

DIFFERENCES IN CORPORAL PUNISHMENT BY PARENTS IN 32 NATIONS AND ITS RELATION TO NATIONAL DIFFERENCES IN IQ*

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Abstract

A previous study found that spanking by parents of two nationally representative age cohorts of children found that the more spanking at the start of the study, the more the child fell behind in development of cognitive ability when tested again four years later. There is also evidence of a world-wide decrease in use of corporal punishment (CP) by parents and of a world-wide increase in IQ. The combination of these three sets of research results suggested the hypothesis that the decrease in use of CP is part of the explanation for increase IQ in many nations. A preliminary test of this hypothesis was tested using data on CP experienced by 17,404 university students in 32 nations and data on national average IQ scores. The results show that the higher the percent of parents who used CP, the lower the national average IQ. These results provide additional evidence on the harmful side-effects of CP. Because the historic decrease in use of CP is accelerating, these results also suggest future gains in national IQ.

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The study grew out of three previous bodies of research. The first is research by Flynn (1999) and Lynn & Vanhanen (2002; 2009) which found an increase in scores on IQ tests in many nations. The second is research which found that corporal punishment by parents is associated with a slower development of the child's cognitive ability (Straus and Paschall 2009). The third is research indicating a world-wide decrease in use of CP (Straus In press) .

If CP slows development of cognitive ability, and if use of CP has decreased, it suggests that the decrease in use of CP could be an additional factor that could help explain the increase in IQ. These results also suggested the hypothesis that nations in which CP is most prevalent and most frequent have lower national average IQ scores because fewer children in those nations undergo a socialization experience that interferes with the development of cognitive ability.

In considering these hypotheses, two things need to be kept in mind. First, the focus is on legal CP, not "physical abuse." For purposes of this study, CP, is defined as 'the use of physical force with the intention of causing a child to experience pain, but not injury, for the purpose of correction or control of the child's behavior' (Straus 2001: 4). Examples include spanking or slapping a child's hand for touching a forbidden object. Second, even though the study examines data for 32 nations, which is a large number for cross-national research, 32 cases is not large enough to permit using the most rigorous statistical methods. Consequently the results presented must be regarded as preliminary.

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CORPORAL PUNISHMENT AND COGNITIVE ABILITY

Several processes could result in a link between CP and IQ. For example, research has found that talking to children, including infants, is associated with an increase in neural connections in the brain and in cognitive ability (Blakeslee 1995; Dawson and Fischer 1994). Those findings led Straus and Paschall (Straus and Paschall 2009) to theorize that, to the extent parents use CP, parents are less likely to engage in cognitive methods of behavior control such as explaining to the child why the object should not be touched. Conversely, the less CP used by a parent, the more verbal interaction is needed to teach and correct the child, and as just noted, an increased level of verbal interaction enhances cognitive ability.

In addition to limited verbal interaction, use of CP could adversely affect cognitive ability through other processes. Being slapped or spanked is a frightening and threatening event that children experience as highly stressful (Turner and Finkelhor 1996). Fright and stress can result in cognitive deficits such as erroneous or limited coding of events and diminished elaboration (Heuer and Reisberg 1992; Perry 2006). Moreover, to the extent that CP is experienced as stressful, it is a stress which, for many children it is a chronic stress because it for several years. For example, a survey of a nationally representative sample of U.S. children found that the median year of cessation was when the child was 12 years old (Straus and Stewart 1999).

Research Using Indirect Measures Of Cognitive Ability

Two studies are at least indirectly consistent with the theory that CP interferes with cognitive ability because they found CP to be related to characteristics that are related to cognitive ability. Straus & Mathur (In Press) studied a nationally representative sample of U.S. adults to examine the relation of CP to educational attainment. They found that, even after controlling for the education and occupation of the respondent's parents and other potential confounds, the more CP experienced, the lower the percentage who graduated from college. Another similar study, but using a different national sample with similar controls, found that the more CP, the lower the probability of the respondent being in the top fifth of the occupational and income distribution for the U.S. (Straus and Gimpel 1994).

Research Using Direct Measures Of Cognitive Ability

Smith & Brooks-Gunn (1997) studied 715 low birth weight children. Discipline was measured at 12 and 36 months. The Stanford Binet intelligence test was administered at 36 months. They found that the children who experienced "harsh discipline" had the lowest IQ, even after controlling for birth weight, neonatal health status, ethnic group, mothers age, family structure, mother's education, and family income. One limitation of this study is that the harsh discipline measure confounds verbal aggression by the parent with CP. Another limitation is that there was no Time 1 (T1) measure of cognitive ability.

Power and Chapieski (1986) interviewed and observed the interaction of 18 upper middle class mothers with their 12 to 15 month old children. They compared children whose mothers relied on CP with children whose mothers rarely or never used CP. The dependent variable was the child's score on the Bayley infant development scale when the children were tested at an average age of 21 months. The children whose mothers relied on CP had Bayley test scores that were exactly at the average for the U.S. (100), which is consistent with the studies showing that almost all parents hit children this age (Straus and Stewart 1999). The cognitive ability of the small proportion of children whose mothers rarely or never used CP averaged 20 points higher than the U.S. average. Two limitations of this study are the small number of cases and not differentiating "rarely" using CP from "never." The importance of making that distinction stems from the fact that professionals who defend CP typically restrict their approval to rare use of CP (Friedman, Schonberg, and Sharkey 1996). They could argue that the Power and Chapieski study confirms their belief that CP, when used only as a relative rare backup, is effective and harmless, or even beneficial.

Straus and Paschall (Straus and Paschall 2009) tested the hypothesis that the use of CP is associated with restricted development of cognitive ability. They conducted a longitudinal

examination of the growth in cognitive ability of two nationally representative age cohorts of U.S. children: 806 children age 2 to 4 and 704 children age 5 to 9 who participated in the National Longitudinal Study of Youth. Although almost all U.S. children experience at least some CP, the differences in how often mothers use CP provided sufficient variance in CP to test the hypothesis. The results from multiple regression and analysis of covariance were consistent with the hypothesis. These analyses found that, over the four years from the Time 1 (T1) testing until the T2 testing, children aged 2-4 who experienced no CP in either of the two sample weeks at Time 1 gained a mean of 5.5 cognitive ability points (on a scale with a mean of 100 and a SD of 15) relative to children whose mothers used CP. Similarly, children in the 5-9 year age group whose mothers did not use CP in either week gained a mean of about two points relative to children whose mothers used CP. Conversely, for both age groups, CP was associated with a decrease from T1 to T2 in cognitive ability test score.

Tomoda, Suzuki, Rabi, & Sheu (Tomoda, Suzuki, Rabi, and Sheu 2008) found that frequent and severe CP is associated less brain grey matter. However, the criterion for inclusion in the study was experiencing very severe CP – hitting the child with an object such as a belt or hairbrush. Although this is legal in every state of the U.S., it limits the relevance of the study because the controversy is over whether ordinary culturally acceptable spanking has harmful side-effects, such as mental health problems, aggressiveness, and lower IQ. Nevertheless, it identifies one of the neurological processes which can explain account for the relationship between CP and IQ.

A comprehensive study of the relation CP to cognitive ability (Berlin, Ispa, Fine, Malone, Brooks-Gunn, Brady-Smith, Ayoub, and Bai In Press). examined 2,573 low-income White, African American, and Mexican American toddlers at ages 1, 2, and 3. Cross-lagged path analyses found that spanking at age 1 predicted lower Bayley mental development scores at age 3. The cross-lagged panel analysis also enabled investigating the hypothesis that it was low mental ability that increased the probability of spanking rather than the spanking influencing mental development. The analysis found that low mental ability scores did not predict later spanking. However, the study also found that for White children, spanking at age 1 did not predict mental development at age 2.

TRENDS IN USE OF CORPORAL PUNISHMENT

Although each of the studies just described has limitations, they nevertheless constitute a body of research using diverse methods and samples which have found that CP is associated with impairment of cognitive ability. Together they represent a plausible basis for investigating whether a decrease in CP provides part of the explanation for the increases in IQ in many nations, and national differences in IQ. CP is experienced by almost all children in the US and in many other societies (Durrant 1999; Levinson 1981; Rohner, Bourque, and Elordi 1996; Straus In press; Straus and Stewart 1999; Tang 1998). However, the methods of measuring CP in these studies differ greatly, which has prevented comparing nations. The research presented in this article makes such comparisons possible because it uses the same measures of CP in all the nations in the study.

Although CP is widely prevalent, it has slowly decreased since early modern times (DeMause, 1984; Radbill, 1987, Newell, 1989)(Straus In press). The major decrease has been in the most extreme types -- what is now called "physical abuse." There has also been a decrease in spanking and other legal forms of CP.

Legal Change And Change In Attitudes & Behavior

The world-wide trend away from CP is most clearly reflected in the 24 nations that legally banned CP by 2009. Both the European Union and the United Nations have called on all member nations to prohibit CP by parents.

Some of the 24 nations that prohibit CP by parents have made vigorous efforts to inform the public and assist parents in managing their children. In others little has been done to implement the prohibition. Nevertheless, there is evidence that attitudes favoring CP and actual

use of CP have been declining even in nations that have done little to implement the law and in nations which have not prohibited CP. In the U.S. for example, surveys over the last 50 years asked nationally representative samples of Americans slightly different questions, but they can be compared by categorizing the answers to obtain the percent who agreed. In 1968, 94% of a nationally representative U.S. sample agreed. This declined gradually over the next six surveys to 68% in 1994 (Straus and Mathur 1996) and has stayed at around 70% since then, for example, a 2005 national survey which found that 72% agreed that is “sometimes ok to spank a child” (2005). A New Zealand study found a similar trend. The percent who agreed there are “certain circumstances when it is alright for a parent to smack a child” decreased from 90% in 1981 to 58% in 1996 and has stayed about the same since then (Carswell 2001). In Sweden, the percent supporting CP declined from 53% in 1965 to 42% in 1968, 35% in 1971, 26% in 1981, and 11% in 1994

In respect to actual use of CP, comparison of 1975, 1985 and 1995 national surveys in the U.S. (Straus 2001; Straus, Gelles, and Steinmetz 1980 (2006); Straus and Stewart 1999) show a large decrease in use of CP for older children. CP decreased by 31% for children age nine to 12 from 1975 to 1995, and 56% for children 13 through 17. However, for children 5 to 8, the decrease was 12%, and for those under 5 only two percent. An explanation for the continued high rate of hitting toddlers is given elsewhere (Straus 2005).

In Sweden in the 1950’s 94% of parents spanked, and a third did it at least daily. By 1995 the percent spanking had decreased to 33%. The percent who spanked at least daily is now only 4% (Durrant, Rose-Krasnor, and Broberg 2003). In Germany, surveys of nationally representative samples of children age 12 to 18 in 1992 and 2002 found large decreases, especially in the most severe forms of CP (Bussman 2004):

- Light slap in the face decreased from 81% to 69%
- Severe slap in the face decreased from 44% to 14%
- Beaten on the bottom with a stick decreased 41% to 5%
- Beaten to the point of bruising decreased from 31% to 3%

One can surmise that decreases of that magnitude are not likely to have occurred in response to a law passed only two years earlier and which Bussman found was not known to 70 to 75% of the population. These remarkable decreases probably reflect changes in German culture and social organization as much or more as the law banning CP. It plausible to argue that it was changes in the nature of German society which led to both the legal prohibition of CP and the reductions in use of CP just listed.

The United States is a nation with a strong cultural commitment to the idea that CP is sometimes necessary. It took several years of bitter debate before the American Academy of Pediatrics was able to adopt a policy advising parents to not spank (American Academy of Pediatrics 1998). However, although it is a strong anti-CP statement, the compromise wording excludes hitting a child with an open hand on the buttocks from the type of punishments which should *never* be used. A similar compromise was necessary to gain organizational endorsement of a report and policy statement advising against CP (Gershoff 2008). Still, in the context of the strong cultural support for CP, it is remarkable that within a few months of publication, the report was adopted by the American Medical Association, The American Academy Of Pediatrics, and more than 30 other organizations. Thus, in the United States as in many other nations, a movement away from CP is taking place.

THE WORLD-WIDE INCREASE IN IQ

Flynn (1999) and Lynn & Vanhanen (2002; 2009) have documented world-wide increases in scores on intelligence tests. The studies used many different types of tests and were conducted by different researchers. The evidence leaves little doubt that intelligence test scores have been increasing, and that the increase is not an artifact of the tests used. There are a number of plausible contributing factors. For example, there is abundant evidence that

children of educated parents obtain higher scores on intelligence tests (Neisser, Boodoo, Bouchard, Boykin, Brody, Ceci, Halpern, Loehlin, Perloff, Sternberg, and Urbina 1996). Since the level of education of parents has been increasing world-wide, this is likely to be an important part of the explanation. Another strong possibility is that nutrition levels have been improving because better nutrition is associated with greater cognitive ability (Rizzo, Metzger, Dooley, and Cho 1997).

The research reported in this article is based on the theory that another of the causes of the world-wide increase in IQ might be a world-wide reduction in use of CP by parents. Because there is no multi-nation data on trends in CP, the theory cannot be tested longitudinally. However, the theory can be tested cross-sectionally because there is data on use of CP by parents of university students in 32 nations. There are also estimates of national average IQ for these nations. This permits testing the theory that, nations with low rates of CP have a higher average IQ test score.

Although 24 nations have banned CP by parents, this is only a fraction of the approximately 200 national entities. However, the changes in society which led to the legal changes, such as the increase in average education levels and the globalization of culture are operating in a large proportion of the nations of the world, and a very large number have banned CP in schools (Straus In press). The school legislation may have a carry over effect on parents. In addition, the spread of parental advice books, and newspaper and magazine articles which, although they do not say "no CP" provide parents with alternative modes of correction. Thus, even without legal action, it is plausible to assume that use of CP by parents is decreasing in many nations.

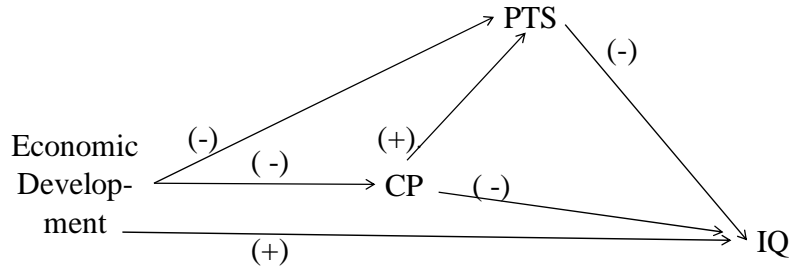
THEORETICAL MODEL

The research reviewed is consistent with the theory that CP causes a reduction in IQ. In addition, a previous study of the sample studied for this paper found that the more CP experienced by university students, the greater the probability of post-traumatic stress symptoms (Straus 2008a). If CP is a traumatic and chronic stress, it should adversely affect brain development. This is what a neuroimaging study found, and specifically less brain grey matter for the part of the sample which experienced CP (Tomoda, Suzuki, Rabi, Sheu, Polcari, and Teicher In Press, 2009).

The studies reviewed also indicate that use of CP is declining and that the higher the level of national economic development as measured by the Gross Domestic Product, the less use of CP by parents (Straus 2008a). If CP is conceptualized as a socially legitimate form of interpersonal violence, as were duels to settle grievances until the end of the 18th century, the low prevalence of CP in economically developed societies is consistent with the "civilizing process" theory used by Elias and Eisner to explain the reduction of homicide and other forms of interpersonal violence since the late middle ages (Eisner 2001; Eisner 2003; Elias 1978; Elias 1997). This in turn suggested including GDP in the theoretical model to be tested, and specifically the hypothesis that the level of economic development as measured by the GDP underlies part of the relationship between CP and IQ. Figure 1 diagrams the theory to be tested, which includes the following hypotheses:

1. The higher the level of economic development: (A) the less CP, (B) the less post-traumatic stress symptoms, and (C) the higher the national average IQ.
2. The higher the prevalence of CP, the higher (A) the post-traumatic stress symptoms, and (B) the lower the national average IQ.

Figure 1. Theoretical Model



METHOD

Sample

The International Dating Violence Study. The research uses data from the International Dating Violence Study, which was conducted by a consortium of researchers in all major world regions. Each consortium member used the same core questionnaire, except for the final section, which was reserved for each member to add questions about issues of specific local or theoretical interest. A detailed description of the study, including the questionnaire and all other key documents, is available on the website <http://pubpages.unh.edu/~mas2>, and in previous articles reporting results from this study (Douglas and Straus 2006; Hines 2007; Straus 2004; Straus 2008b).

Questionnaire Administration. The data were gathered using procedures reviewed by and approved by the boards for protection of human subjects at each of the universities in the study, or where such a board was not in place, by a Dean or other administrator with responsibility for reviewing research ethics. The purpose of the study and the right to refuse to participate were explained to all students. They were assured of anonymity and confidentiality, and given a debriefing form that explained the study in more detail. The students were also provided contact information for area social service agencies should they need assistance.

Study Participants. The participants are a convenience sample of students at 68 universities in 32 nations. The regional coverage includes two nations in sub-Saharan Africa, seven in Asia, 13 in Europe, four in Latin America, two in the Middle East, two in North America, and two in Oceania. Although for convenience the term “nations” will be used in this article, Hong Kong and Taiwan are not recognized as separate nations by China.

The data were obtained by administering a questionnaire during regularly scheduled classes. Most of the classes were in psychology, sociology, criminology, and family studies. The median sample size is 285 (range = 99 to 4,533). Seventy percent of the students were female because the questionnaires were administered in social science courses that tend to have a large percentage of female students. Because this study is focused on issues in which gender differences are crucial, the analyses were replicated for male and female students.

About 20,000 questionnaires were administered. Of these, about four percent could not be used because of a large number of unanswered questions. The questionnaires with sufficient data were examined for aberrant response patterns such as an implausibly high frequency of rare events, for example, 10 instances of attacking a partner with a knife or gun in the past year; or inconsistent answers, for example, reporting an injury but no assault. Based on this screening method, 6.2% of the approximately 19,200 completed questionnaires were dropped from the sample. This resulted in a sample of 17,404. Table 1 gives the characteristics of the students in these 32 nations.

(Insert Table 1 about here)

Validity Of The Student Data

The use of a convenience sample means that results describe what was found for the students in those classes in each country and cannot be taken as representative of the nation, or even of students in general. However, there is evidence that the behavior and beliefs of these students reflects the national context in which the students lived. Analyses of the degree of correspondence between seven concepts as measured by the International Dating Violence Study and as measured by studies using representative samples found correlations that ranged from .43 to a high of -.69 (Straus In Press, 2009). The -.69 correlation was between scores on a scale to measure male dominance in dating relationships. This correlation shows that the more male dominance reported by the students in this study, the lower the score on the Gender Empowerment Measure published by the United Nations Development Program (2005).

Measures

Corporal Punishment

Two questions were asked to assess experiences of CP: "I was spanked or hit a lot by my parents before age 12" and "When I was a teenager, I was hit a lot by my mother or father" The response categories were: (1) Strongly Disagree, (2) Disagree, (3) Agree, and (4) Strongly Agree. The CP rate in each nation was measured by the percentage of students who agreed or strongly agreed. Results will be presented for both the child and the adolescent questions.

National Average IQ

The data on national average IQ is from Lynn and Vanhanen (2002). The concurrent validity of the measures of IQ is shown by the correlation of .94 for the 81 nations for which there were two or more different measures of IQ. The construct validity of the IQ scores is shown in many articles and books (Dickerson 2006; Lynn and Vanhanen 2002; Lynn and Vanhanen 2006; Neisser 1998; Rushton 2003). The data include estimates for some nations based on the mean of neighboring nations. The correlation of .94 (check this??) between these estimates and actual IQ scores which became available later for some nations indicates the validity of the estimates. Nevertheless, for this study, some key analyses were repeated using only the 28 nations for which direct measures of IQ were available. The results were almost the same as for the full set of 32 nations, except that some correlations became non-significant due to the lower N.

Gross Domestic Product (GDP). This variable was obtained from the Human Development Index data file (United Nations Development Programme 2005).

Post-Traumatic Stress Symptoms (PTS). The Post-Traumatic Stress Symptoms scale of the Personal and Relationships Profile (Straus, Hamby, Boney-McCoy, and Sugarman 1999 (Revised 2007)) was used measure PTS symptoms. Two examples of the items are "I've been terrified by things that have happened to me" and "I am easily startled." The four response categories are from Strongly Disagree to Strongly Agree. The scale score is the mean of the eight items, transformed to be a percentage of the maximum possible score. The alpha coefficients of reliability for this sample are Males .69, Females .72, Total sample .71.

Limited Disclosure Scale. Differences between groups such as nations in self-reported behavior could reflect group differences in willingness to report socially undesirable

behaviors as much or more than real differences in the variables measured. To deal with this threat to validity, scores on a scale which measures the tendency to avoid reporting socially undesirable behavior -- the Limited Disclosure scale of the Personal and Relationships Profile (Straus, Hamby, Boney-McCoy, and Sugarman 1999 (Revised 2007); Straus and Mouradian 1999) was used as a covariate. This is a 13-item scale asking about behaviors and emotions that are slightly undesirable but true of most people, such as "I sometimes try to get even rather than forgive and forget." The response categories range from 1 (Strongly Disagree) to 4 (Strongly Agree). The score is the mean of the items answered, provided at least 10 were answered. The alpha coefficients of reliability for this sample are Males = .65, Females = .69, Total = .66. The reason for controlling for score on the Limited Disclosure scale is indicated by the correlation of -.23 with score on the PTS symptoms scale. However, the Limited Disclosure scale was not correlated with student reports of CP by parents, either as a child ($r = -.02$) or as an adult ($r = .01$).

Data Analyses

An adequate test of the causal model in Figure 1 requires structural equation modeling or multiple regression. However, structural equation modeling is not appropriate with an N of 32, even though 32 nations is a large sample for a cross-national study. Multi-level modeling also could not be used because the dependent variable (Ia) is a nation level variable. Consequently, bivariate correlation and regression and scatter plots were used to test the relationships in the causal model. This does not allow for control of overlap between the variables and the results are presented as a first step in testing the theory.

The possibility that the differences between nations reflect national differences in willingness to disclose sensitive personal information was investigated. The analyses were replicated using multiple regression with the Limited Disclosure scale as a control variable. The results did not differ enough to change conclusions based on the bivariate analyses.

Data from the International Dating Violence Study is available separately for the men and women. This permitted examining whether the relation of the percent of parents who used CP to national average IQ is different when the analysis is based on the percent who used CP with girls compared to the percent who used CP with boys.

RESULTS

(Insert Tables 2-5 about here)

National Differences In CP, PTS Symptoms, and IQ

Tables 2 through 5 show the 32 nations in rank order of the prevalence of each of the main variables of the study. Caution is needed when interpreting the tables for CP and PTS Symptoms because the data are for university students, not the population as a whole. Nevertheless, as was explained in the section on Validity of The Data, there is strong evidence that the experiences of these students reflects the national context in which each of the student samples were living (Straus In Press, 2009). Consequently, the rank order, even if not the absolute values, for each nation is likely to approximate what would be true if the data were based on a probability sample of the general population. Nevertheless, it is best to evaluate the position of each nation based on whether they are in the upper quarter, middle quarters, or lowest score quarter.

Corporal punishment under age 12. Table 2 shows large differences between nations in the percent of students who were spanked or hit a lot before they were 12 years old. In two nations, 40% or more of the students reported that they had been spanked or hit a lot before the age of 12 (Mexico and South Africa). At the other end of the continuum, 10% or less of the students in four nations were spanked or hit when they were younger than 12. In almost all the 32 nations, more boys than girls were spanked or hit a lot at that age, which is consistent with all other studies that have compared CP of boys and girls.

Corporal punishment as a teen-ager. Table 3 shows that a quarter of the students in Tanzania and South Africa were hit a lot by their mother or father when they were teenagers.

This is in strong contrast to the five nations at the low prevalence end of the table where less than one out of 20 were hit a lot as teenagers.

PTS. The mean scores on the Post-Traumatic Stress Symptoms in Table 4 also show large difference between the 32 nations in this study. In Taiwan the mean score of the students (54.7) indicates that the average student had a score that was just over half of the maximum possible score of 100, and in Hong Kong the mean of 49.8 is approximately half of the maximum possible score. At the other end of the distribution, the average student in the sample from the Netherlands had a PTS symptoms score that was about one quarter of the maximum score. Thus, students in the two highest scoring nations had a PTS Symptoms score that is roughly double that of the students in the nation with the lowest PTS Symptoms score. In addition, 4 shows that the women in this study tended to have somewhat higher PTS Symptom scores than the men.

IQ. Table 5 shows the differences between the 32 nations in national average IQ. These statistics will be familiar to those acquainted with research on national differences in IQ because they are the estimates provided by Lynn and Vanhanen (2002; 2006) used in many studies. Among the 32 nations in the current study, as in studies which used all of the 185 nations estimated by Lynn & Vanhanen, the highest scoring nations are in the Far East and the lowest scores are for developing nations in different parts of the world.

(Insert Figures 2 and 3 GDP & CP about here)

Tests Of The Hypotheses

Relation of GDP to CP, PTS Symptoms, and IQ. Because the theoretical model in Figure 1 posits the Gross Domestic Product as causing a national reduction in CP, less traumatic stress, and higher national average IQ, the results for those hypotheses are presented first. The correlation of national GDP with the national average IQ for the 32 nations in this study is .67. This is close to the correlations obtained for all nations for which IQ data is available as (Lynn and Vanhanen 2002; Lynn and Vanhanen 2006; Neisser 1998).

The new contribution of the current study is in testing the hypothesis that GDP is also associated with less CP and less PTS symptoms. This is important because both PTS and CP may interfere with cognitive development. The results in Figure 2 are consistent with the hypothesis that higher GDP is associated with a lower percent of parents who use CP with children under 12, but the correlation of -.25 is not large enough to be statistically significant with an N of 32 ($p = .09$). However, Figure 3 clearly shows that the higher the GNP of a nation, the lower the percent of parents who used CP with teen age children ($r = -.60, p < .01$).

(Insert Figures 4-8 about here)

The hypothesis that the higher the level of economic development of a nation as measured by GDP, the lower the average Post-Traumatic Stress Symptoms of the nation is supported by the results in Figure 4 ($r = -.48, p < .01$).

Relation of CP to PTS Symptoms. The next path tested in the theoretical model was for the hypothesis that the more CP the greater the probability of PTS Symptoms. This hypothesis was tested at both the individual student level and at the nation-level. The results for individual students in Figure 5 show that, after controlling for the socioeconomic status of the students parent and the students age and score on the Limited Disclosure scale, there is a strong relationship between CP and PTS symptoms. Moreover, the possibility that this is an artifact of confounding with national economic development was examined by testing the interaction of CP with quintiles of GDP. Figure 5 shows that the relation of CP to PTS Symptoms applies at all five levels of national economic development.

Figure 6 shows that the larger the percent who experienced CP before age 12 in each national context, the higher the average Post-Traumatic Stress Symptoms score of students in the national context, and this is a very strong relationship ($r = .60, p < .01$). Figure 7, which is for CP experienced as a teen ager, shows an even closer connection between CP and PTS Symptoms ($r = .70, p < .01$).

Figure 8 uses nations as the cases and shows a tendency, consistent with the theory, for the mean PTS Symptoms score of students in each nation to be associated with lower national average IQ. However, the relationship is weak and not significant ($r = -.19, p .15$)

(Insert Figures 9 and 10 about here)

Relation of CP to IQ. Figure 9 shows a slight tendency for national average IQ to decrease as the percentage of parents who used CP with children under 12 increases ($r = -.21, p .14$). About the same correlation was found for boys ($r = -.20, p .14$) and girls ($r = -.19, p .15$). For CP of a teenagers, Figure 10 shows that the link between CP and IQ (Figure 2) is quite strong ($r = .43, p .007$) and is even stronger for boys ($r = -.59, p < .001$) than for girls ($r = -.37, p .02$).

DISCUSSION

A number of studies have found that the higher the Gross Domestic Product (GDP) of a nation, the higher the national average IQ (Dickerson 2006; Lynn and Vanhanen 2002; Lynn and Vanhanen 2006; Neisser 1998; Rushton 2003). The results presented in this paper show that this relationship also applies to the 32 nations in the International Dating Violence Study. The new contribution of this study is in developing a theoretical model to explain why GDP is so closely related to national average IQ and providing a preliminary empirical test of that theory. Those tests found that the higher the percentage of parents in a nation who used corporal punishment (CP), the higher the average score of students on a measure of post-traumatic stress symptoms and the lower the national average IQ. Because economic development brings with it a decrease in use of CP, these results suggest that a reduction in use of CP is part of the process explaining the correlation between economic development and IQ.

Limitations

Although the results are consistent with the theoretical model, they must be regarded as a preliminary test of the theory because an adequate test requires use of structural equation modeling statistical analysis. That was not which was not possible with an N of 32.

Second, the measurement of CP was limited and used questions that are less than optimal. The question on CP as a child and as a teen asked whether the parents spanked or hit "a lot." But what is "a lot"? It is almost certain to vary from person to person and from nation to nation. The child question also confounds "spank" and "hit" because "hit" can refer to anything from a slap on the hand to punching with a fist. Thus, the parental behaviors could include acts that go beyond legal CP and include acts judged to be physical abuse. Future research should use measures such as Dimensions of Discipline Inventory that identify the specific acts and ask about the frequency of those acts in a specified year or time period (Straus and Fauchier 2007).

Even with better questions, the limitations of recall data remain. They are particularly problematic when the dependent variable is based on self-reports, such as the Post-Traumatic Stress Symptoms scale. Fortunately, both the measure of economic development and the measure of IQ are completely independent, thus removing "shared method variance" as a threat to validity for those parts of the results.

Third, the theoretical model is based on the assumption that the reduction in CP which accompanies economic development has a direct causal relation to higher IQ because CP is experienced by children as a traumatic stress. However, the real underlying cause, or an additional cause of the finding that nations with a lower percentage of parent who use CP may not be CP per se, may be other changes in parenting that accompany national economic development, such as those in the Parental Modernity scale (Morrissey and Mulvaney 2009; Schaefer and Edgerton 1985). To take one example, abandoning the principle that children should be seen and not heard means more verbal interaction with the child, which is known to enhance cognitive development.

Implications For Well-Being Of Children And Nations

The results of this study, although tentative, together with the more definitive results at the individual child level from a longitudinal study of two nationally representative cohorts of American children showing that children whose parents avoided CP had the largest growth in cognitive ability over a four year period (Straus and Paschall 2009) have major implications for the well being of children and nations. In the context of a world in which use of CP is decreasing, they suggest that the increase in IQ documented for the last century is likely to continue, together the economic and social benefits that accompany a nation with a high average IQ (Lynn(Lynn and Vanhanen 2002; Lynn and Vanhanen 2006)).

The benefits of ending use of CP, however, are likely to go beyond an increase in IQ. Since the pioneer study *Patterns Of Child Rearing* (Sears, Maccoby 1957) which found that CP was associated with heightened aggression by the child and a less well developed conscience, a growing body of research has found other harmful side effects of CP. A meta analysis of 88 studies by Gershoff (2002) found 93% agreement between studies in finding such harmful side-effects as physical aggressiveness, delinquency, and mental health problems. Thus, reducing or ending CP could have many benefits in addition increased mental ability. Until recently, however, the lack of longitudinal studies has left open the causal direction.

Causal direction is always an important question in non-experimental research and is particularly important for research on the possible side effects of CP because many, such as hitting a sibling or hitting the parent, are precisely what parents spank to correct. There is no doubt that child misbehavior is one of them causes CP. However, there are many other causes, some of which are characteristics of the parents such as impulsiveness, and others characteristic of socio-cultural context such as cultural norms permitting and in some cases requiring parents to use CP (Straus In press). There are now eight longitudinal studies, which have controlled for the Time 1 level of the maladaptive child behavior and found that the long-term effect of CP is to *increase* the probability of those behaviors (Straus 2001). Thus, a reduction in use of CP by parents also portends a reduction in the prevalence of mental health and social problem behaviors.

Policy And Practice Implications

Despite extensive evidence on the harmful side effects of CP, a survey of clinical child psychologists found that the majority would recommend spanking under certain circumstances (Schenck, Lyman, and Bodin 2000). My own informal estimate is that less than 10% would go so far as to recommend never spanking. The rejection of the evidence was illustrated in an article entitled "Twenty Studies That Shook Up Developmental Psychology(Dixon 2003). One of the twenty was a longitudinal study of a nationally representative sample of American children (Straus, Sugarman, and Giles-Sims 1997) which found that CP at Time 1 was associated a subsequent increase in child antisocial behavior, whereas the children who were not spanked at Time 1 had a reduced level of antisocial behavior at Time 2. But rather than signaling acceptance of the importance of that study, inclusion in the list of 20 studies signaled the opposite because the criteria for inclusion in this list was that the study had aroused wide attention *and* was questionable or perhaps fraudulent.

The most direct evidence the reluctance to attend to the results of research on CP is from an informal content analysis of child development textbooks. At the 2009 conference of the Society For Research In Child Development, I examined all textbooks books with a 2009 or 2010 copyright at the five first publisher's booths. The number of pages on CP in the ten books ranged from 0 to 2.5, with a mean of 1.5 pages. Although this is more than triple the mean number of pages in child development textbooks published from 1992 to 1996 (Straus and Stewart 1999), it is inadequate coverage for an issue that affects almost all American children. None mentioned the meta analysis by Gershoff (2002) which found 93% agreement between 88 studies of the relation of CP to child maladaptive behavior. All ten signaled non-acceptance of this preponderance of evidence by declaring that harmful effects of CP is a "controversial issue."

It is time for psychologists and parent educators to recognize the need to help parents end use of CP and incorporate that objective into their teaching and clinical practice. This is slowly beginning to happen, but mostly in university related settings and in research. For example, a randomized control trial of 500 families (Beauchaine, Webster-Stratton, and Reid 2005) evaluated a program to reduce child conduct problems. It found that one of the main ways the intervention reduced conduct problems was by reducing CP. This is also the conclusion from intervention research by ?? and by Kazden (??).

It is also time for the United States to begin making the advantages of not-spanking a public health and child welfare focus. Eventually, there should be legislation such as the 1979 Swedish no-spanking law. The Swedish law is part of the civil code, not the criminal law. It does not include criminal penalties. The law was intended to state a national standard of child care, to inform both parents and children that CP is not permitted, and to provide help, not punishment of parents who use CP. It has proven to be highly successful (Durrant 1999). It is an example of non-punitive methods a nation can use to reduce CP. The European Union and the United Nations committee charged with implementing the charter of children's rights has called on all member nations to prohibit CP. To date, 24 countries have banned CP. In the United States, however, the majority of the American public professionals who advise parents continue to believe that CP is sometimes necessary. A large effort will be required to bring to children and the next generation of Americans the benefits of non-violent child rearing. The research reviewed and the new research presented in this paper is consistent with the statement of the UN committee responsible for implementing the Charter of Children' Rights (, 2006, General Comment No. 8, para. 3) that "Addressing the widespread acceptance or tolerance of corporal punishment of children and eliminating it, in the family, schools and other settings, is not only an obligation of States parties under the Convention. It is also a key strategy for reducing and preventing all forms of violence in societies".

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Figure 2. Relation of National Economic Development To Corporal Punishment Of Children Under 12

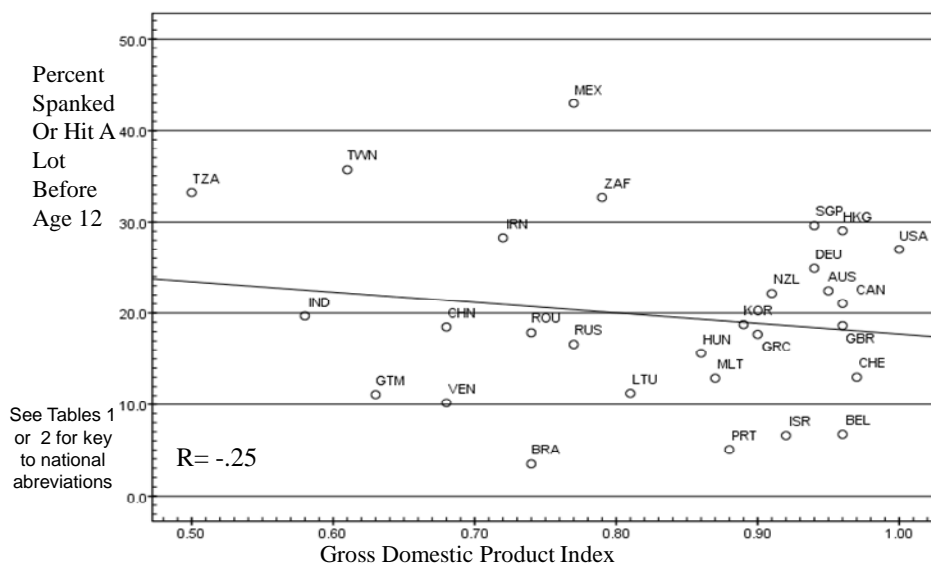


Figure 3. Relation Of National Economic Development To Corporal Punishment Of Teen Age Children

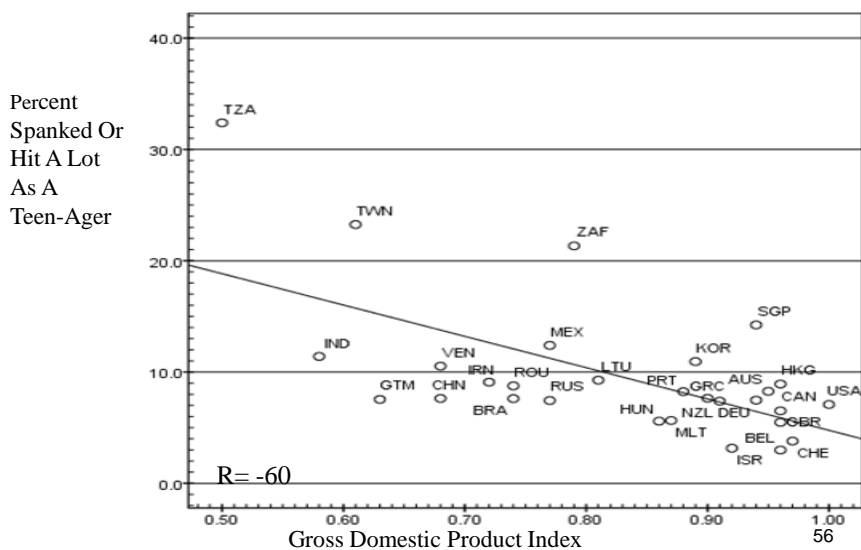


Figure 4. Relation Of National Economic Development to Average Post-Traumatic Stress Symptoms Of Students In Each National Context.

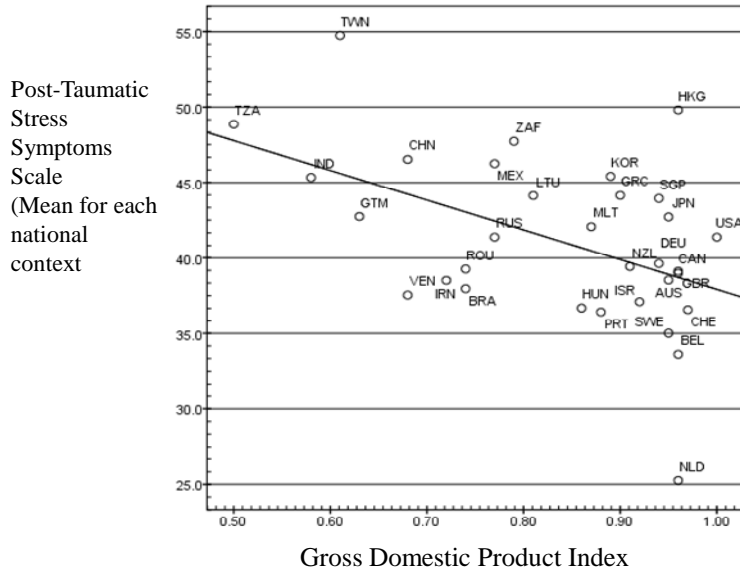


Figure 5. Relation Of Corporal Punishment To Post Traumatic Stress Symptoms and Level of Economic Development

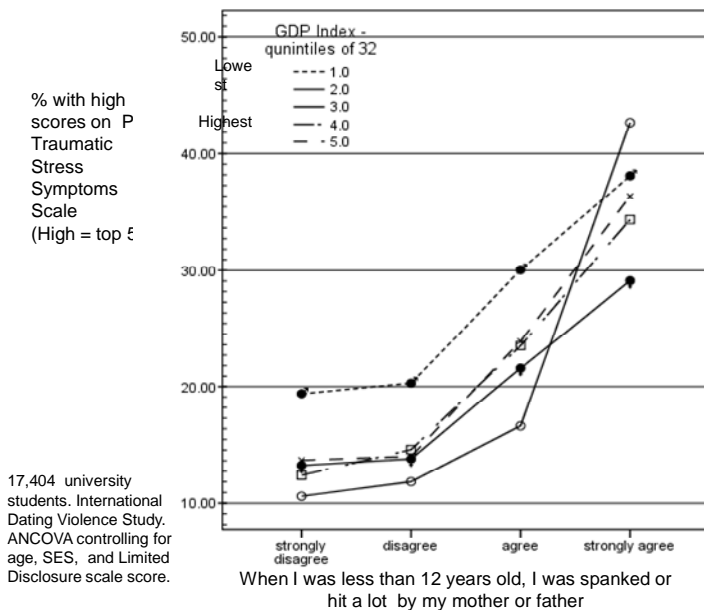


Figure 6. Relation Of Percent Of Students In Each National Context Who Were Spanked Or Hit A Lot before Age 12 To Average PTS Symptoms Score For Each National Context

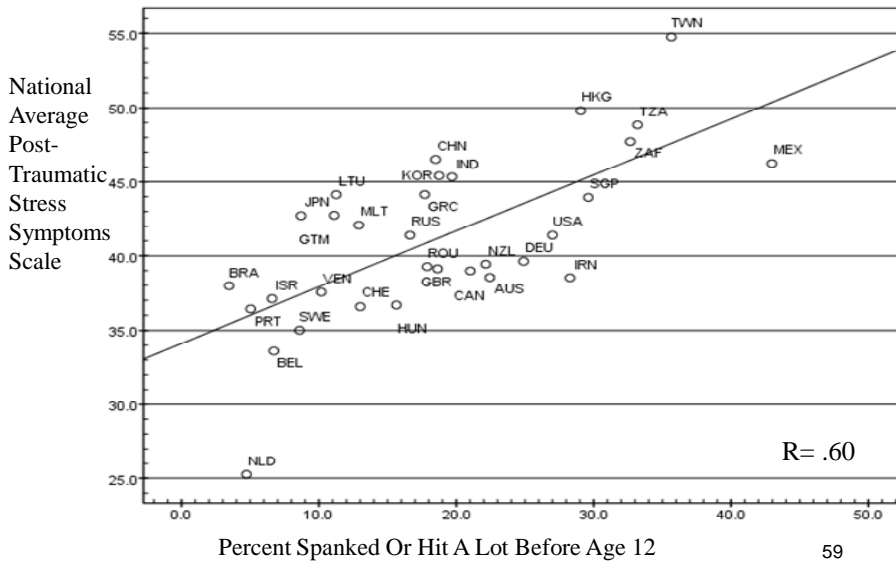


Figure 7. Relation of Percent In Each National Context Who Experienced Corporal Punishment As A Teen Ager to Average Post Traumatic Stress Symptoms Score Of Students In That National Context

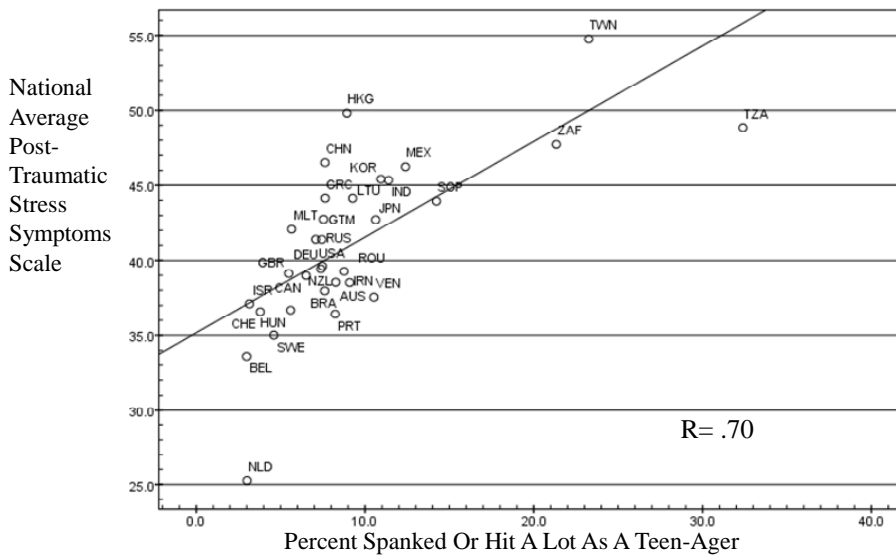


Figure 8. Relation of Average PTS Symptoms Score to National Average IQ

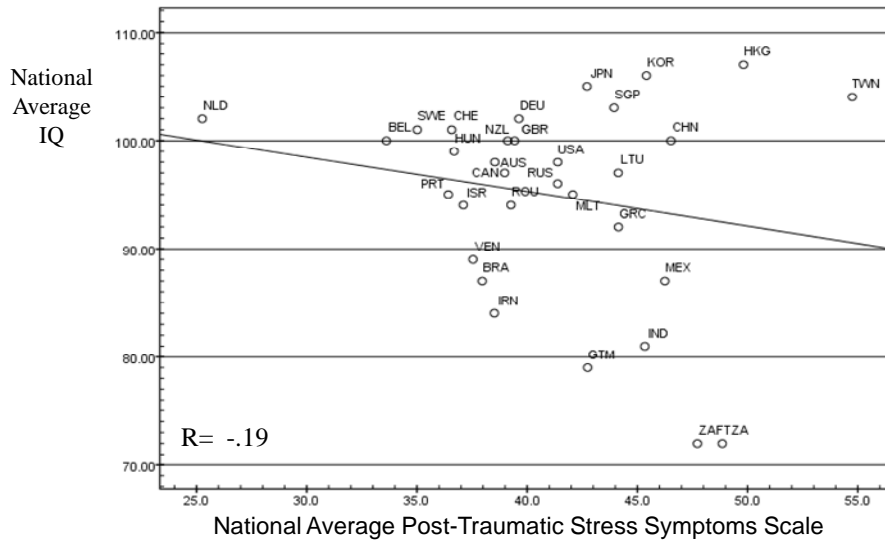


Figure 10. Relation Of Percent Of Parents Who Used Corporal Punishment On Teen Age Children To National Average IQ

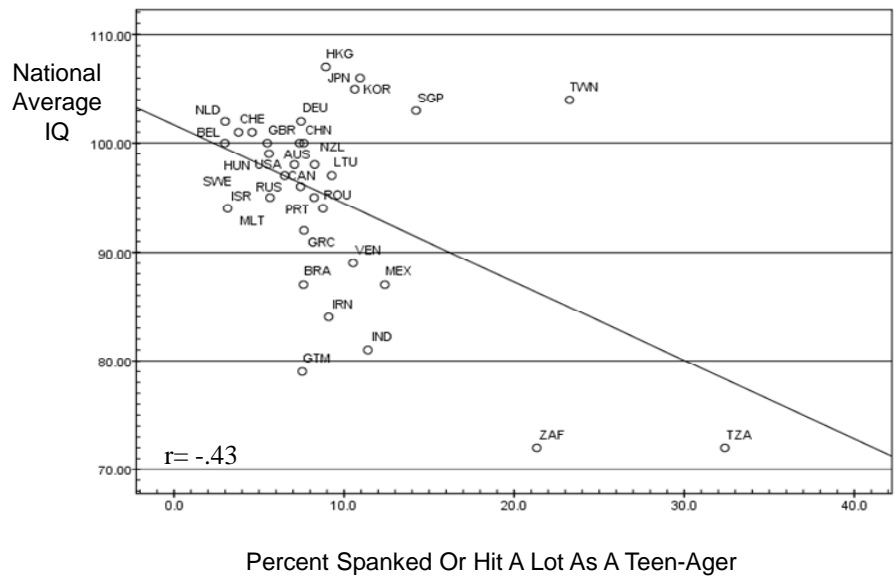


Table 1. International Dating Violence Study Sample

Region	Nation		N	% Female	Mean Age	% In A Relationship \geq Month
All Nations			17,404	70.1	22.9	81.9
Africa	ZAF	South Africa	150	90.0	24.2	72.7
	TZA	Tanzania	247	43.7	26.3	70.9
Asia	CHN	China	1730	65.8	21.3	43.7
	HKG	China-Hong K	874	70.9	23.8	63.0
	IND	India	193	69.4	21.6	49.2
	JPN	Japan	207	52.2	20.3	64.3
	SGP	Singapore	260	68.1	24.7	83.1
	KOR	Korea	256	63.7	24.3	74.2
	TWN	Taiwan	258	71.7	20.1	62.8
Europe	BEL	Belgium	803	76.8	27.3	87.9
	DEU	Germany	522	68.8	24.2	92.9
	GBR	Great Britain	456	84.4	20.9	91.7
	GRC	Greece	288	74.3	21.1	80.2
	HUN	Hungary	179	67.0	22.2	90.0
	LTU	Lithuania	453	66.0	20.3	85.9
	MLT	Malta	124	78.2	22.2	83.1
	NLD	Netherlands	465	86.5	22.9	82.8
	PRT	Portugal	437	65.5	21.6	82.4
	ROU	Romania	274	90.2	21.0	89.1
	RUS	Russia	457	60.0	19.9	93.9
	SWE	Sweden	675	75.9	28.7	99.9
	CHE	Switzerland	369	72.4	34.2	86.0
Latin America	BRA	Brazil	289	68.2	21.0	84.8
	GTM	Guatemala	252	46.8	19.6	69.8
	MEX	Mexico	242	81.4	20.5	84.7
	VEN	Venezuela	285	61.1	24.1	91.6
Middle East	IRN	Iran	99	75.8	22.4	99.0
	ISR	Israel	349	80.1	30.7	91.1
North America	CAN	Canada	1275	71.3	21.6	89.0
	USA	United States	4533	67.8	21.7	91.8
Oceania	AUS	Australia	254	81.9	23.4	91.7
	NZL	New Zealand	149	77.9	21.5	87.3

Tables 2 and 3 Corporal Punishment Experienced By University Students In 32 Nations

Spanked A Lot before 12		Hit Lot As Teen Ager	
Men	Women	Men	Women
MEX	46.7%	TZA	38.1%
ZAF	40.0%	ZAF	26.7%
HKG	37.4%	TWN	20.6%
HUN	36.3%	SGP	20.5%
TWN	35.6%	MEX	17.8%
TZA	34.5%	VEN	17.1%
IRN	33.3%	ROU	14.8%
DEU	33.1%	IND	13.6%
GRC	31.1%	PRT	12.6%
USA	30.7%	IRN	12.5%
SGP	26.5%	GRC	12.2%
NZL	24.2%	BRA	12.0%
CHN	23.3%	HKG	11.0%
GBR	22.5%	AUS	10.9%
AUS	21.7%	JPN	10.1%
CAN	21.0%	RUS	9.8%
RUS	19.1%	DEU	9.8%
ROU	18.5%	CHN	9.6%
KOR	17.2%	USA	8.4%
IND	15.3%	GTM	8.2%
MLT	14.8%	MLT	7.4%
VEN	14.4%	GBR	7.0%
NLD	14.3%	CAN	6.6%
LTU	13.0%	LTU	6.5%
CHE	12.8%	KOR	6.5%
GTM	12.7%	NZL	6.1%
BEL	10.2%	CHE	5.9%
JPN	10.1%	SWE	4.9%
SWE	8.0%	BEL	4.8%
BRA	7.6%	NLD	4.8%
PRT	4.6%	HUN	3.4%
ISR	1.5%	ISR	1.5%
MEX	42.1%	TZA	25.0%
GTM	35.7%	GTM	24.3%
ZAF	31.9%	ZAF	20.7%
TZA	31.5%	KOR	13.5%
SGP	31.1%	SGP	11.3%
IRN	26.7%	MEX	11.2%
DEU	25.7%	JPN	11.1%
USA	25.2%	LTU	10.7%
AUS	22.6%	IND	10.5%
IND	21.6%	ROU	8.1%
NZL	21.6%	DEU	8.1%
HKG	21.2%	IRN	8.0%
CAN	21.0%	NZL	7.8%
KOR	19.6%	AUS	7.7%
GBR	17.9%	TWN	6.8%
ROU	17.8%	HUN	6.7%
GRC	16.0%	GRC	6.6%
HUN	15.8%	CAN	6.5%
RUS	15.0%	USA	6.4%
CHE	13.1%	HKG	6.4%
CHN	13.1%	VEN	6.3%
MLT	12.4%	CHN	6.1%
LTU	10.4%	PRT	5.9%
TWN	9.3%	RUS	5.8%
SWE	8.8%	BRA	5.6%
ISR	7.8%	GBR	5.2%
VEN	7.5%	MLT	5.2%
JPN	7.4%	SWE	4.5%
BEL	5.7%	ISR	3.6%
PRT	5.2%	CHE	3.0%
NLD	3.2%	NLD	2.7%
BRA	1.5%	BEL	2.4%

Table 4. Post Traumatic Stress Symptoms Scale, Mean Scores In rank order of national context (PST1MR_1)							
Median: Total = 40.5, Males = 38.6, Females = 41.6, F% of M = 108%							
High Half Of Nations				Low Half Of Nations			
	Total	Male	Feml		Total	Male	Feml
China -Taiwan	54.7	49.8	56.7	Germany	39.6	35.6	41.4
China- Hong K	49.8	47.0	50.9	New Zealand	39.4	35.7	40.5
Tanzania	48.9	47.7	50.4	Romania	39.3	37.8	39.4
South Africa	47.7	50.3	47.4	Great Britain	39.1	38.1	39.3
China	46.5	44.8	47.4	Canada	39.0	36.6	39.9
Mexico	46.2	41.9	47.2	Australia	38.5	37.0	38.9
South Korea	45.4	40.6	48.1	Iran	38.5	37.8	38.7
India	45.3	42.4	46.6	Brazil	38.0	38.5	37.7
Greece	44.1	40.3	45.5	Venezuela	37.5	37.4	37.6
Lithuania	44.1	41.2	45.6	Israel	37.1	37.4	37.0
Singapore	43.9	42.0	44.8	Hungary	36.7	32.3	38.8
Guatemala	42.7	42.5	43.0	Switzerland	36.6	32.8	38.0
Japan	42.7	43.3	42.2	Portugal	36.4	33.0	38.2
Malta	42.1	38.7	43.0	Sweden	35.0	33.7	35.4
Russia	41.4	39.7	42.5	Belgium	33.6	30.8	34.4
United States	41.4	40.6	41.8	Netherlands	25.3	25.1	25.3

Table 5. Average IQ Of The 32 Nations In This Study			
High Half Of Nations	Mean IQ	Low Half Of Nations	Mean IQ
HKG Hong Kong	107	CAN Canada	97
JPN Japan	105	LTU Lithuania	97
KOR Korea	105	RUS Russia	96
TWN Taiwan	104	MLT Malta	95
SGP Singapore	103	PRT Portugal	95
DEU Germany	102	ISR Israel	94
NLD Netherlands	102	ROU Romania	94
CHE China	101	GRC Greece	92
SWE Sweden	101	VEN Venezuela	89
BEL Belgium	100	BRA Brazil	87
CHN China	100	MEX Mexico	87
GBR Great Britain	100	IRN Iran	84
NZL New Zealand	100	IND India	81
HUN Hungary	99	GTM Guatemala	79
AUS Australia	98	TZA Tanzania	72
USA United States	98	ZAF S. Africa	72