Leah Koenig, Mengmeng Li, Patrick Kayembe, Eric Mafuta, Jose Ortiz, Siswanto Wilopo, Caroline Moreau

Determinants of Favorable Attitudes about Abortion in Early Adolescence: Findings Across Three Restricted Legal Settings

Background: Attitudes toward abortion are crucial to understanding barriers to safe abortion and post abortion care. Such attitudes develop and are solidified in the adolescent period and retain stability across the lifecourse,[5] maintaining abortion stigma and restrictive abortion policy.[i] It is therefore crucial to understand young people's perspectives about abortion as they grow into sexual maturity.

Though prior studies have compared differences in abortion attitudes by gender among adults and in samples of adolescent boys and girls separately, few studies to date have examined both boys' and girls' attitudes about abortion in early adolescence, and none to our knowledge have assessed these attitudes among adolescents across socially conservative cultural and legal contexts. An improved understanding of both young adolescent boys' and girls' attitudes toward abortion, as well as their associated factors will help to improve understanding about the the emergence of stigma surrounding abortion in this period.

The purpose of this study is to describe the prevalence of favorable abortion attitudes among adolescents living in low-resource urban settings in three settings where abortion is legally restricted and identify any differences characteristics within adolescents' socio-ecological environments.

Methods

Study Setting and Population: The sample for this analysis was drawn from baseline data collected from young adolescent participants in the Global Early Adolescent Study (GEAS), a multi-country longitudinal study exploring the influence of gender norms on health and wellbeing across adolescence. The present study includes data from GEAS sites in three countries: Kinshasa, Democratic Republic of the Congo (DRC); Cuenca, Ecuador; and, three cities in Indonesia: Lampung, Denpasar and Semarang. All three study countries represented legally restricted settings, though restriction type differs across context. The DRC represents the most restricted legal setting for abortion, with abortion prohibited without explicit legal exception, though it is commonly practiced in circumstances to save the life of the pregnant woman.[ii] Indonesia permits legal abortion only to save a pregnant woman's life, and Ecuador's law includes exceptions to save a woman's life or to preserve her physical health.[iii]

The GEAS baseline survey was approximately two hours in length (inclusive of breaks to reduce survey fatigue), and included a multidimensional assessment of health and wellbeing behaviors and outcomes, socio-demographic information as well as indicators of gender norms and agency. Survey instruments, training, and data collection protocols were consistent across sites, however sampling strategies to select adolescents living in the four low-resource urban areas varied. In Cuenca students were selected by stratified probability sampling by age and gender. In Kinshasa probability sampling was used to select both schools (by neighborhood and school type) and 25 students (distributed by age and gender) within each selected school. In Indonesia, eligible participants were enrolled in 7th grade in one of three schools in each city that had been selected by purposive sampling. Adolescent boys and girls aged 10-14 who were currently enrolled in school, living with in a household, had provided their own assent and whose parents had provided consent for their participation were enrolled and administered the GEAS survey. Data collectors administered the survey in one-on-one interviews in Kinshasa and were present to address any questions during self-administered surveys in Cuenca and Indonesia. Data were collected on tablets using the SurveyCTO platform. All study activities were approved or deemed exempt by the Johns Hopkins Bloomberg School of Public Health Institutional Review Board, and received approval from each site research group's ethical approval committee.

Original samples of in-school adolescents consisted of 704 cases in Cuenca, 1003 cases in Kinshasa and 2,181 in Indonesia. After conducting exploratory data analysis to assess missingness patterns in the outcome, we excluded all cases with any data missing for the abortion items comprising our favorable abortion attitudes dependent variable (excluding 6% cases in Cuenca, 0.6% in Kinshasa and 15% in Indonesia). K-Nearest Neighbor imputation was used to impute any missing data from covariates for the remaining samples. Final analytic samples were comprised of 660 cases in Cuenca, 997 cases in Kinshasa and 1,857 cases in Indonesia.

Measures: Three questions scored on a five-point Likert scale ranging from "Disagree a lot" to "Agree a lot" were used to construct a composite measure of Favorable Abortion Attitudes : "Adolescent girls who get pregnant should have an abortion if they are not married", "Adolescent girls who get pregnant should have an abortion because they are too young to raise children" and "Adolescent girls who get pregnant should have an abortion to stay in school". The number of "Agree a little" or "Agree a lot" responses the participant gave were counted, and subsequently dichotomized into those designated as having favorable abortion attitudes and those who did not. Favorable abortion attitudes were defined as agreement to at least two of the three items, a cutoff that allowed us to study adolescents who expressed general favorability towards abortion, without requiring rigidity in attitudinal response, as stances on abortion likely remain unsolidified in this age group.

Independent factors found to be associated with favorable abortion attitudes in prior literature were considered. Participants self-identified as a "boy" or "girl", which we used as a limited measure of gender, as well as criteria by which to divide gender-stratified models. Other socio-demographic characteristics were also self-reported, including continuous age, religion and education status. Due to the age of our sample, all of whom are currently enrolled in school, we proxied level of education with educational expectations (how much school an adolescent expected to complete) and grade-for-age education attainment (whether or not an adolescent was at or above, or below the expected school grade for their age) . In addition, we examined family factors which may influence young people's attitudes: whether adolescents were living with both, one, or on neither of their parents; the gender composition of their siblings; an asset-based household wealth tertile relative to each site's entire sample, and whether one or both parents had migrated to the current urban geography. City was included as a covariate in multivariate models for the Indonesian sample to account for heterogeneity across the three distinct contexts.

Aside from participant characteristics at the individual and family levels, we considered variables representing the influence of religion and attitudes about gender roles. Therefore, site-specific religion and self-reported importance of religion, were assessed for inclusion, as were two proxy measures of familial gender roles: current maternal employment and agreement to the statement "Boys and girls should be equally responsible for household chores."

Analyses: We explored missingness among the datasets and retained cases with complete information for the three outcome questions about abortion attitudes, thereby ensuring consistent construction of the abortion attitudes measure. Any missing data for independent factors were imputed using k Nearest-Neighbor imputation based on age and gender.

Chi-square tests and student's t-tests were used to assess crude associations of abortion attitudes with demographic and socio-ecological factors. Final multivariate models included demographic and family factors; age, parental and sibling structure, family wealth index tertile, and grade-for-age education status *a priori*. Additional measures demonstrated as associated with abortion attitudes in existing literature, including proxy measures of familial gender roles, importance of religion and site-specific religion were tested for inclusion in the models using Likelihood Ratio tests. Statistical analyses were conducted using Stata/SE 15.1.

Results: A description of the overall site samples are presented in **Table 1**. Samples were equally divided between boys and girls in in each site. Mean age was about 12 in each of the three sites, though Indonesia's sample was not evenly distributed by age (71.24% of the Indonesian sample were 12 and another 22% were 13). Over two-thirds of adolescents lived in two-parent households (ranging from 65% in Kinshasa to 90% in Indonesia) and nearly all had siblings. Appropriate grade-for-age educational attainment was lower in Kinshasa (73%) than in the two other sites (90% in Cuenca and 97% in Indonesia). Importance of religion was lowest in Indonesia (where 39% reported religion as "important or very Important"), and highest in Kinshasa (97%). Maternal employment was much more common in Cuenca (78%) than in Indonesia (38%) and Kinshasa (20%).

Figure 1. displays distributions of abortion attitudes items and the composite favorable abortion attitude indicator in each sample as well as bivariate comparisons stratified by gender. Favorable abortion attitudes were observed most commonly in Kinshasa, where nearly one-third (32%) approved of abortion in at least two of three presented circumstances, than in Indonesia (26%) or Cuenca (14%). Across all three sites, more boys than girls held more favorable attitudes towards abortion, and this difference was significant in Kinshasa (36% of boys vs. 29% of girls, p=0.015), and Cuenca (17% of boys vs. 11% of girls, p=0.025) but not in Indonesia (28% of boys vs. 24% of girls, p=0.054). In Indonesia more boys than girls agreed to the item "Adolescent girls who get pregnant should have an abortion to stay in school." (33% vs. 27%, p=0.005).

Bivariate analyses demonstrated unadjusted associations between several individual characteristics and abortion attitudes. In Kinshasa, younger adolescents were more likely than older adolescents to have favorable abortion attitudes (OR: 1.22, p<0.001). Boys in Cuenca (OR: 1.65, p=0.026) and Kinshasa (OR: 1.39, p=0.015) were more likely than girls to report favorable abortion attitudes, with no difference in Indonesia. In Kinshasa, adolescents in the lowest wealth tertile had higher unadjusted odds of reporting favorable attitudes towards abortion than those in the middle (OR: 1.50, p=0.018) and highest tertiles (OR: 1.43, p=0.034). In Indonesia (OR: 2.25, p<0.001) and Kinshasa (OR: 1.36, p=0.032), favorable abortion attitudes were associated with normative perceptions of equal gender division of household labor.

Adjusted analyses revealed higher odds of favorable abortion attitudes with characteristics at various levels of an adolescent's socio-ecological environment. After adjustment, boys had higher odds of favorable attitudes towards abortion girls in Cuenca (aOR: 1.67, p=0.027) and Kinshasa (aOR: 1.39, p=0.016) but not in Indonesia (aOR: 1.18, p=.162). Odds of favorable attitudes were higher among younger compared to older adolescents in Cuenca (aOR: 1.21, p=0.033) and Kinshasa (1.22, p<0.001), though no differences by age were observed in Indonesia. Adolescents in Kinshasa from poorer families had more favorable view about abortion than those with more assets. This finding was significant when we compared lowest to middle wealth tertile (aOR: 1.45, p=0.036) and middle to highest wealth tertile (aOR: 1.96, p=0.027), but not the lowest to highest wealth tertile (aOR: 1.37, p=0.076). No differences in favorable abortion attitudes were observed in adjusted models by importance of religion or expected educational attainment.

Favorable attitudes towards abortion were also related to gender equal roles and expectations. Specifically, favorable attitudes were linked to equal gender roles about the division of household labor in Kinshasa (aOR: 1.34, p=0.042) and in Indonesia (aOR: 2.22, p<0.001).

Discussion: This study presented a novel exploration of favorable attitudes towards abortion and their determinants in the early adolescent period (10-14 years old) across three settings with legal restrictions on abortion access. Favorable attitudes about abortion were generally low across our three samples, although up to one-third of the sample demonstrating favorable abortion attitudes in Kinshasa. Findings that favorable abortion attitudes are uncommon in adolescence are consistent with findings in other developing settings.[iv,v]

The more favorable views on abortion observed in in Kinshasa compared to Indonesia and Cuenca may be related to higher estimated rates of unintended pregnancy in Central Africa compared to Latin America and South-East Asia between 2010 and 2014[vi], and higher estimated rates of both unintended pregnancy and abortion in Kinshasa specifically.[vii] Boys across all sites more frequently exhibited favorable attitudes towards abortion than girls, and this difference remained significant after adjustment for individual and family factors, as well as expectations of gender roles. Existing research that has assessed gender differences in abortion attitudes among young people (primarily among undergraduate students) have shown inconsistent results, some suggesting no difference[4,viii,ix,x,xi], others reporting more favorable attitudes among women[19], and a few, such as Adaji et al' s cross-sectional study in Kenya among in-school adolescents 13-19 years, showing more favorable views among men.[xii] These differences suggest strong cultural effects[xiii], as well as potential change in gender patterns throughout the life course.[xiv,xv] The more conservative attitudes towards abortion among older adolescents relative to their younger peers in Kinshasa and Cuenca potentially reflect normative changes in abortion attitudes over the course of adolescent years, as adolescents expend their social network. Such changes overtime may be better captured in longitudinal research which can help to elucidate gender patterns of abortion attitudes as adolescents transition to becoming sexualy active and take on more gender scripted role as well as other social drivers of these normative changes.

In addition to gender differences, we also find a relation between gender normative expectations and abortion attitudes in two sites, Kinshasa and Indonesia, where adolescents who endorsed more equal gender roles in the form of equal division of household chores were more likely to have FAAs than adolescents who did not. These findings are consistent with existing research that has linked gender-equal expectations for household gender roles in adolescence to positive abortion attitudes in adulthood.[5]

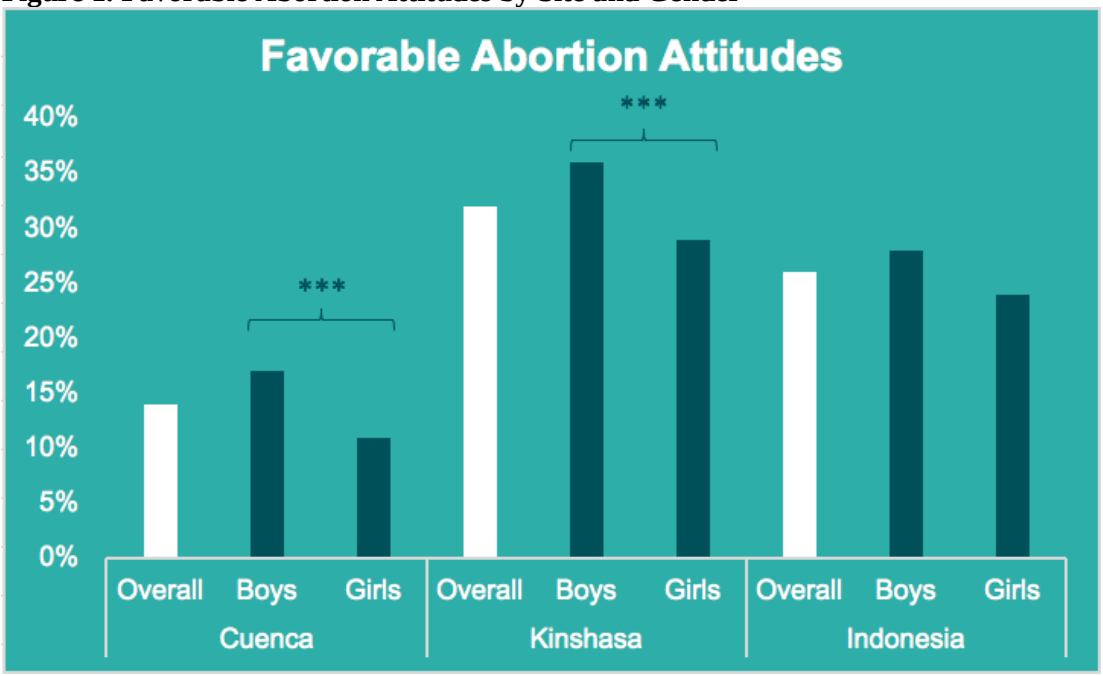
In Kinshasa, adolescents growing up in the poorest families had more liberal views on abortion than others, which could reflect higher rates and higher burden of disease related to unintended pregnancy in their social environment s, thereby increasing their awareness of abortion . However, our wealth tertile for this study is a relative measure within each sample of adolescents living in resource-poor urban communities and may not reflect patterns of abortion attitudes across a wider range of social economic circumstances.

The current analysis is not without limitations. The three samples provided data from adolescent participants living in low-resource settings and therefore results may not generalizable to a more diversified socio-economic population. Further, while the three contexts represented a range of legal restrictions, the current study does expand to settings where abortion is legal and accessible, restricting our ability to study abortion attitudes according to more diverse legal and social circumstances shaping normative views about abortion . While our abortion attitudes measure capture important tradeoffs related to teenage pregnancy decisions, as it relates to educational trajectories and readiness for parental responsibilities, our measure falls short of capturing the numerous and complex dimensions of attitudes towards abortions. Innovative, multi-dimensional quantitative measures of attitudes, and additional qualitative research could prove as valuable opportunities to expand nuanced understandings of abortion attitudes in adolescence.[xvi] Due to the young age of participants between the ages of 10-14, sexual debut and therefore risk for unintended pregnancy was very rare. Therefore, adolescents' responses to the abortion attitudes items likely reflect perceptions of injunctive norms from their socio-ecological environments (legal contexts, media messaging, familial and peer values), or reflections based on the experiences of peers, family, or community members. This differs from other papers on adolescents' abortion attitudes that assess adolescents' own perceived reactions as other analyses have assessed (specifically the Adolescent Attitudes to Abortion (AAA) Scale from the Teen Relationships Scale).[xvii] These injunctive norms may therefore operate differently as predictors of concrete reproductive health outcomes than questions asking directly about personal beliefs and perceived actions. However this remains to be seen until concrete reproductive health outcomes emerge and can be assessed together with the FAA index.

This study provides a novel description of attitudes towards abortion during the early adolescent period, as well as their associated factors. Our findings demonstrate low favorability in abortion attitudes across three distinct settings where abortion is legally restricted. Future research should investigate the relationship between legal context and attitudes in early adolescence. The longitudinal design of the Global Early Adolescent Study will allow us assess the evolution and change in abortion attitudes, as well as to assess the directionality of the associations observed in this analysis. Understanding the formation of abortion attitudes will help to inform early interventions to reduce abortion stigma at it emerges and thereby improve accessibility of care.

Table 1. Sample Characteristics		Cuenca n=660 % (n)	Kinshasa n=997 % (n)	Indonesia n=1,857 % (n)
Age	(mean + SD)	11.94 + 1.37	12.01 + 1.42	12.21 + 0.55
	10	19.39% (128)	20.16% (201)	0% (0)
	11	21.52% (142)	18.86% (188)	4.74% (88)
	12	21.52% (142)	20.46% (204)	71.24% (1,323)
	13	20.45% (135)	20.46% (204)	22.08% (410)
	14	17.12% (113)	20.06% (200)	1.94% (36)
Sex	Boy	49.39% (326)	49.25% (491)	48.20% (895)
	Girl	50.61% (334)	50.75% (506)	51.80% (962)
Parental Structure	Living with no parents	3.33% (22)	10.83% (108)	89.77% (1,667)
	Living with one parent only	24.27% (242)	24.27% (242)	8.02% (149)
	Living with both parents	66.67% (440)	64.89% (647)	2.21% (41)
Sibling Structure	No sibling	6.97% (46)	8.53% (85)	8.83% (164)
	Brothers only	25.76% (170)	8.12% (81)	25.26% (469)
	Sisters only	20.61% (136)	2.21% (22)	16.48% (306)
	Brothers & sisters	46.67% (308)	81.14% (809)	49.43% (918)
Education level	Below grade-for-age	9.85% (65)	25.88%(258)	1.88% (35)
	At or above grade-for-age	90.15% (595)	72.71% (357)	98.12% (1,822)
Importance of religion	Not important or not religious	43.94% (290)	3.01% (3)	64.73% (1,202)
	Important or very important	56.06% (370)	96.99% (967)	35.27% (655)
Maternal employment	Not currently employed	22.27% (147)	80.24% (800)	62.41% (1,159)
	Currently employed	77.73% (513)	19.76% (197)	37.59% (698)
Expectations of gender equality in household chores	No	10.76% (71)	38.21% (381)	48.57% (902)
	Agree a little or agree a lot	89.24% (589)	61.79% (616)	51.43% (955)

Figure 1. Favorable Abortion Attitudes by Site and Gender



*** - p≤0.001

	Cuenca						Kinshasa						Indonesia					
	Overall[1]		Boys[2]		Girls[2]		Overall[1]		Boys[2]		Girls[2]		Overall[3]		Boys[4]		Girls[4]	
Table 2. Multivariate Models	aOR	95% (CI)	aOR	95% (CI)	aOR	95% (CI)	aOR	95% (CI)	aOR	95% (CI)	aOR	95% (CI)	aOR	95% (CI)	aOR	95% (CI)	aOR	95% (CI)
Age	0.76**	[0.63, 0.91]	0.65***	[0.50, 0.83]	0.9	[0.68, 1.19]	0.79***	[0.72, 0.88]	0.82**	[0.71, 0.94]	0.74***	[0.64, 0.87]	0.92	[0.74, 1.15]	1	[0.73, 1.37]	0.86	[0.63, 1.18]
Gender																		
Boy	*ref*						*ref*						*ref*					
Girl	0.6*	[0.38, 0.95]					0.72*	[0.55, 0.95]					0.83	[0.67, 1.03]				
Family Wealth Index																		
Lowest 33%	*ref*		*ref*		*ref*		*ref*		*ref*		*ref*		*ref*		*ref*		*ref*	
Middle 33%	1.12	[0.62, 2.02]	1.46	[0.62, 3.44]	0.83	[0.35, 2.00]	0.71*	[0.50, 1.00]	0.55*	[0.34, 0.89]	0.97	[0.58, 1.61]	1.1	[0.84, 1.44]	0.89	[0.61, 1.31]	1.33	[0.91, 1.96]
Highest 33%	1.16	[0.65, 2.06]	1.51	[0.65, 3.50]	0.88	[0.37, 2.10]	0.73	[0.52, 1.02]	0.61*	[0.38, 0.98]	0.9	[0.54, 1.51]	1.17	[0.89, 1.52]	0.97	[0.67, 1.41]	1.39	[0.95, 2.03]
Educational Level																		
Below grade-for-age	*ref*		*ref*		*ref*		*ref*		*ref*		*ref*		*ref*		*ref*		*ref*	
At or above grade-for-age	0.25***	[0.13, 0.48]	0.3**	[0.12, 0.75]	0.2**	[0.08, 0.55]	0.77	[0.55, 1.07]	0.955	[0.61, 1.50]	0.62	[0.39, 1.10]	0.61	[0.26, 1.41]	0.62	[0.23, 1.68]	1.19	[0.12, 11.41]
Importance of Religion																		
Not important or not religious	*ref*		*ref*		*ref*		*ref*		*ref*		*ref*		*ref*		*ref*		*ref*	
Very important	0.61*	[0.38, 0.96]	0.76	[0.41, 1.39]	0.49	[0.23, 1.02]	0.58	[0.27, 1.24]	0.57	[0.61, 1.50]	0.6	[0.22, 1.68]	1.13	[0.90, 1.43]	1.25	[0.90, 1.72]	1.01	[0.72, 1.41]
Boys and girls should be equally responsible for household chores																		
Not agree	*ref*		*ref*		*ref*		*ref*		*ref*		*ref*		*ref*		*ref*		*ref*	
Agree	1.79	[0.80, 4.02]	0.83	[0.30, 2.30]	3.52	[0.77 16.06]	1.36*	[1.02, 1.81]	1.07	[0.72, 1.57]	1.76**	[1.16, 2.66]	2.24***	[1.80, 2.79]	2.92***	[2.13, 4.03]	1.75***	[1.29, 2.38]
Site																		
Lampung													*ref*		*ref*		*ref*	
Denpasar													0.97	[0.56, 1.67]	0.85	[0.57, 1.27]	0.83	[0.54, 1.28]
Semarang													1.36*	[1.02, 1.80]	1.24	[0.83, 1.86]	1.49	[0.99, 2.25]

* - p<0.05, ** - p≤0.01, *** - p≤0.001

1=Covariates: age, gender, parental structure, sibling gender structure, family wealth index, age-for-grade education level, importance of religion, agreement with gender-equal division of household labor

2=Covariates: age, parental structure, sibling gender structure, family wealth index, age-for-grade education level, importance of religion, agreement with gender-equal division of household labor

3=Covariates: age, gender, parental structure, sibling gender structure, family wealth index, age-for-grade education level, religion, importance of religion, agreement with gender-equal division of household labor, site

4=Covariates: age, parental structure, sibling gender structure, family wealth index, age-for-grade education level, importance of religion, agreement with gender-equal division of household labor, site

References

[i] Norris A, Bessett D, Steinberg JR, Kavanaugh ML, Zordo SD, Becker D. Abortion stigma: a reconceptualization of constituents, causes, and Consequences. Womens Health Issues May 2011;21 Suppl 3: 49–54.

[ii] As of July 2018, abortion policy in the DRC has shifted to permit abortion in cases of sexual assault, rape or incest, and when a continued pregnancy would endanger the mental and physical health of the woman or the life of the woman or the fetus.

[iii] Singh S et al., Abortion Worldwide 2017: Uneven Progress and Unequal Access, New York: Guttmacher Institute, 2018.

[iv] Mitchell, E. M. H., Heumann, S., Araujo, A., Adesse, L., & Halpern, C. T. (2014). Brazilian adolescents' knowledge and beliefs about abortion methods: a school-based internet inquiry. BMC Women's Health, 14(1), 27. https://doi.org/10.1186/1472-6874-14-27

[v] Paluku, J.L., Kalisoke, S., Julius, W., and Kiondo, P. (2013) Knowledge and attitudes about induced abortions among female youths attending Naguru Teenage Information and Health Centre, Kampala, Uganda. J Public Health Epidemiol. 5: 178–185

[vi] Bearak, J., Popinchalk, A., Alkema, L., & Sedgh, G. (2018). Global, regional, and subregional trends in unintended pregnancy and its outcomes from 1990 to 2014: estimates from a Bayesian hierarchical model. The Lancet. Global health, 6(4), e380-e389.

[vii] Chae S, Kayembe P K, Philbin J., Mabika C, Bankole A. (2017). The incidence of induced abortion in Kinshasa, Democratic Republic of Congo, 2016. PloS one, 1*2*(10), e0184389. doi:10.1371/journal.pone.0184389

[viii] Altshuler A & Gerns Storey HL, Prager S (2014). Exploring abortion attitudes of US adolescents and young adults using social media. Contraception. 91(3). http://doi.org/10.1016/j.contraception.2014.11.009.

[ix] Rominski SD, Darteh E, Dickson KS, Munro-Kramer M. (2017). Attitudes toward abortion among students at the University of Cape Coast, Ghana Sex Reprod Healthc. 11:53-59. doi: 10.1016/j.srhc.2016.10.002. Epub 2016 Oct 24.

[x] Rodríguez-Calvo MS, Martínez-Silva IM, Soto JL, Concheiro L, Muñoz-Barús JI. (2012)University students' attitudes towards Voluntary Interruption of Pregnancy. Leg Med (Tokyo). ;14(4):209-13. doi: 10.1016/j.legalmed.2012.02.002.

[xi] Carlton CL, Nelson ES, Coleman, PK. (2000). College students' attitudes toward abortion and commitment to the issue. The Social Science Journal. 37(4), 619-625.

[xii] Adaji SE, Warenius LU, Ong'any AA, Faxelid EA. (2010). The Attitudes of Kenyan in-school adolescents towards sexual autonomy. African Journal of Reproductive Health, 14(1), 33-34.

[xiii] Adamczyk, Amy. (2013). The Effect of Personal Religiosity on Attitudes Toward Abortion, Divorce, and Gender Equality. EurAmerica. 43. 213-253.

[xiv] Loll D, Stidham HK. (2018) Differences in abortion attitudes by policy context and between men and women in the world values survey. Women Health. 10.1080/03630242.2018.1508539.

[xv] Jelen, T.G., 2015. Gender Role Beliefs and Attitudes Toward Abortion: A Cross-National Exploration. Journal of Research in Gender Studies, 5(1), pp.11–22.

[xvi] Lohan, M., Cruise, S., O'Halloran, P., Alderdice, F., & Hyde, A. (2011). Adolescent men's attitudes and decision-making in relation to an unplanned pregnancy. Responses to an interactive video drama. Social Science and Medicine, 72(9), 1507–1514. http://doi.org/10.1016/j.socscimed.2011.02.044

[xvii] Hendriks J, Fyfe S, Styles I, Skinner R and Merriman G. (2012). Scale construction utilising the Rasch unidimensional measurement model: A measurement of adolescent attitudes towards abortion. Australasian Medical Journal. 5 (5): pp. 251-261.