ns	0.072	-0.084	0.078	ns	0.115	ns	-0.085
Ilegal behaviors	0.161	ns	ns	ns	-0.089	ns	ns	ns
Attitude toward environment								
Social intolerance	ns	ns	ns	ns	ns	0.102	ns	ns
Police is efficient	0.091	ns	ns	ns	ns	ns	ns	ns
Dictatorship is OK	ns	---	ns	ns	ns	ns	ns	ns
Condition of country now	ns	ns	ns	0.108	ns	0.081	ns	ns
Condition of country in 5 years	0.092	ns	ns	ns	ns	ns	ns	ns
Skills								
Alternatives to violence	0.124	0.165	0.144	0.224	0.186	0.142	0.197	0.200
Related behaviors								
Inebriation	0.085	0.116	ns	0.109	ns	ns	ns	ns
Has a firearm	ns	ns	ns	ns	ns	ns	ns	ns
Would like to have firearm	ns	0.111	ns	ns	0.101	ns	ns	0.077
Demographic								
Gender (female)	ns	ns	0.088	0.104	0.109	ns	ns	ns
Age	ns	-0.120	-0.196	-0.119	-0.146	-0.168	-0.117	-0.223
Education	ns	ns	-0.135	ns	ns	ns	ns	-0.191
Variance explained by model								
Attitude/skills	8.98%	6.64%	14.22%	12.59%	15.21%	11.72%	5.72%	14.97%
Attitude/skills/behaviors	10.25%	9.05%	14.89%	12.88%	15.62%	11.72%	6.10%	16.17%
All	9.10%	9.97%	18.99%	19.88%	20.37%	15.29%	6.52%	20.61%

Table 7c. Standardized beta weights for predictors of aggression toward the child and percentage of variance explained by city - Project ACTIVA, 1997

Model	Salvador of Bahia, Brazil	Caracas, Colombia	Madrid, Venezuela	Rio de Janeiro, Spain	San José, Brazil	San Salvador, Costa Rica	Santiago, El Salvador	Chile
	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta
Attitude toward behaviors								
OK to kill	0.091	ns	0.123	0.102	ns	ns	ns	0.091
Weapons increase security	ns	ns	ns	ns	ns	ns	ns	ns
OK to slap partner	ns	ns	ns	ns	0.131	ns	ns	0.079
OK to hit partner	0.095	ns	0.075	ns	ns	0.155	ns	0.195
Corporal punishment	0.128	0.246	0.105	0.153	ns	0.163	ns	ns
Ilegal behaviors	0.107	ns	ns	ns	ns	ns	0.092	ns
Attitude toward environment								
Social intolerance	ns	ns	ns	ns	ns	0.087	0.155	ns
Police is efficient	ns	ns	ns	ns	ns	ns	ns	ns
Dictatorship is OK	0.131	---	0.075	ns	ns	ns	ns	0.152
Condition of country now	-0.105	ns	-0.076	ns	ns	ns	ns	ns
Condition of country in 5 years	0.118	ns	ns	ns	0.143	ns	ns	ns
Skills								
Alternatives to violence	ns	0.069	0.098	0.181	0.177	0.103	0.101	0.143
Related behaviors								
Inebriation	ns	ns	ns	ns	ns	ns	ns	ns
Has a firearm	0.084	ns	0.099	ns	ns	ns	ns	ns
Would like to have firearm	ns	ns	ns	-0.103	ns	ns	ns	ns
Demographic								
Gender (female)	0.148	0.278	0.246	ns	0.216	0.160	0.193	0.190
Age	-0.114	-0.107	-0.074	ns	-0.191	-0.206	-0.103	-0.076
Education	ns	-0.151	-0.083	-0.156	ns	ns	-0.100	-0.099
Variance explained by model								
Attitude/skills	10.26%	9.51%	6.65%	8.36%	9.53%	9.28%	8.66%	20.82%
Attitude/skills/behaviors	10.38%	9.18%	6.67%	9.69%	10.59%	9.99%	8.66%	20.82%

All	17.32%	21.28%	14.70%	11.34%	20.47%	14.78%	11.85%	24.68%