

Global Early Adolescent Study: Shanghai Baseline Report

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BLOOMBERG SCHOOL
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Population, Family and
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The Global Early Adolescent Study
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GEAS STUDY OVERVIEW

The Global Early Adolescent Study (GEAS) is the first global study exploring gender norms and sexual development in adolescence, beginning at 10-14 years of age. The GEAS seeks to expand understanding of gender socialization in early adolescence and how this process affects health and behavioral trajectories for boys and girls throughout the teenage years.

The longitudinal GEAS is generating empirical evidence about the ways gender norms in early adolescence inform health behaviors and outcomes over time and how this process compares across different cultural and social settings. The specific aims are to: understand how gender norms evolve over time and what factors at the individual, family, community and societal levels influence this process; evaluate how gender norms in early adolescence predict health outcomes in middle to late adolescence for boys and for girls; examine how empowerment may act as a mediator in this process as it relates to gender norms and informs behaviors and health outcomes; and compare how this process differs across cultures. Further, the GEAS is used in some geographies to evaluate the impact of gender transformative interventions in shifting individual beliefs and influences on health trajectories over time.

INSTRUMENTS

The GEAS survey instruments assess a range of factors and outcomes in adolescence including: perceptions of gender norms, roles and expectations (including sexual double standards and adolescent expectations of romantic relationships); empowerment; risk and protection; exposure to abuse, violence and adverse experiences; social context including peer structure and influences, family socio-economic factors and family connectedness and neighborhood cohesion; and a range of health outcomes. The main health outcomes of interest for the GEAS measures are mental, physical, sexual and reproductive health.

PILOTING

The GEAS measures were developed collaboratively with input from our global research network. In addition, the measures underwent face validity testing, pilot testing with 120 adolescents in each of 15 sites, and re-piloting with 75 adolescents in each of a subset of 6 sites.

The Global Early Adolescent Study in Shanghai follows 1,800 adolescents across four years.

STUDY DESIGN

The Global Early Adolescent Study in Shanghai is a four-year longitudinal study that surveys approximately 1,500 adolescents annually, beginning between the ages of 10-14. Adolescents sampled are enrolled in school at the time of the initial survey. This study was approved by the Medical Ethical Committee of the Shanghai Institute of Planned Parenthood Research, as well as deemed exempt for secondary data analysis by the Johns Hopkins Bloomberg School of Public Health Institutional Review Board.

SETTING

The study took place in a working-class neighborhood in Shanghai. In 2010, the population of Zhabei District (now incorporated into Jing'an District) was 830,476, and home to Shanghai's largest proportion of urban poor dwellers and internal migrants. The Zhabei district is divided into 9 sub-districts (Figure 1).



Figure 1: Map of previously Zhabei District

There are a total of 30 secondary schools serving nearly 16,000 children between the ages of 11 and 15 located in the Zhabei

district. There are two main types of secondary schools covering Grade 6 to Grade 9: public schools and private schools. Public secondary schools enroll students who live around the school according to proximity and provide tuition waivers based on the national nine year mandatory education policy. Private secondary schools enroll students who live scattered in the whole district or even the whole city, and students pay tuition fees ranging from USD \$2,400-13,000 per year. There is income disparity between the two types of schools, with poor children more likely to attend public school than private schools. Adolescents were selected from public schools in two less-developed sub-districts of the Jing'an district.

SAMPLING

Three public secondary schools were selected purposively in collaboration with key informants from the Teachers Training College of the Jing'an District. One school in Baoshan sub-district with about 250 students in each grade and two schools in Pengpu sub-district, the first with about 200 and the second with about 100 students in each grade were selected. All eligible students in grades 6, 7 and 8 were recruited, resulting in a cluster sample of approximately 1,800 adolescents aged of 10-14 years.

PARENTS

Demographic information was collected from all participating adolescents in Shanghai. In addition, information was collected from parents of adolescents to assess the accuracy of adolescent responses to household and parent information among a subsample of survey participants. Parent surveys were administered by paper surveys that were sent home with children.

DATA COLLECTION

The baseline survey took place in the three selected schools from November to December in 2017. All students in grade 6, 7 and 8 in

the selected three schools were invited to participate in the survey after providing their informed assent and obtaining the informed consent of their parents or guardians. Questionnaires were administered to students during their lunch breaks or other school periods on mobile tablets via computer-assisted self-interview (CASI).

STUDY POPULATION

Ultimately, 1,776 adolescents completed the baseline questionnaire. We excluded 16 participants who were age 15 or 16 (very few students in each class were above 14 years old) and 47 respondents due to a high share of missing data. The final analytic sample was comprised of 1,714 adolescents 10-14 years old (871 boys and 843 girls).

RESULTS

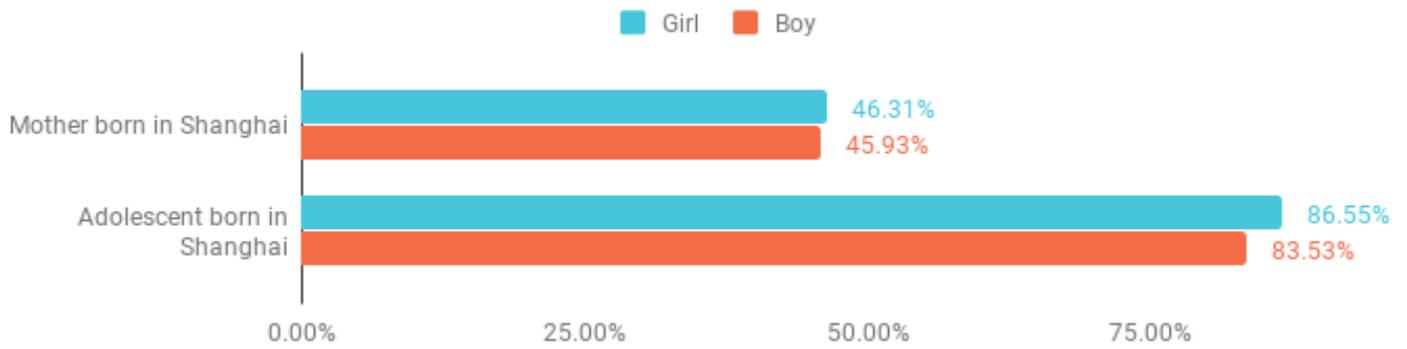
Socio-Demographic Characteristics

Participants were on average 12 years old; with girls slightly younger than boys. Nearly all respondents (97%) identified as Han Chinese. Over four fifths of the respondents were born in Shanghai, and nearly half reported that their mothers were born in Shanghai (46% of girls and 46% of boys). A majority of adolescents (70%) reported they had no religion, and about one fifth were Buddhist. Wealth distribution was similar by sex and almost all adolescents reported their caregiver was employed.

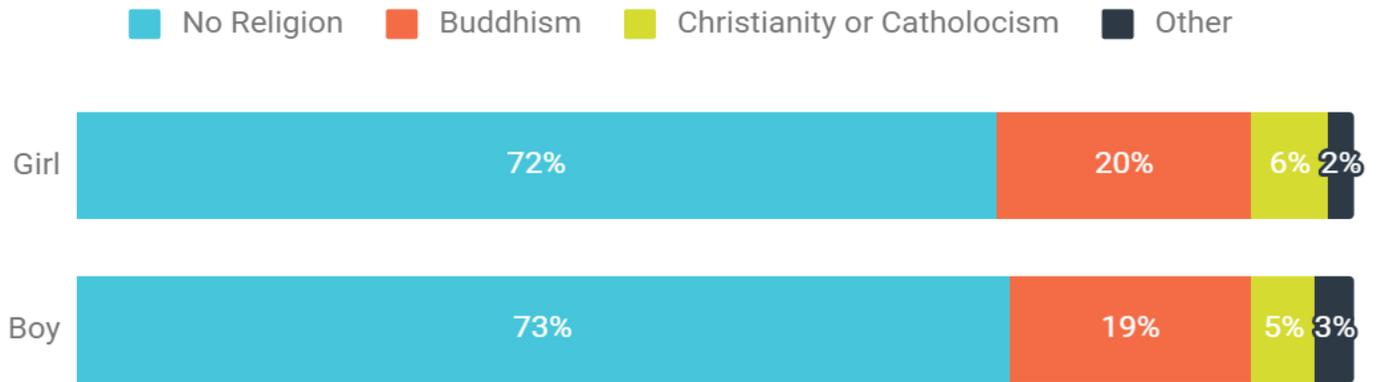
TABLE 1 – SAMPLE DESCRIPTION	BOYS % (N) N=871	GIRLS % (N) N=843	P-VALUE
Age mean +/- SD (range)	12.52 +/- 0.99	12.41 +/- 0.94	0.014
10	0.92 (8)	0.59 (5)	
11	15.96 (139)	17.67 (149)	
12	30.42 (265)	34.16 (288)	0.029
13	35.36 (308)	35.35 (298)	
14	17.34 (151)	12.22 (103)	
Caregiver employed	97.59 (850)	98.81 (832)	0.058
Ethnicity			
Han	97.47 (848)	98.34 (829)	
Other*	2.53 (22)	1.66 (14)	0.211
Literacy			
Able to read a simple sentence	98.03 (847)	98.57 (830)	0.386

*Other includes: Tujia Zu, Man Zu, Hui Zu, Chaoxian Zu, Yao Zu, Miao Zu, Mongolia

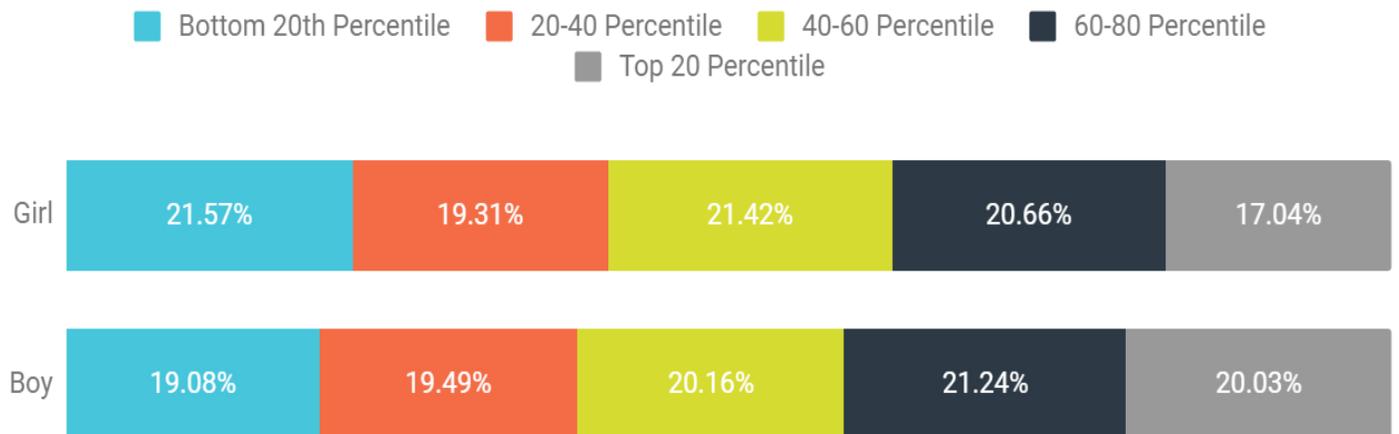
MIGRATION STATUS



RELIGION



WEALTH INDEX



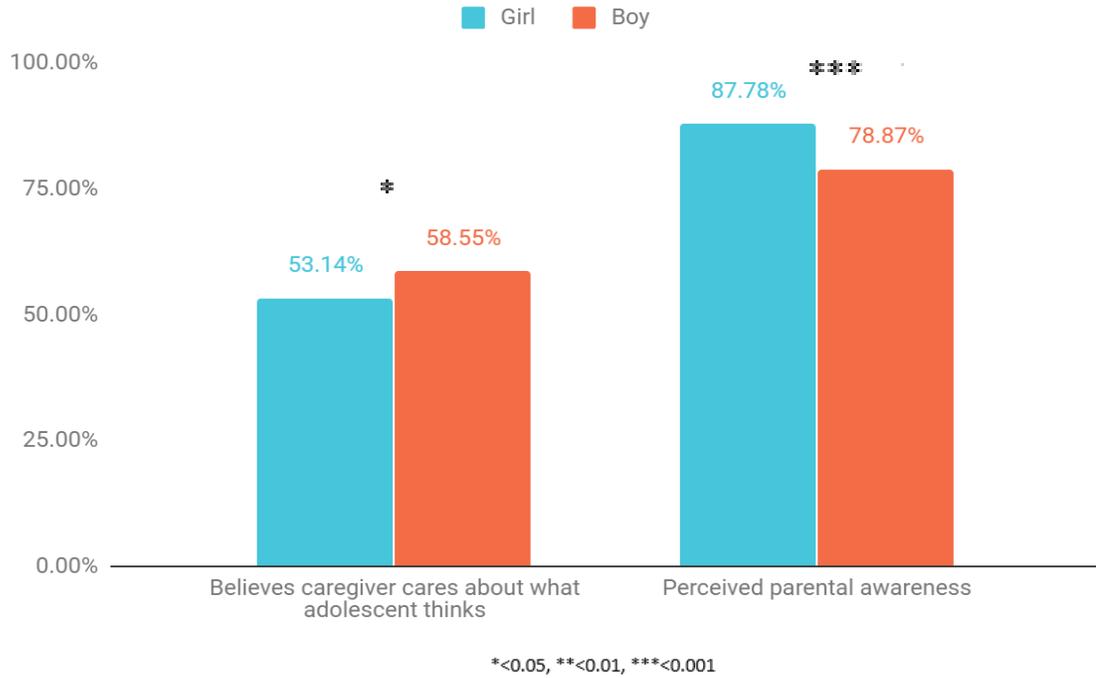
Family

Over four fifths of adolescents reported living with both parents, while 11% of boys and 12% of girls lived in single-family homes (with 56% of boys and 66% of girls living alone with their mothers). Most adolescents (59% of boys and 64% of girls) had no siblings and about a quarter of girls and boys had one brother or sister. Larger families were rare and were more common among boys than girls. Families with children of only one sex were more common among boys (26%) than girls (20%) with any siblings.

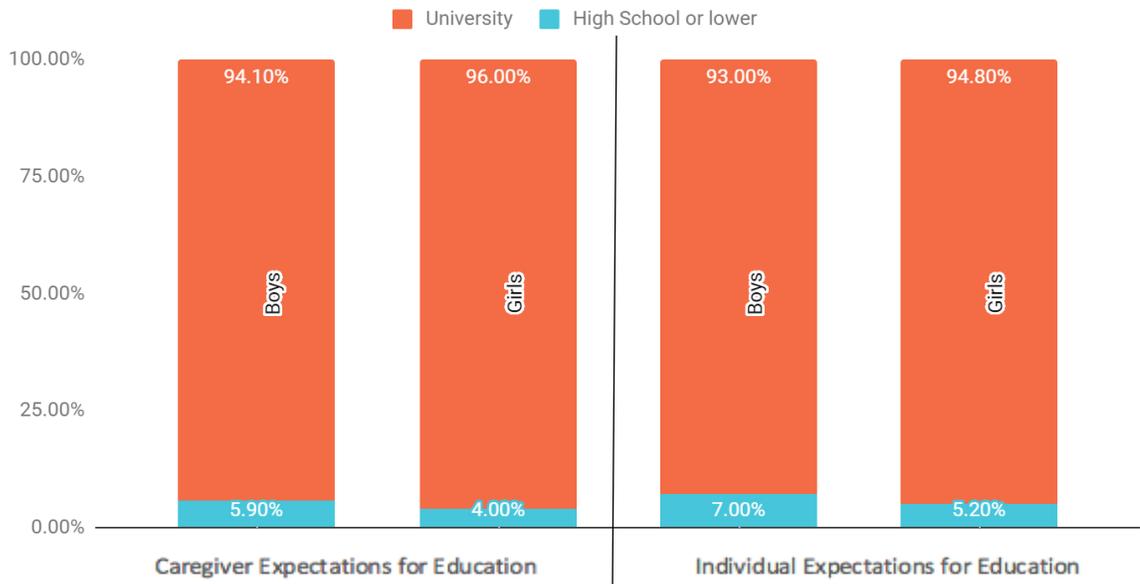
Caregiver connectedness and monitoring differed by sex. Boys indicated that their caregivers cared about what they thought more than girls (58% versus 53%) while girls indicated their caregivers were more aware of who their friends were, their grades and where they were than boys (88% versus 79%). More than 9 adolescents out of 10 reported their caregivers expected them to go to university with no difference by sex, and a greater percentage of girls (91% versus 85% of boys) thought their parents expected them to decide when to get married.

TABLE 2 – FAMILY	BOYS % (N)	GIRLS % (N)	P-VALUE
Household composition			
Both parents	84.73 (738)	82.92 (699)	0.379
One parent only	10.68 (93)	12.34 (104)	
Grandparents	3.33 (29)	4.03 (34)	
Other only (no parents or grandparents)	1.26 (11)	0.71 (6)	
One parent only			
Mother only	55.91 (52)	66.35 (69)	0.133
Father only	44.09 (41)	33.65 (35)	
Siblings			
No siblings	58.78 (512)	63.94 (539)	<0.001
1-2 siblings	22.73 (198)	24.91 (210)	
3-5 siblings	6.77 (59)	4.27 (36)	
6 or more siblings	11.71 (102)	6.88 (58)	
Sex of Siblings			
Sisters only	23.68 (85)	20.07 (61)	<0.001
Brothers only	26.18 (94)	40.46 (123)	
Both brothers & sisters	50.14 (180)	39.47 (120)	
Caregiver connectedness			
Feels close to caregiver	53.58 (464)	57.53 (485)	0.100

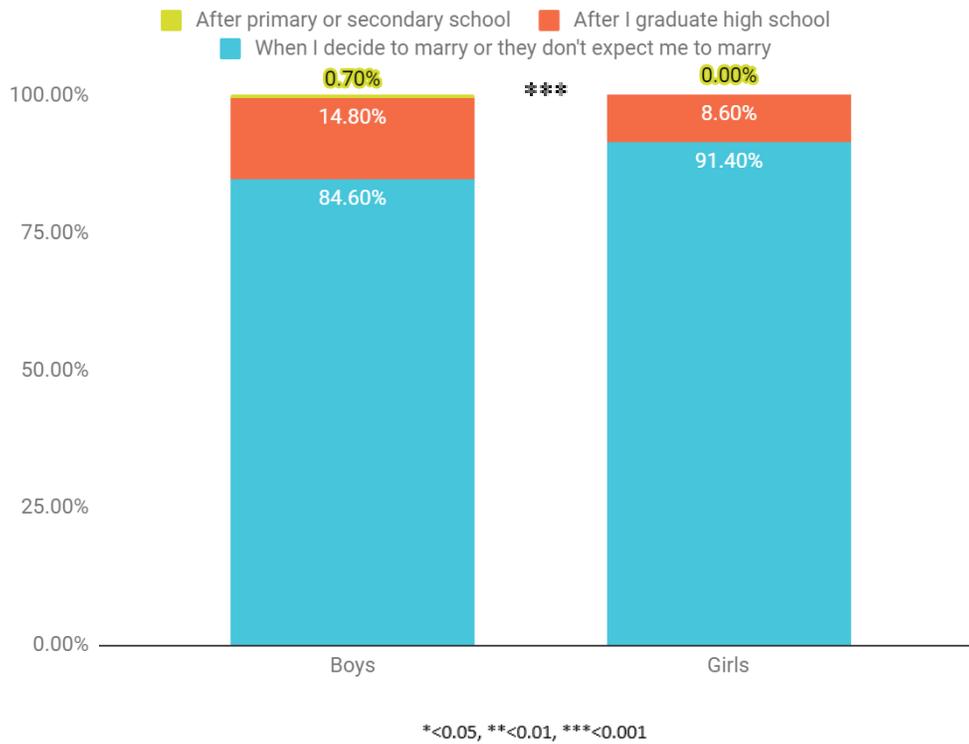
CAREGIVER CONNECTEDNESS



EXPECTATIONS FOR EDUCATION



PARENTAL EXPECTATIONS FOR MARRIAGE



Peers

Friendship networks differed by sex with a majority of boys (59%) reporting any opposite-sex friends versus 50% of girls. Boys and girls had similar size of same-sex friend networks with half indicating 3 or more friends of the same sex. Girls were more likely to spend time with friends than boys: 52% indicated they spent time with friends nearly every day versus 46% of boys.

Descriptive norms, as assessed by adolescents' beliefs about their friends' behaviors, were similar by sex, with the exception of romantic relationships, which were perceived to be more important among boys' friends than among girls' friends (13% of boys versus 8% of girls considered their friends thought having a boyfriend or girlfriend was important). Almost 9 in 10 adolescents believed that their friends considered studying hard to be important, while nearly two-thirds perceived popularity among peers to be important. About one fifth of the adolescents believed their peers had drunk alcohol, while 2-3% perceived their peers to have smoked with no difference by sex. Few adolescents thought their friends had ever engaged in sexual activity.

TABLE 3 – PEERS	BOYS % (N)	GIRLS % (N)	P-VALUE
Number of male friends			
0	7.46 (63)	50.13 (401)	
1 - 3	42.96 (363)	34.63 (277)	<0.001
> 3	49.59 (419)	15.25 (122)	
Number of female friends			
0	41.16 (333)	4.34 (36)	
1 - 3	41.29 (334)	45.54 (378)	<0.001
> 3	17.55 (142)	50.12 (416)	
Average time spent with friends weekly			
Never	38.42 (312)	36.93 (298)	
1 – 2 times/week	7.51 (61)	5.70 (46)	0.012
3 – 4 times/week	8.62 (70)	5.58 (45)	
Nearly every day	45.44 (369)	51.80 (418)	
How many of your close friends think that it is important to...			
Study hard	86.98 (715)	89.01 (721)	0.207
Be popular with people your age	72.26 (594)	71.73 (581)	0.810
Have a boyfriend or girlfriend	12.53 (103)	8.02 (65)	0.003
Have sexual intercourse	2.55 (21)	1.98 (16)	0.432
Perceived peer behaviors			
Close friends have had sex	3.53 (29)	2.22 (18)	0.115
Close friends have smoked	3.24 (23)	2.06 (15)	0.165
Close friends have drunk alcohol	18.68 (133)	21.19 (153)	0.234

School

All respondents were attending coed public schools, with high levels of resources. Adolescents were equally distributed across the three grades, i.e. Grade 6-8. About 16% missed 1-2 days of school in the last month, while only 2 to 4% missed 3-5 days, mostly because of sickness. Adolescent's education aspirations were high with 9 out of 10 expecting to obtain a university degree with no difference by sex.

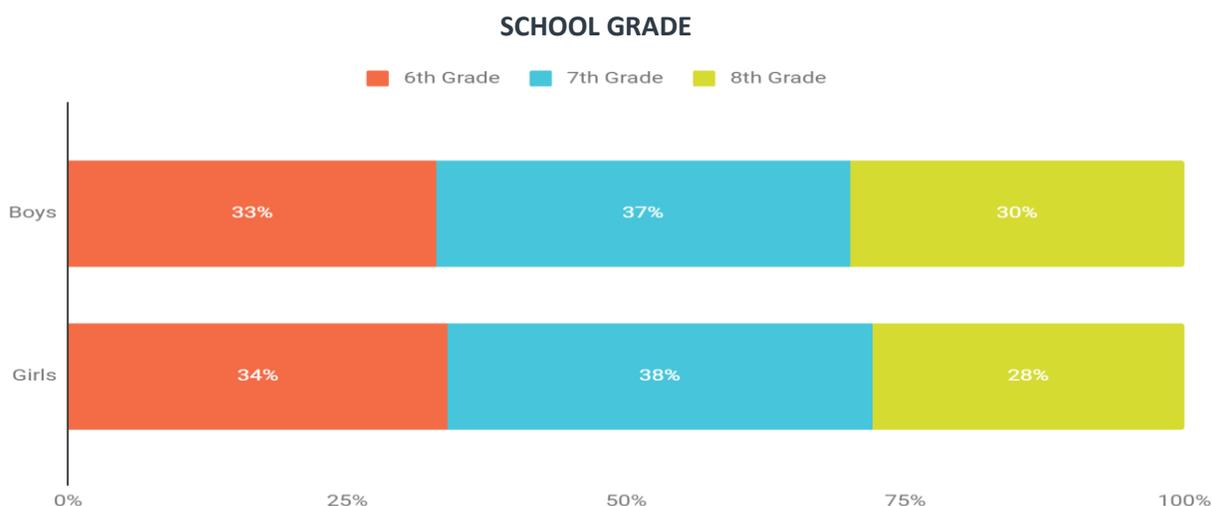


TABLE 4 – SCHOOL CONTEXT	BOYS % (N)	GIRLS % (N)	P-VALUE
School Resource Index			
Low	-	-	
Medium	0.00(0)	0.24 (2)	0.150
High	100.00(870)	99.76 (840)	
Attends Co-ed School			
Attends Co-ed School	100.00 (870)	100.00 (843)	-
Avg number of school days missed			
0	78.75 (678)	79.86 (666)	
1-2 days	16.14 (139)	16.19 (135)	0.361
3-5 days	3.72 (32)	2.28 (19)	
More than 5 days	1.39 (12)	1.68 (14)	
Most common reasons for missing school			
Sick	19.43 (169)	18.39 (155)	0.583
Due to period	-	0.71 (6)	-
Help out at home	1.26 (11)	1.54 (13)	0.623

Neighborhood

Adolescents' perceptions of their neighborhood were captured through a series of questions exploring neighborhood social cohesion, danger in the neighborhood and neighborhood social control. Neighborhood social cohesion related to perceptions of mutual trust and solidarity between people living in the same locality and was assessed with four questions about trust, familiarity, care and solidarity in the neighborhood. Perceptions of neighborhood safety related to young people's feelings about being threatened or insecure at school, on their way to school or in their neighborhood. Neighborhood social control related to young people's expectations for adults to intervene for the common good of their communities.

A majority of adolescents perceived high levels of social cohesion in their communities with 8 in 10 adolescents reporting that people in their neighborhood looked out for and helped each other. Three quarters of adolescents indicated people in their neighborhood knew who they were and about 68% – 69% thought people cared about them in their neighborhood. Girls however, were less likely to trust people in their neighborhood than boys (76% versus 81% trusted people in their neighborhood). Altogether, slightly more than half of them had positive neighborhood perception, with no difference by sex. Perceptions of social control in the neighborhood were generally high, averaging a score of 3.3 out of 5 for both sexes.

Specifically, 8 out of 10 adolescents agreed adults in the neighborhood would intervene if teenagers were damaging property, spraying paint on walls, bullying or fighting with others. About 12% of boys and girls reported they had felt threatened in school or neighborhood in the last 12 months, mostly by peers. Among the minority of adolescents who felt threatened in the neighborhood, more girls than boys (81% versus 57%) felt threatened by adults. About 21.10% of boys and 27.36% of girls felt unsafe currently. Of those who currently felt unsafe, 61% of boys and 54% of girls also identified someone they could turn to when feeling unsafe.

Girls were significantly more likely than boys to report feeling unsafe in their community

TABLE 5 – NEIGHBORHOOD	BOYS % (N)	GIRLS % (N)	P-VALUE
Neighborhood Social Cohesion			
% who agree with "People in my neighborhood look out for and help their neighbors"	80.14 (698)	80.55 (679)	0.832
% who agree with "People in my neighborhood can be trusted"	80.60 (702)	76.39 (644)	0.034
% who agree with "People in my neighborhood know who I am"	77.61 (676)	76.28 (643)	0.511
% who agree with "People in my neighborhood care about me"	69.00 (601)	67.62 (570)	0.538
Positive neighborhood perception	59.13 (515)	56.70 (478)	0.309
Neighborhood Danger			
Felt threatened in school or neighborhood	12.53 (109)	12.57 (106)	0.977
<i>Felt unsafe or threatened in school because of...</i>			

Adults or Teachers	14.63 (6)	21.74 (5)	0.470
Classmates or other students	75.61 (31)	82.61 (19)	0.516
Other (e.g. animals, car accidents)	36.59 (15)	43.48 (10)	0.588
<i>Felt unsafe or threatened in neighborhood because of...</i>			
Adults	57.14 (40)	81.01 (64)	0.002
Boys or girls your age	20.00 (14)	20.25 (16)	0.969
Other (e.g. animals, car accidents)	58.57 (41)	45.57 (36)	0.113
Someone to turn to when feeling unsafe	61.47 (67)	53.77 (57)	0.254
Feels unsafe now	21.10 (23)	27.36 (29)	0.284
Perceived Social Control			
% who agree "Adult in your neighborhood would intervene if children or teenagers were damaging property"	78.99 (688)	80.78 (681)	0.355
% who agree "Adult in your neighborhood would intervene if children or adult were spraying paint on walls (graffiti)"	76.46 (666)	80.19 (676)	0.061
% who agree "Adult in your neighborhood would intervene if children or adult were bullying or threatening"	80.25 (699)	82.09 (692)	0.331
% who agree "Adult in your neighborhood would intervene if children or adult were fighting with another person"	81.29 (708)	83.39 (703)	0.253
Summary Score (Mean +/- SD) Range 1-4	3.34 +/- 0.84	3.34 +/- 0.73	0.979
Cronbach's Alpha	0.91		

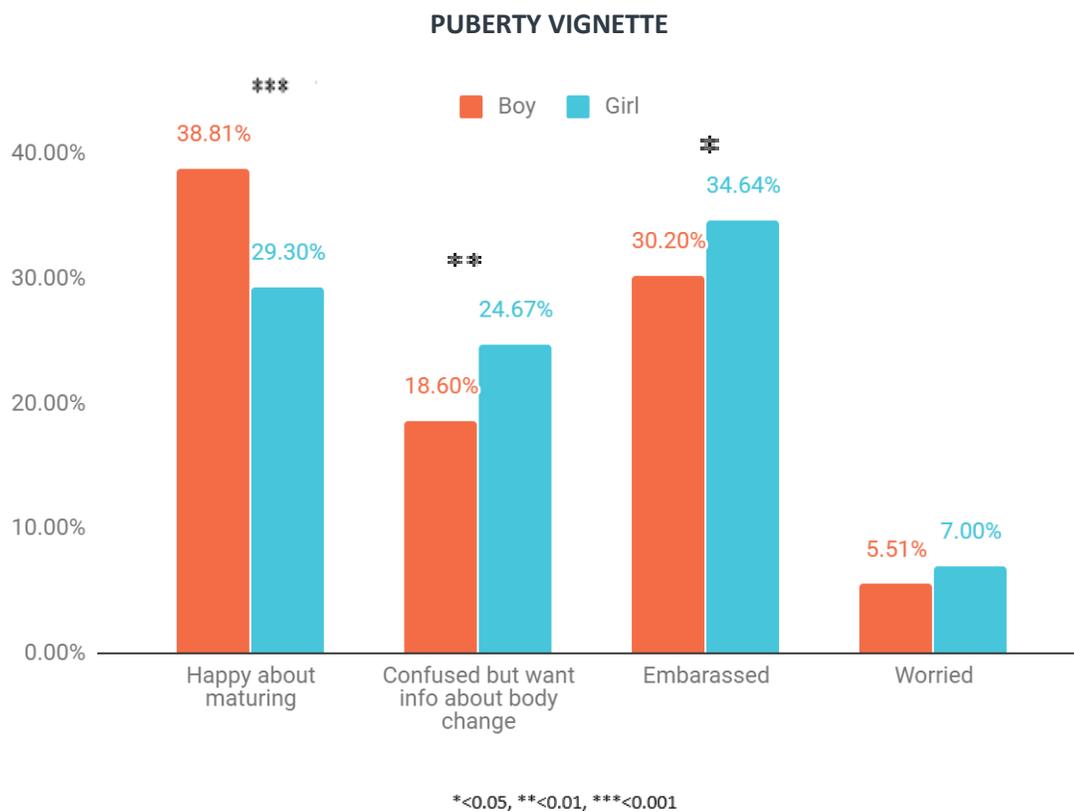
Vignettes

The GEAS developed vignettes to assess sex differences in communication style and adolescents' perceptions regarding puberty and pregnancy. Vignettes were designed to investigate how adolescents thought about relationships and adolescent experiences differently if the protagonist was a boy or a girl and how they assessed their own attitudes or behaviors relative to what they perceived as being typical in their entourage. The first vignette assessed communication style in the context of romantic relationships between boys and girls, including direct, indirect and non-communicative (avoidance) strategies, coded 2, 1, or 0 respectively to form a communication score. The second vignette explored reactions to gender atypical behaviors distinguishing between exclusion, partial inclusion and complete inclusion coded 0, 1, or 2 respectively. Puberty vignettes evaluated young adolescents' responses to puberty onset by taking perspectives of hypothetical protagonist and peers.

Adolescents generally adopted an indirect style of communication to engage in romantic relations, with girls more likely to engage in indirect/avoidance style than boys. In communication style assessment, both boys and girls in Shanghai were not very direct, with a mean score

of 0.70 ± 0.91 and 0.60 ± 0.88 respectively. Generally, boys were slightly less avoidant than girls when approaching a romantic interest, with statistical differences observed by sex ($p=0.032$). When referring to the peer social inclusion for gender a-typical peers, boys scored higher than girls (1.43 ± 0.80 vs. 1.32 ± 0.83 , $p=0.006$), meaning boys were more inclusive than girls for gender a-typical peers.

TABLE 6 – VIGNETTES	BOYS	GIRLS	P-VALUE
Communication style (How would you approach a romantic interest)			
Mean score (respondent perspective) (Mean +/- SD)	0.70 +/- 0.91	0.60 +/- 0.88	0.032
Peer social inclusion for gender a-typical peers (Acceptance of peer wanting to play with opposite gender group)			
Mean score (respondent perspective) (Mean +/- SD)			
Scored from 0 - 2 (0 - no inclusion, 1 - some inclusion, 2 - inclusion)	1.43 +/- 0.80	1.32 +/- 0.83	0.006

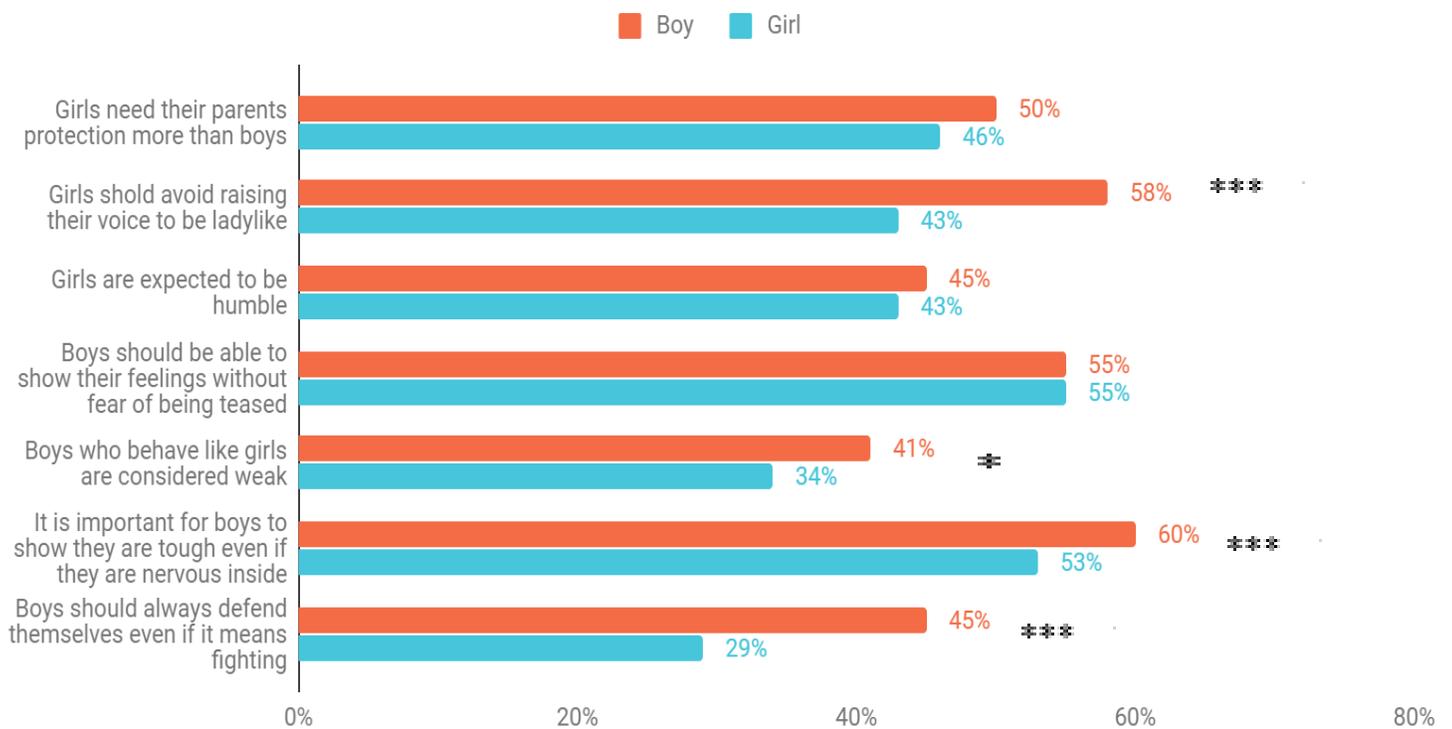


Gender Norms

The Global Early Adolescent Study aims to investigate young people’s perceptions of normative gender traits, roles and relationships in early adolescents and how these perceptions evolve over time and influence a number of adolescent health outcomes. The exploration of gender stereotypical traits reflects attributes of masculinities and femininities, contrasting male toughness and female vulnerability. Gender stereotypical roles portray sex-specific responsibilities and power imbalance in decision making in the household. The distribution of responses to each of the questions populating these 2 scales are presented in Table 9 of the appendix.

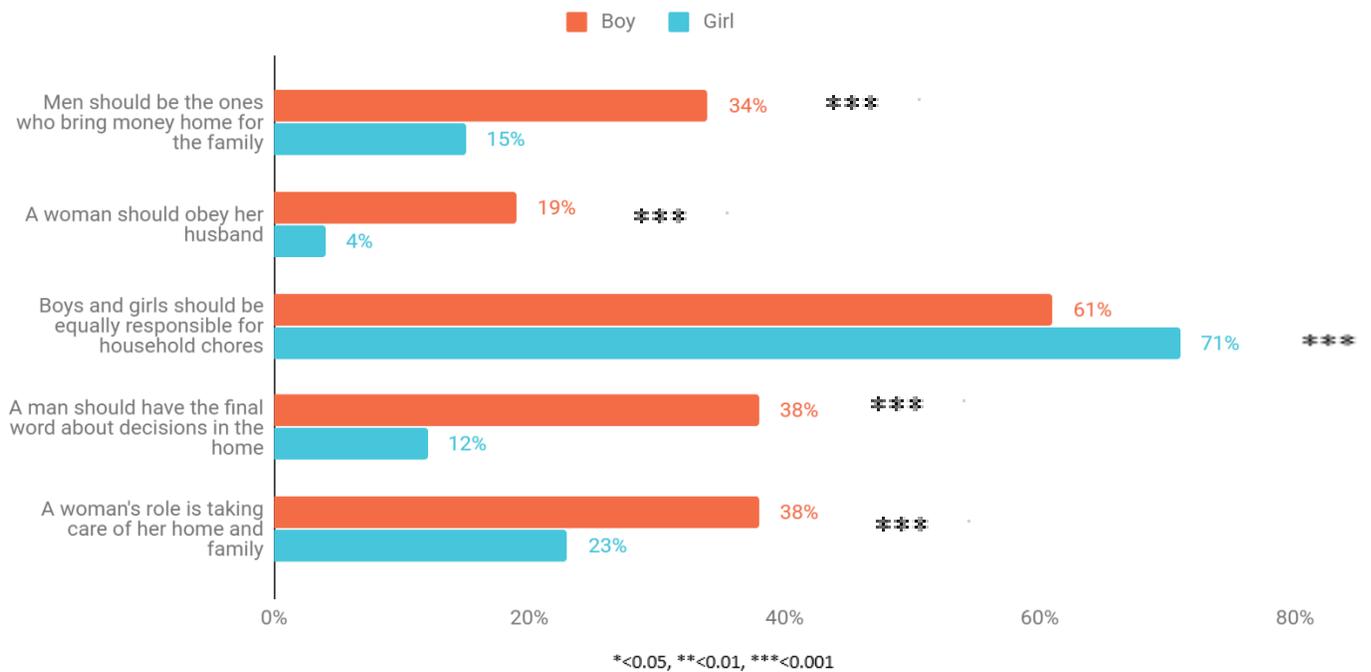
Most adolescents in Shanghai rejected stereotypical gender traits and roles, although a majority thought it was important for boys “to show they were tough even if they were nervous inside” (69% of boys and 53% of girls) and 58% of boys thought “girls should avoid raising their voice to be lady like.” Boys were generally more likely to perceive gender stereotypical traits than girls. Boys were also more likely to perceive stereotypical gender roles than girls, with respect to household decisions, and division of labor and responsibilities: 38% of boys versus 23% of girls agreed that boys should have the final word about decisions in the home while 34% of boys and 15% of girls agreed with the idea that the men should be the ones bringing money home. Girls were more likely than boys to believe boys and girls should be equally responsible for household chores (70 versus 60%). Finally, negative social repercussions for challenging gender roles was more frequent among boys than girls, as boys were more likely than girls to believe it was okay to tease boys and girls who act like the opposite sex.

STEREOTYPICAL GENDER TRAITS

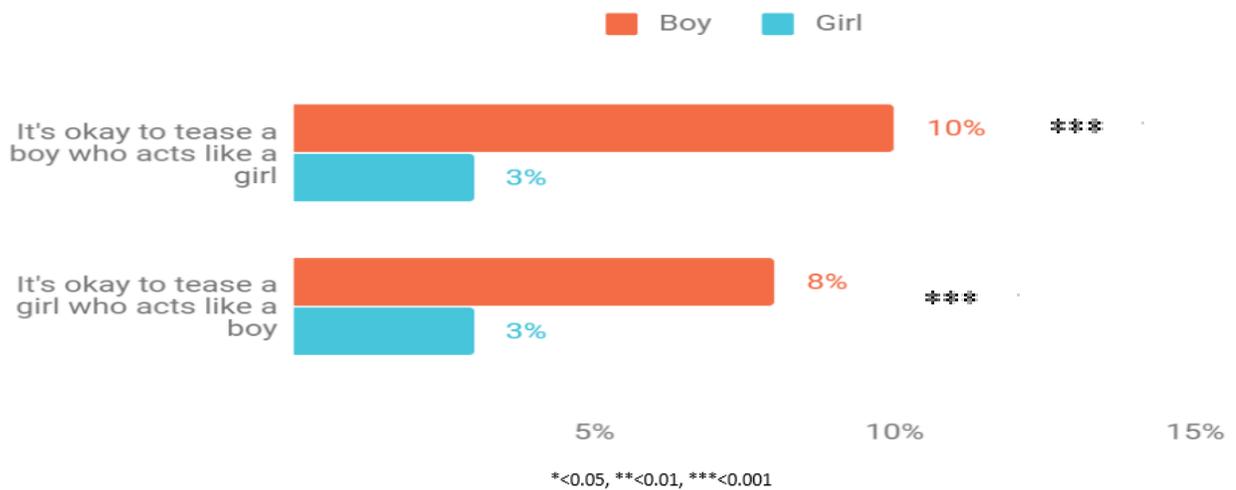


*<0.05, **<0.01, ***<0.001

STEREOTYPICAL GENDER NORMS



SANCTIONS FOR CHALLENGING GENDER ROLES



Gender Norms about Relationships

Attitude towards adolescent relationship expectations and a sexual double standard (Cronbach's Alpha=0.79) were assessed using two validated subscales (Cronbach's Alphas= 0.84 and 0.82 respectively). Generally, adolescents of both sexes expressed moderate endorsement of romantic relationships engagement and sexual double standard. Boys were slightly more likely than girls to endorse normative views about relationships involvement (2.86 ± 1.02 vs. 2.76 ± 0.97 , $p=0.031$), while girls were more likely to perceive a sexual double standard with respect to boy/girl relationships (2.79 ± 0.72 vs. 2.57 ± 0.76 , $p<0.001$).

Boys were more likely to approve of romantic relationships in adolescence while girls, on average, endorse the sexual double standard more than boys.

TABLE 7 – GENDER NORMS	BOYS % (N)	GIRLS % (N)	P-VALUE
Adolescent Relationship Expectations			
Mean Score (1-5, 5 indicating strongest approval of adolescent romantic relationships) (Mean +/- SD)	2.86 +/- 1.02	2.76 +/- 0.97	0.031
Cronbach's Alpha	0.84		
Sexual Double Standard			
Mean Score (1-5, 5 indicating strongest endorsement of sexual double standard) (Mean +/- SD)	2.57 +/- 0.76	2.79 +/- 0.72	<0.001
Cronbach's Alpha	0.82		

Empowerment

The GEAS explores three dimensions of empowerment in early adolescence related to freedom of movement, voice, and decision making. Freedom of movement captures the extent to which adolescents are free to go to certain places alone (e.g. after-school activities, party, meeting with friends with opposite sex, and community center/movies). Voice represents the extent to which adolescents believe their opinions are heard by their parents, teachers, or adults in the community. Decision represents the extent to which adolescents can make daily life decisions on their own, such as friendships, clothing, what to do with their free time, foods to eat when outside home etc. The series of questions underlying each construct are presented in Appendix Table 10. Each sub dimension score ranges from 1 to 4, with higher scores reflecting greater empowerment. The overall empowerment indicator was an aggregate score ranging from 1 to 4 reflecting all three sub dimensions of freedom of movement, voice, and decision ranging from 1 to 4.

Based on 6 questions, the freedom of movement sub-scale indicates greater freedom of movement for boys than girls (2.4 versus 2.3). Adolescents scored higher on the voice subscale (based on 7 items) with no statistical difference by sex (3.07 for boys versus 3.11 for girls). The decision making score (summarizing 4 items) showed greater decision-making power for girls than boys (3.42 versus 3.31) . As a result of these different sex patterns by subscale, the overall empowerment score was comparable for boys and girls.

TABLE 8 – EMPOWERMENT	BOYS % (N)	GIRLS % (N)	P-VALUE
Freedom of movement			
Mean Score (Mean +/- SD)	2.40 +/- 0.72	2.30 +/- 0.65	0.004
Cronbach's Alpha	0.76		
Voice			
Mean Score (Mean +/- SD)	3.07 +/- 0.74	3.11 +/- 0.67	0.196
Cronbach's Alpha	0.84		
Decision			
Mean Score (Mean +/- SD)	3.31 +/- 0.75	3.42 +/- 0.67	<0.001

Cronbach's Alpha	0.75		
Overall Empowerment			

Mean Score (Mean +/- SD)	2.86 +/- 0.59	2.89 +/- 0.50	0.366
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Adverse Childhood Experiences and Bullying

The GEAS explores lifetime history of Adverse Childhood Experiences (ACEs), as well as experiences of bullying and physical interpersonal violence in the last six months. In an attempt to estimate poly-victimization, ACEs were considered in an additive measure (cumulative across 13 types of experiences), counting the number of types of adverse experiences an adolescent had gone through in their lifetime. We also evaluated the incidence of psychological and physical bullying in the last six months, as well as violence perpetration in the last 6 months. A majority of adolescents reported at least one of these experiences, with 30% to 34% reporting one or two events and another 30 to 31% reporting three or four events and 15% et 17% reported five events or more. Only 20% of boys and 23% of girls reported no such experiences. There were no sex differences regarding the distribution of ACEs.

Teasing and bullying were common, with 35% of boys and 28% of girls indicating they had been teased in the last 6 months. Sex differences were also apparent with respect to physical bullying, as 20% of boys reported being physically bullied and 7% indicated having

bullied their peers in the last 6 months versus 8% and 2% of girls respectively the last 6 months versus 8% and 2% of girls respectively.

Boys were more likely than girls to report being physically bullied and physically bullying another.

LIFETIME ADVERSE CHILDHOOD EXPERIENCES (ACEs) EXPOSURE BY SEX

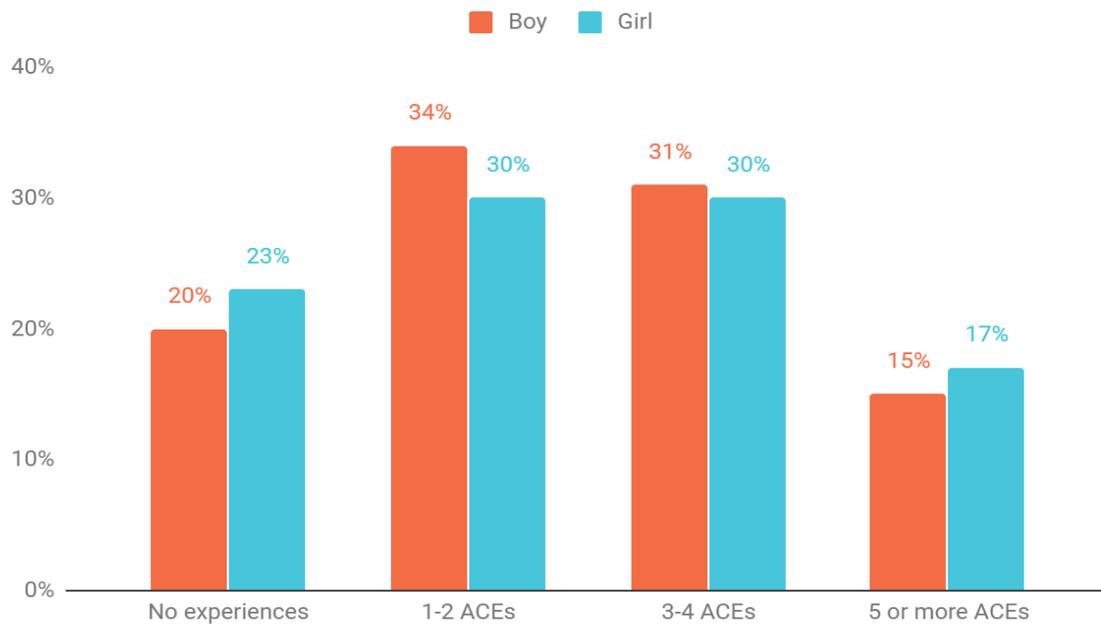


TABLE 9 – ADVERSITY, BULLYING AND INTERPERSONAL VIOLENCE	BOYS % (N)	GIRLS % (N)	P-VALUE
Bullying			
Ever been teased during the last six months	35.82 (312)	28.35 (239)	0.001
Experience of physical violence victimization by peers	19.86 (173)	7.71 (65)	<0.001
Engaged in physical violence perpetration with peers	6.77 (59)	2.14 (18)	<0.001
Bystander intervention			
Tried to intervene peer bullying	57.29 (326)	52.05 (318)	0.070
Self-Defense			
Ever carry something for protection	13.76 (15)	28.30 (30)	0.009

Puberty, Overall Health and Body Comfort

Adolescents were asked questions about their perceptions of health in general, their comfort with their own body, and their stages of pubertal development. Pubertal onset was measured by asking boys and girls if they had started puberty and by asking girls about breast development and menstruation and boys about voice change and beard growth. A total of eight questions assessed young people’s level of comfort with their own bodies. These questions were summarized in a single indicator assessing the percentage of adolescents that felt satisfied with their body image.

Over 80% of boys and girls reported they were in good or excellent health, with higher rating for boys than girls. A majority of

adolescents reported undergoing pubertal changes, with 93% of girls and 75% of boys having experienced puberty onset.

Body comfort, assessed through seven questions, show systematic sex differences, with boys generally more comfortable and satisfied with their bodies than girls. While 76% of boys and 70% of girls were satisfied with their bodies, a lower proportion (60% of boys and 50% of girls) liked the way that they looked.

Boys indicated greater overall perception of health and body comfort compared to girls.

TABLE 10 – OVERALL HEALTH BODY COMFORT PUBERTY	BOYS % (N)	GIRLS % (N)	P-VALUE
Overall perception of own health (good or excellent)	87.26 (760)	82.21 (693)	0.004
Body Comfort (% agree)			
<i>Positive</i>			
"I am satisfied with my body"	76.81 (669)	70.94 (598)	0.006
"I like the way I look"	59.13 (515)	51.01 (430)	0.001
"I like looking at my body"	27.78 (242)	15.18 (128)	<0.001
"I feel like I am beautiful/handsome"	52.70 (459)	34.28 (289)	<0.001
<i>Negative</i>			
"I worry about the way that my body looks"	38.00 (381)	29.66 (250)	0.001
"I often wish my body was different"	25.95 (226)	23.37 (197)	0.216
"I am worried that my body is not developing normally"	37.20(324)	37.37 (315)	0.943
Indicated body comfort (positive responses on all above items)	3.33 (29)	1.66 (14)	0.027
Puberty Onset			
Pre-Pubertal	24.63 (151)	6.46 (51)	<0.001
Pubertal	75.37 (462)	93.55 (740)	

Menstruation

In addition to body comfort, the GEAS included questions about girls' experience with menstruation and menstrual hygiene. Four dimensions were explored: knowledge, feelings about menstruation, experience (e.g. age at first menstruations, menstrual management), and self-care during menstrual cycles. 85% of girls indicated that they knew where to go for information about menstrual periods.

TABLE 11– MENSTRUATION	GIRLS % (N)
Experience	
Ever had a period	72.86 (612)
Age of initial menstruation	
10 or younger	9.00 (55)
11 - 12	71.69 (438)
13 - 14	16.69 (102)
Ever talked about self take-care during period	76.63 (469)
Feelings about menstruation	
Ashamed of body when period	24.83 (152)
My period tells I am woman	45.42 (278)
It is important to keep period secret	35.95 (220)
Feel proud of period	8.67 (53)
My period is not a big deal	70.92 (433)
Self-Care during Menstruation	
Used sanitary products during last period	98.86 (605)
Missed school due to last period	0.98 (6)

Mental Health

Two indicators of mental health were included in the GEAS: depressive symptoms and lifetime experience of substance use (alcohol, tobacco and other drugs). An average score of depressive symptoms ranging from 1 to 5 summarized symptomology of four depressive indicators including worrying for no good reason, being too unhappy to sleep at night, feeling sad, and thinking of self-harm. Mean scores ranged from 1-5, with higher score indicating greater reporting of depressive symptoms. Girls were more likely to report depressive symptoms than boys, with 18% to 46% agreeing with each statement versus 15% to 40% of boys.

Over 40% of adolescents reported worrying for no good reasons (46% of girls and 40% of boys), 27% reported sleeping problems or sadness, while 18% of girls and 15% of boys indicated they were so unhappy they thought about harming themselves. The overall depressive symptom scale (Cronbach's alpha=0.77) yielded higher scores for girls than boys (2.64 versus 2.45 (P<0.001). More boys than girls reported they had used cigarettes,

while there were no sex differences in the consumption of alcohol. Marijuana and other drugs were illegal in China, and few adolescents reported they had used them.

Girls were significantly more likely than boys to report depressive symptoms

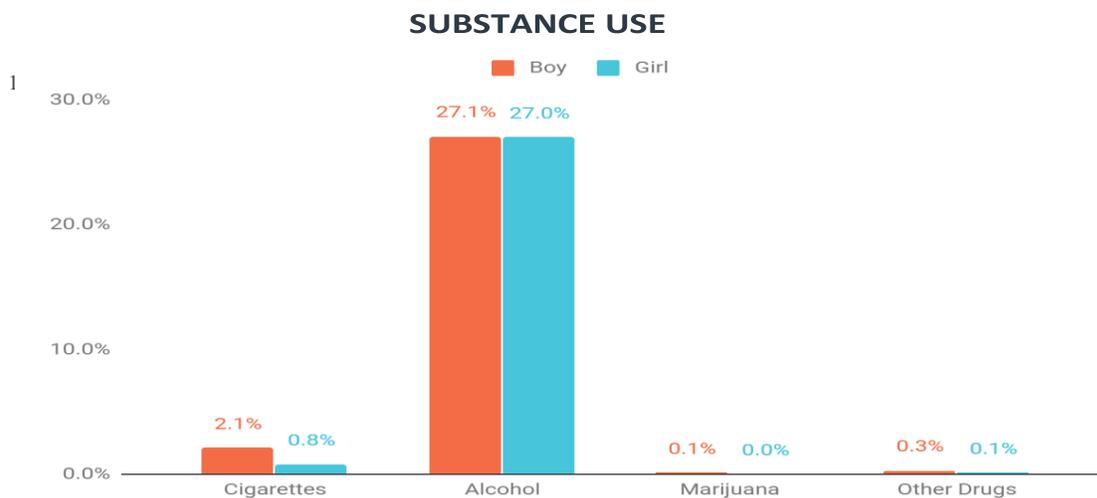


TABLE 12 – MENTAL HEALTH	BOYS % (N)	GIRLS % (N)	P-VALUE
Depressive Symptoms			
% agree with "I worry for no good reason"	40.05(348)	46.44(391)	0.008
% agree with "I am so unhappy I can't sleep at night"	27.13(236)	30.76(259)	0.097
% agree with "I feel sad"	27.01(235)	31.79(268)	0.030
% agree with "I am so unhappy I think of harming myself"	15.38(134)	17.56(148)	0.225
Mean Score (1-5, 5 indicating strongest affirmation for symptoms) (Mean +/- SD)	2.45 +/- 1.07	2.64 +/- 1.04	<0.001
Cronbach's Alpha	0.77		
I am so unhappy I think of harming myself (agree a little or agree a lot)	15.38(134)	17.56(148)	0.225

Sexual Health Knowledge

Sexual health knowledge of adolescents was assessed through six questions about pregnancy (reproductive capacity and contraception) and four questions about HIV. We present the percentage of adolescents who provided correct answers to each item as well as a summary pregnancy score ranging from 0 to 6 summarizing the number of correct answers for pregnancy and a summary score ranging from 0 to 4 summarizing the number of correct answers for HIV. Adolescents were also asked about their knowledge of SRH services and stigma surrounding use of these services.

Less than 30% of boys and girls correctly answered that “a girl can get pregnant the first time of sexual intercourse”, “a girl can swallow a pill every day to protect against pregnancy”, “a girl can have a shot or injection to protect against pregnancy” and “a girl cannot use herbs to prevent a pregnancy”. More boys than girls correctly answered the last two questions. On average, boys and girls answered two items correctly, with no sex differences.

Only around 20% of boys and girls knew “a boy/girl can get HIV the first time of sexual intercourse”, and about 40% of them knew kissing would not transmit HIV. Only 39% of boys and 28% of girls knew “using a condom can protect against HIV”. Generally, the awareness of boys was relatively higher than that of girls regarding HIV related knowledge. On average, adolescents only gave one correct response out of four questions.

Less than half of adolescent boys and girls knew where to get condoms or contraception, although those are provided in every community of Shanghai. About 30% of youth reported they felt embarrassed or shy to go to a clinic to get birth control or to get a condom, with no difference by sex.

TABLE 13 – SEXUAL HEALTH KNOWLEDGE	BOYS % (N)	GIRLS % (N)	P-VALUE
Knowledge (% correct response to...)			
A girl can get pregnant the first time of sexual intercourse	25.72 (224)	25.50 (215)	0.919
A girl can get pregnant after kissing or hugging	63.61 (554)	69.99 (590)	0.005
A girl can swallow a pill every day to protect against pregnancy	18.60 (162)	16.61 (140)	0.279
Using a condom can protect against pregnancy	56.36 (399)	54.03 (382)	0.379
A girl can have a shot or injection to protect against pregnancy	22.62 (197)	15.30 (129)	<0.001
A girl can use herbs to prevent a pregnancy	29.85 (260)	21.83 (184)	<0.001
Knowledge about Pregnancy (Mean +/- SD) (No. correct out of 6)	2.06 +/- 1.68	1.95 +/- 1.49	0.128
A boy/girl can get HIV the first time of sexual intercourse	22.59 (192)	18.02 (151)	0.020
Using a condom can protect against HIV	39.14 (274)	28.09 (198)	<0.001
You can get HIV through kissing	41.88 (356)	35.20 (295)	0.005
A girl or boy can swallow a pill before sex that will protect against HIV	11.18 (95)	7.04 (59)	0.003
Knowledge about HIV (Mean +/- SD) (No. correct <4 Qs in-total>)	1.05 +/- 1.03	0.83 +/- 0.92	<0.001

I know where to go to get...			
...condoms	38.98 (276)	42.15 (298)	0.225
...information about menstrual periods	0 (0)	0 (0)	.
...contraception	25.83 (225)	30.01 (253)	0.054
I would feel too embarrassed or shy to...			
...go to a clinic or center for contraception (birth control)	23.54 (205)	25.86 (218)	0.265
...get a condom if I needed it	27.82 (197)	28.85 (204)	0.667

Sexual Attitudes and Experiences

Less than ¼ agreed with the statements “it’s the girl’s responsibility to prevent pregnancy”, “women who carry condoms on them are easy”, “a real man should have as many female partners as he can”, and “men are always ready for sex”. Using the aforementioned items, we found there were sex differences in endorsement of two items. More boys than girls agreed with the latter two items.

TABLE 14 – SEXUAL ATTITUDES & EXPERIENCES	BOYS % (N)	GIRLS % (N)	P-VALUE
Sexual Norms (% agree with...)			
It’s the girl’s responsibility to prevent pregnancy	12.51 (109)	15.18 (128)	0.109
Women who carry condoms on them are easy	18.25 (159)	20.28 (171)	0.287
A real man should have as many female partners as he can	9.64 (84)	4.75 (40)	<0.001
Men are always ready for sex	8.27 (72)	5.46 (46)	0.022

Romantic Relationships and Sexual History

A majority of boys (81.71%) and girls (89.64%) never had a romantic relationship. About 8% and 10% of boys reported a past romantic relationship and had a girlfriend currently, while only about 5.4% and 4.7% of girls had past and current romantic relationships respectively. Generally, more boys than girls had romantic experience. Among the 219 boys and girls who reported a previous or current romantic relationship, we assessed power dynamics within the last partnerships using a 5 item scale. Response options were scored from 1 to 5, with the higher score indicating greater power imbalance. The mean score of boys and girls was about 2.9, with no significant sex differences. Intimacy in the last relationships was also assessed using a six item subscale.

The mean score for boys was 3.7 while that of girls was 3.3. Boys felt more intimate in a relationship than girls with a mean score of 3.7 versus 3.3.

Regarding sexual history, there were significant sex differences. 5.12% of boys reported they had ever had sexual touch while the percentage of girls was 2.64%. Only 1.29% of boys reported they had experienced sexual intercourse while no girl reported so.

ROMANTIC RELATIONSHIPS

■ Never had a romantic relationship
 ■ Past romantic relationship (none currently)
 ■ Current boyfriend/girlfriend
 ■ Engaged or married

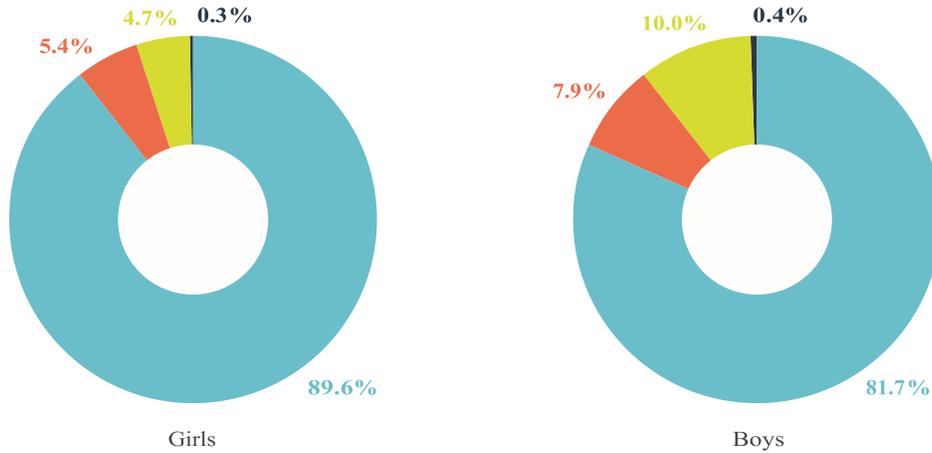


TABLE 15– RELATIONSHIPS AND SEXUAL HISTORY	BOYS % (N)	GIRLS % (N)	P-VALUE
Romantic Relationships			
Never had a romantic relationship	81.71 (621)	89.64 (692)	
Past romantic relationship (none currently)	7.89 (60)	5.44 (42)	<0.001
Current boyfriend/girlfriend	10.00 (76)	4.66 (36)	
Engaged or married	0.39 (3)	0.26 (2)	
Power Imbalance in Relationships			
1-5, 5 indicating strong imbalance in power (Mean score +/- SD)	2.92 +/- 0.83	2.86 +/-0.90	0.653
Intimacy in Relationships			
1-5, 5 indicating strong feeling of intimacy/ satisfaction (Mean score +/- SD)	3.70 +/-0.83	3.29 +/-0.88	<0.001
Intimate Partner Violence			
IPV victimization	37.75 (57)	17.39 (16)	0.001
Sexual History			
Ever sexual touch	5.12 (36)	2.64 (18)	0.017
Ever sexual intercourse	1.29 (9)	0 (0)	0.003





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