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Effectiveness of a brief home parenting intervention for reducing early sexual risks among Latino adolescents: Salud y Éxito

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Abstract

BACKGROUND—Teen pregnancy rates and related risks remain elevated among Latino teens. We tested the impact on youth sexual behaviors of a brief, culturally-targeted, bilingual media intervention designed for parents of young adolescents.

METHODS—*Salud y éxito* (*Health & Success*) uses dramatic audio stories to model positive parenting practices. After completing classroom surveys, 27 urban schools in the Northeast and Southwest serving low-income Latino communities were randomized so that all families of 7th grade students were sent either: (1) Booklets on healthy eating and exercise; (2) Salud-50, where families either received booklets or the intervention, or (3) Salud-100, where all families received the intervention. Post-intervention follow-up surveys were conducted at 3- and 12-months. Multi-level analyses tested intervention effects, controlling for socio-demographics.

RESULTS—Compared to controls, at 12-months post-intervention (8th grade spring), youth in Salud-100 report lower sexual risks (touching, AOR 1.46, CI 1.19–0.84, $p < .001$; lifetime sex (AOR 0.74, CI 0.61–0.90, $p < .01$); and sex intentions (AOR 0.78, CI 0.63–0.96, $p < .05$). Consistent with a dose-response, Salud-50 results are between those from Salud-100 and control schools.

CONCLUSIONS—*Salud* is an effective parenting intervention that can augment school-based health and sexuality education and help Latino parents support their children during early adolescence.

Keywords

Child & Adolescent Health; Health Communication; Human Sexuality; Research; Risk Behaviors

Whereas teen pregnancy in the United States (US) has declined over the past decade, rates among Latino adolescents continue to be higher than those of other ethnic groups. Approximately 1 in 3 Latinas gets pregnant before the age of 20; the Latina birthrate is more than double that of non-Latina whites, and higher than for Blacks.^{1,2} Lower use of contraception and condoms as well as elevated rates of gonorrhea, chlamydia, and new HIV

diagnoses also contribute to health disparities.^{3,4} Of special import to schools as well as families, engaging in sexual risks, getting pregnant, and giving birth are linked to school failure and drop-out, as well as lowered employment opportunities and future household income.^{5,6} This paper examines whether a brief, culturally-tailored media intervention can be effective in helping parents promote the healthy sexual behaviors of their sons and daughters during the challenging transition to adolescence. Despite ample evidence that parental support is vital for shepherding youth safely through the teen years, there are few evidence-based parenting programs that focus on sexual health.⁷ We report on findings from a randomized trial of *Salud y éxito*, (*Health & Success*), a culturally-targeted intervention designed not only to reduce early sexual risk taking but also to overcome implementation barriers that have limited the involvement of Latino parents in school-based or other more intensive family programs.

Salud y éxito builds on social-developmental theory and empirical evidence demonstrating the importance of positive parenting practices, including support, monitoring, rule-setting and communication, in helping youth make healthy behavioral choices.⁸ It also capitalizes on the fact that parents typically welcome guidance, particularly when dealing with sensitive issues such as puberty and sexuality.^{9–11} The correlation between parent-adolescent communication and decreased sexual risks has been documented for many populations, including Latino adolescents.^{12–14} However, providing models for how positive parenting can be applied to issues of sexuality may be especially important for Latino communities.^{15,16} For example, a survey by the Pew Hispanic Center found that few Latino adults feel prepared to talk with their children about sexual issues, including delaying initiation as well as protection, and only 31% of adults 25 and older reported that their parents had discussed sex with them when they were growing up.¹⁷ There also are cultural and other barriers that reduce Latino parents' involvements in school events and other parenting education programs.¹⁸ These include parents' discomfort and unfamiliarity with schools in this country, as well as competing demands on time and the costs related to attending events during school or evening hours. These realities may prevent mothers and fathers from attending programs, even when the topic is pertinent to family life.

Despite pressing sexual and reproductive health disparities, few interventions have been developed specifically to support culturally, geographically, and linguistically diverse Latino parents, and there is a dearth of programs for parents that have demonstrated both impact on youth outcomes *and* the potential to be disseminated to large numbers of families. *Salud y éxito* was developed to address these gaps. The intervention consists of community-informed, dramatic, sex-, and developmentally-crafted audio stories, each no longer than 3–5 minutes, in which fictional parents are heard monitoring and setting rules for their children's behaviors, communicating proactively about the importance of delaying sexual initiation and pregnancy, and encouraging youths' positive relationships and prosocial attachments. Stories are intended to increase parental awareness of the risks and challenges their sons and daughters may be facing, and to prepare parents to address children's questions about puberty, sex, and protection. Sets of stories are clustered around three themes, Changing Bodies, Changing Relationships, and Changing Social Influences. Stories were packaged on sets of 7 audio-CDs, intended for delivery to families every 4–6 weeks over a school year.

Salud was adapted from an intervention, *Saving Sex for Later*, targeted to African American families and shown to be effective in reducing youths' sexual risks into the 10th grade.¹⁹ Stories were developed with extensive input from a community advisory board and focus groups of over 80 Latino parents and youth in both the Southwest and Northeast. They address normative behaviors as well as provide warning signs of heightened risk, such as girls' involvements with older males. Several stories dramatize ways to counter stigma and provide support for all youth, including those who are experimenting or identifying as gay or bisexual, as well as those who are being pressured by peers to have sex or engaged in related risk behaviors such as alcohol and drug use. Four sets of stories are sex-specific, modeling the culturally-influenced gendered interactions of parents with their sons and daughters.²⁰ Stories incorporate the Latino values of *familismo*, *marianismo* and *simpatía* as protective factors, as well as role expectations and norms that equate having sex with maturity and respect.²¹

To maximize the potential for dissemination, the intervention strategy was designed to incorporate features highlighted by Rogers' theory of diffusion of innovation, which underscores the importance of usability, portability, feasibility, acceptability, transparency, and evaluability.²² Pilot work confirmed that almost all parents had a way to listen to audio stories, which not only are less expensive to produce than video, but also avoid becoming dated because of changes in clothes, styles, and other features of visual media. Thus, we aimed for an engaging, brief, simple intervention that could potentially be disseminated widely and implemented with fidelity. Here we report on findings from a randomized trial that tested whether home delivery of this brief parent-mediated intervention through collaboration with school districts, would result in measureable reductions in youths' sexual risk behaviors.

METHODS

Participants and Procedure

A randomized-controlled trial was conducted with 27 middle schools in 5 urban districts in the Southwest and Northeast. All schools serve a predominately Latino population (>65%), with elevated community rates of teen pregnancy and STI. After conducting baseline classroom surveys at the end of 6th grade, schools were assigned at random to one of three conditions: (1) an attention-controlled condition, in which families received print brochures (in English and Spanish) containing recipes for healthy eating and tips for family exercise; (2) *Salud*-50, in which equal numbers of individual families were randomly assigned to receive either *Salud* audio sets or brochures; (2) *Salud*-100, in which all families received the audio sets. Having these two treatment conditions has the advantage of providing a look at a "dose" effect. Having an attention-control, with booklets taking about the same time to read as listening to a set of stories, helped assure all families received a culturally-gearred health promotion packet. This approach was welcomed by district and school administrators, who saw it as a fair exchange for their involvement. The study, which enrolled classes of students over 2 years, was conducted from 2010–2014. The intent was to reach a saturation level that would be difficult to achieve through more intensive parenting programs. When

deemed appropriate by school personnel, youth in special education as well as general education were included; reading support was provided by the research team.

Following procedures approved by EDC's Institutional Review Board and research processes at each district, parents were informed about the study purpose in a mailing (9th grade reading level) that detailed what participation would entail as well as potential risks and benefits. Following their requirements, four districts preferred opt-out procedures for obtaining parental permissions and youth assent; one required parents to return written permission (or not), but also supported the collection of forms so that participation rates were similar across districts. Consistent with the whole grade approach, families or youth were not excluded based on ethnicity; all students in attendance on the day of survey administration were eligible to complete surveys, given parental permission. Audio stories and print materials were sent to homes in English and Spanish.

A trained study team administered pencil-paper classroom surveys and maintained files with families' contact information and updates for mailings. At each survey wave, beginning before summer break in 6th grade, then at the end of 7th (3-month post-intervention) and 8th grades (12-month post intervention), over 3600 students took surveys, representing about 80% of the student body across sites; non-respondents included absentees and youth whose parents opted out of the study; they were given an alternate activity. The analyses here focus on 2621 youth at baseline who indicated they were Latino or Hispanic, 3192 Latino youth at follow-up 1, and 3282 at follow-up 2. To reduce school and study burden, as well as to protect anonymity required for the opt-out human subject procedures, youth were not individually tracked with names or personal identifiers on surveys themselves. Rather, we employ a whole school approach and school-clustered analyses (although pre-coded and student-provided matching information tracked which students in Salud-50 received the treatment or control materials). Throughout the intervention period, new students were caught up with materials appropriate to their study condition. Students with new addresses were tracked with help from school districts to ensure families were sent the right materials. This allowed the study team to monitor and keep families in the same condition in what turned out to be the rare case—less than 100—of condition crossover. Addresses and contact information were updated at each mailing (using school lists and postal returns) and parents had the opportunity to provide feedback either using brief postage-paid forms or online at the project website. While findings presented below focus on students who identified as Latino, additional analyses found no evidence of negative effects on outcomes for non-Latinos on the outcomes of interest.

Instruments

Paper-and pencil-questionnaires were administered by research staff; surveys took less than a class period (30–40 minutes), and were piloted for length and reading comprehension (6th–7th grade level). Surveys were packaged in envelopes so students could privately decide whether to answer questions in English or Spanish.

These analyses focus on three primary sexual outcome measures. At baseline, surveys included items on 4 behavior precursors highly correlated with sexual initiation in our prior research and acceptable to school administrators and community advisors for youth in 6th

grade: In the past 3 months, have you held hands; kissed; hugged and kissed for a long time; or touched or been touched under clothes or without clothes. Given small numbers reporting multiple behaviors, a dichotomous variable was computed to distinguish those reporting the latter and highest risk assessed at baseline: being touched under clothes/not. At 7th and 8th grade follow-ups, students were asked if they had ever had sexual intercourse, with 3 response options: No (I have never had sexual intercourse); Yes, once; and Yes, more than once; a dichotomous variable was computed by combining Yes responses. One item assessed intentions to have sex in the next 12 months (No; Not Sure; and Yes); a dichotomous variable was computed by combining No and Not Sure. Socio-demographics include self-reported sex and age, as well as study-supplied codes for school, region (Northeast, Southwest) and condition.

Data Analysis

Analyses were conducted using IBM SPSS Statistics, version 22. First, frequencies of youth reports of touching/being touched, intercourse, and sex intention were examined for each time-point, and cross-tabulated by socio-demographics to identify the set of controls for subsequent analyses: experimental condition, region, age, and sex. To assess differences in outcomes by condition, multilevel regression models were fit using Generalized Estimating Equation (GEE) to account for clustering by school, as appropriate to the randomization design. To determine the effect size and potential statistical significance of the intervention, dummy variables for the two treatment conditions—Salud-100 and Salud-50, were included as main effects, controlling for age, sex, region, and whether the survey was taken in English or Spanish.

RESULTS

Table 1 provides demographic information for students at baseline and both follow-ups. About 85% across schools and data waves chose to take surveys in English. Southwest schools served larger student bodies than those in the Northeast, so this region includes the majority of students. At baseline, the sample is 53% females, with similar age distributions across schools and regions. Nine out of 10 youth said they lived with their mother all or most of the time, compared with 61% who lived with their father. This is similar across waves and schools. At study entry, the average age of youth is 11.7 years, with 9% of girls and 16% of boys 13 or older; by 8th grade follow-up, the average age is 13.9 years, with 10% of girls and 20% of boys 15 or older.

Levels of Sexual Activity

Sexual risks overall increase over time, with 17.9% of youth reporting touching/being touched at baseline, increasing to 29.2% at the final follow-up. At each time, males report significantly higher levels of sexual risk, starting with baseline when 23.9% of boys and 11.6% of girls report touching/being touched. Lifetime sex increases from 24.2% at first follow-up to 29.2% by the end of 8th grade. Of those who report sexual initiation in 8th grade, 80% had sex in the last 3 months; 32.3 % used alcohol or drugs before last sex, and 31% had not used a condom. Compared to girls, boys are more likely to report touching/being touched (40.7% compared to 19.2%; lifetime sex (29.7% compared to 14%) as well as

higher sexual intentions (27.7% compared to 11.6%). Whereas there are few significant demographic differences either across or within each survey waves, at baseline, controlling for sex, age, region, and survey language, students in Salud-100 schools reported higher levels of touching/being touched at baseline (AOR=1.29, CI 1.07, 1.55, $p<.05$).

Follow-up 1 (7th Grade Spring)

Twenty-nine percent of youth in the control condition report touching/being touched, compared to 24% in Salud-100 and 22% in Salud-50 schools. In controlled analyses, the baseline to 3-month post-intervention increase in this risk is greater in the control schools than the 2 treatment groups. Indeed, a greater increase in prevalence at the control schools counteracts the higher baseline level of risk observed in Salud-100 schools, (AOR= 0.72, 95% CIs=0.49, 1.05, ns). The reduction in touching/being touched is significant, however, only for Salud-50 schools compared to controls (AOR= 0.68, 95% CIs=0.57, 0.81, $p<.001$). With regard to initiation, 19% of youth in control schools, compared to 15% in each treatment, report having had sex. While the AOR for both treatment conditions indicate lower levels of initiation, as with touched/being touched, the finding is only significant for Salud-50 schools (AOR=0.69, CI=0.53, 0.90, $p < .01$). Differences by condition are not significant for intentions (13–15% across conditions). Sex and age follow expected patterns, with fewer girls reporting risks, and higher levels of risk among older youth within a grade.

Group Differences at Follow-up 2 (8th Grade Spring)

As youth begin engaging in more sexual risks, treatment and control conditions significantly diverge, consistent with the hypothesis that lower rates will be reported by youth in Salud-100 schools. In uncontrolled analyses, youth in Salud-100 report significantly lower levels of being touched (25% compared to 30% in Salud-50 schools, and 33% in control schools, $p < .05$); 20% of youth in the 2 treatment conditions report lifetime intercourse, compared with 25% of those in control schools. In controlled analyses, as shown on Table 2, differences between controls and Salud-100 schools are significant for all three measures: touched/touching (AOR= 0.69, CI=0.56, 0.84, $p < .01$); initiation (AOR=0.74, CI 0.61, 0.90, $p < .001$), and intentions (AOR=0.78, CI 0.63, 0.96, $p < .05$). Moreover, in keeping with a dosage effect, differences are now muted for Salud-50 schools, which fall between controls and Salud-100. These results reach significance only for lifetime sex (AOR= 0.76, CIs=0.57, 1.00, $p < .05$). Thus, even though Salud-100 schools were higher at baseline on one indicator of risk, and even given the conservative bias of an “intent-to-treat” model, a saturated approach that aimed to reach all families with students at a grade level demonstrates the positive impact on youth risk behaviors that can be achieved with a brief parenting intervention. Lastly, the intervention is almost equally effective for boys and girls. For initiation and intentions, the sex by intervention interaction is not significant. For touching, the interaction is significant, although differences between Salud-100 schools and controls remains significant for both sexes, with lower odds ratios for girls (AOR=0.57, CIs=0.41, 0.79, $p < .001$) than boys (AOR=0.78, CIs=0.65, 0.94, $p < .01$).

DISCUSSION

Findings demonstrate that *Salud* can help Latino parents support their sons and daughters in delaying onset of sexual activity. Notably, the intervention requires only about 25 minutes of time every 4–6 weeks; thus, the total time required from parents over 7–9 months was about 3.5 hours. This is a relatively minimal burden when compared with attendance at multiple parenting workshop sessions or other types of parent education programs. While longer-term effects on sexual trajectories are not known, delaying sexual onset is a significant outcome that has consistently been related to multiple risks throughout adolescence (and beyond).²³

Findings of effectiveness 12-months post-intervention are bolstered by evidence of a dosage effect; that is, *Salud*-100 results are consistently significant, while *Salud*-50 reports fall between the attention-controlled and saturation conditions. However, it is notable that youth in the *Salud*-50 schools did report lower sexual onset compared to controls at both follow-ups, indicating that even partial school saturation may have demonstrable benefits on an important outcome, even if consistent effects are not as strong or long-lasting as when the intervention is delivered to families of all students at a grade level.

In addition to demonstrating the contribution of parent education to reducing teen risks, our intervention strategy, coupled with the study's goal of reaching large numbers of families at each school, points to the potential feasibility of wide-scale dissemination of this brief media strategy. We have shown similar effects among African-American youth.²⁴ While delivering content on positive parenting practices to address youth risks through face-to-face parent workshops—or lengthier instructional materials—may yield similar or even larger effects, they do not address implementation and scaling issues. As progress is made on identifying evidence-based behavioral interventions to address sexual and other risks among youth as well as adult populations, it has become clear that greater attention needs to be paid to identifying interventions that both are efficacious and that can be effectively disseminated. *Salud* meets both these criteria.

Limitations

This study employed a design that has multiple advantages in terms of involving large numbers of Latino families through school collaborations, yet some rigor of efficacy trials was sacrificed. Rather than individually tracking youth from baseline to follow up surveys (and surveying those who left schools), we replaced students who left with new students. However, we maintained records of students enrolled at baseline and missing from each data collection point. Given the length of study involvement, turnover was unavoidable, with about 19% of students leaving/replaced by follow-up 1 and 35% at follow-up 2. Thus, the relatively stable sample sizes reported incorporate student ins and outs. However, differential attrition by condition was small (less than 10%), mitigating bias.

Next, study resources were used to prepare and mail the intervention to families' homes. Despite the relatively low costs of delivery audio stories (compared to more intensive interventions that require groups, facilitation, or more expensive media materials), these costs and efforts of replicating the distribution strategy could be prohibitive. To address this

issue, we now are developing options for less expensive online audio streaming, allowing parents to access the intervention through a school- or project-based website.

Further, we did not assess sexual intercourse at baseline, although sexual precursors had been tested in our prior work. Given youth were 11–12 years of age at this assessment, small numbers were likely to report having had sex. We did look, however, at whether there were differences in the measure of touching, and report these results.

An intent-to-treat-model tends to be a conservative bias, since some families assumed to get the intervention did not, or did not listen to stories. In other work, we have made multiple attempts to contact parents to ascertain whether they had received and attended to each mailing. While not following this procedure makes it impossible to provide a precise number for those who were engaged, it also more closely mimics how the intervention would be delivered in “real world” conditions, without costly, individualized prodding. We have limited information, however, on the extent to which parents “attended” the intervention (or read the control booklets), although feedback forms, which were returned by about 20% of families were overwhelming positive. These reports are consistent with prior work in which we followed a smaller sample of African-American families who received a similarly culturally-customized audio stories. We found that the majority listened to the intervention and felt it was relevant and useful, and that they had applied modelled practices in their own families.

Conclusions

This study evaluated a brief, home-delivered media intervention for Latino families with young adolescents. In a large school trial, *Salud y éxito* demonstrated effectiveness in delaying youth sexual behaviors, as well as its potential to be delivered to large numbers of parents.

IMPLICATIONS FOR SCHOOL HEALTH

Schools struggle to engage parents in their children’s sexual health education due to the sensitivity of discussing issues related to sexuality, as well as typically low levels of parental involvement in other parenting and school activities once children enter adolescence. *Salud y Exito*, a culturally and linguistically appropriate intervention, can be used as an important tool for schools to reach out to parents and engage them in their children’s health education. Since it is designed to meet the needs and realities of schools and family lives, it can be utilized to complement and augment health and sexuality education and services. Specifically, to reap the benefits of the intervention as demonstrated in this research study, schools should take the following steps:

- *Disseminate intervention through existing school communication channels:* *Salud y éxito* which is now available online, can be disseminated through schools’ existing online communication channels including school websites, e-newsletters, and social media tools. The ever-growing access to social media among adults of all ethnic and socio-economic groups allows parents to access

the intervention on their preferred electronic device and online platform, overcoming common barriers to face-to-face parent education programs.

- *Align program to health education curriculum:* Through its various short stories, *Salud y éxito* addresses numerous health-related topics including peer pressure, healthy relationships, and puberty. Health educators can align stories to specific topics covered in their health education curriculum. Educators' recommendations to parents of which stories to listen to during particular points in the curriculum will help parents better understand what their students are learning at school and how they can address the same sensitive topics at home. This will further facilitate parent-child communication and help parents support health messages children are receiving at school.
- *Connect Salud y éxito stories to homework assignments:* While *Salud y éxito* stories are designed for parents, they are appropriate for pre-adolescents and adolescents to listen to as well. Therefore, health educators can ask students to listen to stories with their parents as part of their health education assignments—thus strengthening the family-school connection to support healthy decision-making among adolescents.

These recommended strategies will address a critical need in health education: the paucity of proven interventions that connect parents to their children's health education curriculum, and build on family-school connections to promote student health and academic outcomes.

Human Subjects Approval Statement

Study procedures were approved by the Institutional Review Board of Education Development Center, Inc. In addition, each participating school district followed their administrative requirements for obtaining informed consent from parents and youth assents, as well as sharing family contact information. The intervention was delivered to homes, with recommendations for parents to listen to or read materials prior to sharing with children.

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Table 1

Sociodemographic Characteristics and Sexual Behavior of Latino Youth at Baseline (6th grade), 3-month (7th Grade) and 12-month Post-intervention (8th Grade) Surveys

	Baseline 6 th	3-Month Follow Up	12-Month Follow Up
Number	2621	3192	3283
Age (Mean years)	11.7	13.0	13.9
Sex (% girls)	52.6	52.2	52.3
Took English Survey	87.7	92.5	86.9
Region (% Southwest)	74.7	72.3	73.5
Household (lived with all/most of the time_			
Mother	90.2	90.8	90.7
Father	58.4	58.8	60.2
Touched/Been Touched	17.9	24.2	29.2
Life time sex	NA	16.5	21.8
Sex Intention (yes, unsure)	NA	44.4	49.7

*
p<.05,

**
p< .01,

**
p <.001

Table 2

Results of Regression Analyses (GEE) of the Effects of Treatment Condition on Youth Sexual Behaviors at Baseline (End of 6th Grade) and Post-intervention 3-month (7th Grade) and 12-month (8th Grade) Follow-ups

	Baseline	Follow-up 1	Follow-up 2
	AOR (95% CIs)	AOR (95% CIs)	AOR (95% CIs)
TOUCHED/BEEN TOUCHED			
Salud 50 (vs. control)	1.04 (0.85, 1.27)	0.68 (0.57, 0.81) ***	0.86 (0.70, 1.04)
Salud 100 (vs. control)	1.29 (1.07, 1.55) **	0.72 (0.49, 1.05)	0.69 (0.56, 0.84) ***
Language: English (vs. Spanish)	1.01 (0.83, 1.21)	1.26 (0.87, 1.81)	1.03 (0.79, 1.35)
Region: Northeast (vs. Southwest)	0.81 (0.66, 0.98) *	0.75 (0.58, 0.99) *	1.04 (0.89, 1.23)
Sex: Boys (vs. Girls)	2.44 (2.07, 2.87) ***	2.53 (2.15, 2.99) ***	2.76 (2.27, 3.36) ***
Age	1.81 (1.57, 2.10) ***	1.88 (1.64, 2.14) ***	1.55 (1.44, 1.68) ***
SEX INITIATION			
Salud 50 (vs. control)		0.69 (0.53, 0.90) **	0.76 (0.57, 1.00) *
Salud 100 (vs. control)		0.72 (0.49, 1.06)	0.74 (0.61, 0.90) **
Language: English (vs. Spanish)		1.45 (0.95, 2.22)	1.50 (1.05, 2.13) *
Region: Northeast (vs. Southwest)		0.96 (0.68, 1.36)	0.99 (0.78, 1.25)
Sex: Boys (vs. Girls)		2.43 (1.95, 3.03) ***	2.26 (1.83, 2.80) ***
Age		2.06 (1.68, 2.53) ***	1.79 (1.57, 2.05) ***
SEX INTENTIONS			
Salud 50 (vs. control)		0.83 (0.63, 1.10)	0.82 (0.67, 1.01)
Salud 100 (vs. control)		0.92 (0.61, 1.38)	0.78 (0.63, 0.96) *
Language: English (vs. Spanish)		1.58 (1.03, 2.42) *	1.57 (0.95, 2.59)
Region: Northeast (vs. Southwest)		0.82 (0.60, 1.14)	1.04 (0.83, 1.29)
Sex: Boys (vs. Girls)		2.79 (2.25, 3.45) ***	2.75 (2.11, 3.59) ***
Age		2.19 (1.89, 2.55) ***	1.75 (1.53, 2.02) ***

*
p<.05,

**
p<.01,

p<.001