

An Overlooked Priority: Puberty in Sub-Saharan Africa

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Early adolescence remains an overlooked window of opportunity for public health intervention with girls and boys in sub-Saharan Africa. Minimal health data exist on pubescent girls and boys.

Considerable morbidity and mortality related to HIV, sexually transmitted infections, and pregnancy emerge soon after puberty, suggesting the importance of targeting early adolescents. The fundamental goal of primary prevention would be better served if girls and boys between the ages of 10 and 14 years were targeted for effective and contextually relevant interventions.

Such interventions should address healthy transitions to young adulthood to effectively advance the public health agenda with postpubescent (aged 15 to 24 years) young women and men. The global health community is overdue to build the empirical database for intervention with this age group. (*Am J Public Health*. 2011; 101:979–981. doi:10.2105/AJPH.2010.300092)

EARLY ADOLESCENCE, A CRITICAL window of opportunity for public health intervention in sub-Saharan Africa, remains overlooked. As the public health community writ large continues to focus on the extremes of the child and adolescent period—morbidity and mortality among those younger than five years and the unique risks of those aged 15 to 24 years for HIV infection and unplanned pregnancy—the potential for effective outreach to young girls and boys on the cusp of adulthood receives little attention. In a global arena with limited health funding, the focus of public health is rightfully on those populations with the highest risks of morbidity and mortality. However, growing awareness about the rising mortality among youths, with increased risks for both girls and boys as they move from early to late adolescence, suggests a need to reexamine our priorities.^{1,2} The fundamental goal of primary prevention would be better served if girls and boys between the ages of 10 and 14 years—those experiencing the early changes of puberty³—were targeted for effective and contextually relevant intervention. Interventions should address younger adolescents and healthy transitions to young adulthood to more effectively advance the public health agenda with older, postpubertal (aged 15 to 24 years) young women and men.⁴

HEALTH RISKS

A dearth of public health data exists on the pubertal transition and the emergence of new risks

among sub-Saharan African girls and boys aged 10 to 14 years.⁵ Capturing the physiological, emotional, and social implications of pubertal onset is critical for understanding nutritional, sexual, and reproductive health risks and outcomes; injury rates; mental health and well-being; and other health priorities for young people. For example, the Demographic and Health Surveys—large household data sets collected approximately every five years in many countries in sub-Saharan Africa on which many national health policies are based—often do not include age of menarche as a fundamental life course event to record and track, or a parallel life course event for boys.⁶ By contrast, high-income countries have for decades been measuring and tracking over time children's growth through pubescence into young adulthood by using extensive national and local surveys⁷ and numerous small-scale psychological and disease-specific studies.^{8–11} The latter have helped to guide interventions aimed at protecting adolescents from health risks and identifying important linkages between family connectedness and the role of social context in adolescent health.^{12,13} Such data are essential to collect in sub-Saharan Africa if effective, age-appropriate, contextually relevant primary prevention interventions are to be devised.

A small body of literature on puberty has emerged from a few countries in the region and provides important information, including the recent set of analyses conducted in South Africa indicating a declining age of menarche

among urban girls¹⁴; the largest running and longest longitudinal birth cohort study in Africa, also conducted in South Africa (the 1990 Birth to Ten to Birth to Twenty cohort)¹⁵; and a series of process and impact evaluations and randomized trials of school- and community-based interventions in both South Africa and Tanzania that addressed adolescent health risks.^{16–19}

In contrast with the gap in systematically collected public health data on early adolescence, researchers in the fields of social science and education working in sub-Saharan Africa have explored and documented pubertal onset as a significant life course event in societies across the continent.^{20–23} Although such studies have generally not included biological aspects of puberty, they have captured how familial and community responses to pubertal onset differ by social context, with importance given to the onset of secondary sexual characteristics in most cultures.

Why is pubertal onset relevant to public health? In many societies, the communal recognition of sexual maturation in girls brings expectations of increased household responsibilities, restricts movement around boys and men, and increases pressures for sexual initiation.²⁴ These changes in turn have implications for girls' physical and emotional well-being and their ability to continue in school, which all have an impact on population health.²⁵ In addition, nutritional deficits caused by girls receiving inadequate shares of family meals (particularly meat and other iron-rich

foods) in patriarchal societies may translate into iron-deficiency anemia and fatigue (with subsequent poor performance in school) or, more dangerously, high-risk adolescent pregnancies. For boys, the onset of adulthood may bring expectations of increased time spent contributing to family income in work environments that introduce occupational health risks of injury (such as farm-related or driving accidents) or social pressure arising from masculinity norms that lead growing boys to engage in unsafe sexual practices.²⁶ For boys and girls, there are shifts in some countries across sub-Saharan Africa toward an earlier age of first sexual initiation (although data collection on sexual initiation often has validity issues), with numerous implications for health.²⁷⁻³⁰

FOCUS ON EARLY ADOLESCENCE

Why focus on early adolescence? In fact, the entire period of pubertal transition is overdue for in-depth empirical study and intervention, particularly in sub-Saharan Africa.³¹ The lack of public health attention to date may be attributable to an assumption made by practitioners, researchers, donors, and policymakers that puberty (and early adolescence) is carefully attended to by family members, and a period of low risk relative to other age groups. However, evidence suggests that young girls and boys are not receiving adequate guidance during the transition to adulthood, with girls lacking sufficient information on how to manage menses successfully in school³² and how to navigate sexual pressures from male peers and older men.³³ Boys may lack guidance on alternative definitions of masculine social norms that would help them to avoid

violence and impregnating adolescent girls.³⁴ The widespread shifts occurring in sub-Saharan African societies today because of urban migration, HIV and AIDS morbidity and mortality, and globalization are already influencing girls' and boys' transitions to adulthood.³⁵ Literature exists on these trends and their implications for population health, but the body of scientific knowledge is spread throughout the human biology, social science, education, urban environment, globalization, and health literature. Far less attention has been placed on the specific impact these shifts are having on traditional cultural and social practices of pubertal rites, and the conveyance of pubertal guidance from older generations of women and men to young girls and boys. The separation of extended families and the related diminishment of maturation advice for young girls and boys are matters of critical importance for adolescent physical and emotional health and well-being. Local solutions are needed but must be embedded within a broader understanding of health risks to youth and data on effective interventions.

For the public health community, prepubescence and early adolescence offer a unique and critically important window of opportunity for intervening with girls and boys on a range of health-related primary prevention issues. Evidence from high- and low-income countries suggests that interventions during early adolescence can have lasting impact on the health of youths, including prevention of injuries and unplanned pregnancy.³⁶⁻³⁸ And as recent HIV and AIDS-related evidence from sub-Saharan Africa has suggested, school-based programs aimed at young adolescents provide a uniquely effective

opportunity for intervention aimed at girls and boys yet to become sexually active.³⁹ An analysis of a 2004 national survey of adolescents (aged 12 to 19 years) conducted in four countries in the region suggested that girls are more vulnerable to school dropout once they have become sexually active.⁴⁰ This finding points directly to the need to intervene during prepubescence before girls respond to or are coerced into sexual relations (although existing data suggest that some girls become sexually active during prepubescence,⁴¹ and for many girls and young women, sexual-related decision-making is constrained by social and economic circumstances beyond their control).⁴² Interventions for improving life skills that address adolescents' needs in relation to the HIV and AIDS pandemic are not, alone, adequate; specific attention to the physiological and social shifts of puberty require attention from the public health community.⁴³

Evidence also points to the significant vulnerability of young adolescents in sub-Saharan Africa who may be living with only one parent or none at all, and miss out on preventative health interventions because of the greater societal attention given to younger children in need of vaccines, or older youths who are targeted by safe-sex programs.⁴⁴ The tendency to focus on girls because of their higher risk for HIV infection and unplanned pregnancy also misses an opportunity to better understand boys' social and health-related maturation in today's changing societies and devise relevant interventions to protect boys' health and well-being.⁴⁵ The latter includes a concentration on improving gender-related aspects of health outcomes, and a recognition of the inherent relevancy

of boys' growth experiences and health status for the well-being of their future families (and consequently, that of girls' health, as it is boys or young men who infect girls with HIV and get them pregnant). Research exploring the male norms surrounding sexuality and social identity within specific cultural and economic contexts is critically needed.⁴⁶ Lastly, social conflict and domestic violence are health risks for both genders, and the youths in puberty are a vulnerable target.⁴⁷ Continued inattention to youths aged 10 to 14 years flies in the face of public health's mandate of primary prevention focused on at-risk populations. Although boys and girls in that age range may not experience high health risks, they represent a critical age at which intervention could have profound downstream benefits.

RECOMMENDATIONS

What, then, should the global public health community do? First, they should develop a framework of essential longitudinal and cross-sectional data to be collected across the countries of sub-Saharan Africa that includes priority data such as age of menarche, nutritional status, injury rates, age of sexual debut, and mental health status so the limited public health research resources can be used most effectively. Second, in-depth ethnographic, qualitative, and participatory research data collection should be incorporated into each country's health research strategy. These research data should complement the already-collected demographic data, and capture those locally specific aspects of young girls' and boys' lives that provide insight into how to intervene effectively in those areas identified as high risk for young people during the transition

through adolescence. Funding must become available for more extended evaluation, so that interventions aiming to prevent risk behaviors can measure effectiveness from interventions in early adolescence through late adolescence and early adulthood. Finally, an advocacy base within the global public health community should be developed that recognizes the enormous potential in health payoffs for investing now in the window of early adolescence across countries in sub-Saharan Africa. ■

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References

1. *The World Health Report 2005: Make Every Mother and Child Count*. Geneva, Switzerland: World Health Organization; 2005.
2. Patton GC, Coffey C, Sawyer SM, et al. Global patterns of mortality in young people: a systematic analysis of population health data. *Lancet*. 2009;374(9693):881–892.
3. Jones LL, Griffiths PL, Norris SA, Pettifor JM, Cameron N. Is puberty starting earlier in urban South Africa? *Am J Hum Biol*. 2009;21(3):395–397.
4. Goodburn EA, Ross D. Young people's health in developing countries: a neglected problem and opportunity. *Health Policy Plan*. 2000;15(2):137–144.
5. Blum R, Mmari K. *Risk Protective Factors Affecting Adolescent Reproductive Health in Developing Countries: An Analysis of Adolescent Sexual and Reproductive Health Literature From Around the World*.

Geneva, Switzerland: World Health Organization; 2006.

6. Measure DHS. (Demographic and Health Surveys) [Web site]. Available at: <http://www.measuredhs.com>. Accessed July 23, 2009.
7. National Center for Health Statistics. National Health and Nutrition Examination survey data. Hyattsville, MD: US Department of Health and Human Services, Centers for Disease Control and Prevention. Available at: http://www.cdc.gov/nchs/nhanes/nhanes_questionnaires.htm. Accessed January 7, 2010.
8. Youth Risk Behavior Surveillance System. Atlanta, GA: Centers for Disease Control and Prevention. Available at: <http://www.cdc.gov/HealthyYouth/yrbs/index.htm>. Accessed May 2, 2010.
9. Brooks-Gunn J, Furstenberg F. Adolescent sexual behavior. *Am Psychol*. 1989;44(2):249–257.
10. Golub S. Recollections of menarche and women's subsequent experiences with menstruation. *Women Health*. 1983;8(1):49–62.
11. Windle M, Grunbaum J, Elliott M, et al. Healthy passages: a multilevel, multimethod longitudinal study of adolescent health. *Am J Prev Med*. 2004;27(2):164–172.
12. Resnick MD, Bearman PS, Blum RW, et al. Protecting adolescents from harm: findings from the national longitudinal study on adolescent health. *JAMA*. 1997;278(10):823–832.
13. McNeely CA, Nonnemaker J, Blum RW. Promoting school connectedness: evidence from the National Longitudinal Study of Adolescent Health. *J Sch Health*. 2002;72(4):138–146.
14. Jones LL, Griffiths PL, Norris SA, Pettifor JM, Cameron N. Age at menarche and the evidence for a positive secular trend in urban South Africa. *Am J Hum Biol*. 2009;21(1):130–132.
15. Richter LM, Norris SA, De Wet T. Transition from Birth to Ten to Birth to Twenty: the South African cohort reaches 13 years of age. *Paediatr Perinat Epidemiol*. 2004;18(4):290–301.
16. Wegner L, Flisher AJ, Caldwell LL, Vergnani T, Smith EA. Healthwise South Africa: cultural adaptation of a school-based risk prevention programme. *Health Educ Res*. 2008;23(6):1085–1096.
17. Ross DA, Changalucha J, Obasi AI, et al. Biological and behavioural impact of an adolescent sexual health intervention in Tanzania: a community-randomized trial. *AIDS*. 2007;21(14):1943–1955.
18. Petersen I, Mason A, Bhana A, Bell C, McKay M. Mediating social representations using a cartoon narrative in the context of HIV/AIDS: the AmaQhawe Family Project in South Africa. *J Health Psychol*. 2006;11(2):197–208.
19. Rutenberg N, Kehus-Alons C, Brown L, Macintyre K, Dallimore A, Kaufman C. *Transitions to Adulthood in the Context of AIDS in South Africa: Report of Wave 1*. New York, NY: Population Council; 2001.
20. Adegoke A. Pubertal development and traditional support systems in Africa: an overview. *Afr J Reprod Health*. 2001;5(1):20–30.
21. Ferede A, Erulkar A. *Adolescent Girls in Urban Ethiopia: Vulnerability and Opportunity*. Addis Ababa, Ethiopia: Population Council; 2009.
22. Davison J, Kanyuka M. Girls' participation in basic education in southern Malawi. *Comp Educ Rev*. 1992;36(4):446–466.
23. Caplan AP. Boys' circumcision and girls' pubertal rites among the Swahili of Mafia Island, Tanzania, Africa. *Afr: J Int Afr Inst*. 1976;46(1):21–33.
24. *The World Development Report 2007: Development and the Next Generation*. Washington, DC: World Bank; 2007.
25. Herz B, Sperling G. *What Works in Girls' Education: Evidence and Policies From the Developing World*. Washington, DC: Council on Foreign Relations; 2004.
26. Wellings K, Collumbien M, Slaymaker E, et al. Sexual behavior in context: a global perspective. *Lancet*. 2006;368(9548):1706–1728.
27. Mensch BS, Grant MJ, Blanc AK. The changing context of sexual initiation in sub-Saharan Africa. *Popul Dev Rev*. 2006;32(4):699–727.
28. Harrison A, Cleland J, Gouws E, Frolich J. Early sexual debut among young men in rural South Africa: heightened vulnerability to sexual risk? *Sex Transm Infect*. 2005;81(3):259–261.
29. Pettifor AE, van der Straten A, Dunbar MS, Shiboski SC, Padian NS. Early age of first sex: a risk factor for HIV infection among women in Zimbabwe. *AIDS*. 2004;18(10):1435–1442.
30. Thurman TR, Brown L, Richter L, Maharaj P, Magnani R. Sexual risk behavior among South Africa adolescents: is orphan status a factor? *AIDS Behav*. 2006;10(6):627–635.
31. Dixon-Mueller R. How young is "too young"? Comparative perspectives on adolescent sexual, marital, and reproductive transitions. *Stud Fam Plann*. 2008;39(4):247–262.
32. Sommer M. Ideologies on sexuality, menstruation and risk: girls' experiences of puberty and schooling in northern Tanzania. *Cult Health Sex*. 2009;11(4):383–398.
33. Beringer LH, Sieving RE, Ferguson J, Sharma V. Global perspectives on the sexual and reproductive health of adolescents: patterns, prevention and potential. *Lancet*. 2007;369(9568):1220–1231.

34. Barker G. *Dying to Be Young*. London, England: Routledge; 2005.
35. Blum RW. Youth in sub-Saharan Africa. *J Adolesc Health*. 2007;41(3):230–238.
36. Kirby D. *Emerging Answers 2007: Research Findings on Programs to Reduce Teen Pregnancy and Sexually Transmitted Diseases*. Washington, DC: National Campaign to Prevent Teen and Unplanned Pregnancy; 2007.
37. *International Technical Guidance on Sexuality Education: An Evidence Approach for Schools, Teachers, and Health Educators*. Paris, France: United Nations Educational, Scientific, and Cultural Organization; 2009.
38. *The World Report on Child Injury Prevention*. Geneva, Switzerland: World Health Organization; 2008.
39. Gallant M, Maticka-Tyndale E. School-based HIV prevention programmes for African youth. *Soc Sci Med*. 2004;58(7):1337–1351.
40. Biddlecom A, Gregory R, Lloyd CB, Mensch BS. Associations between premarital sex and leaving school in four sub-Saharan African countries. *Stud Fam Plann*. 2008;39(4):337–350.
41. Dixon-Mueller R. Starting young: sexual initiation and HIV prevention in early adolescence. *AIDS Behav*. 2009;13(1):100–109.
42. Bankole A, Biddlecom A, Guiella G, Singh S, Zulu E. Sexual behavior, knowledge and information sources of very young adolescents in four sub-Saharan African countries. *Afr J Reprod Health*. 2007;11(3):28–43.
43. Boler T, Aggleton P; UK Working Group on Education and HIV/AIDS. Life-skills based education for HIV prevention: a critical analysis. *Policy Res*. February 2005;3. Available at: <https://www.comunit.com/en/node/216124/348>. Accessed February 16, 2011.
44. Chong E, Hallman K, Brady M. *Investing When It Counts: Generating the Evidence Base for Policies and Programs for Very Young Adolescents*. New York, NY: Population Council; 2006.
45. Varga CA. The forgotten fifty percent: a review of sexual and reproductive health research and programs focused on boys and young men in sub-Saharan Africa. *Afr J Reprod Health*. 2001;5(3):175–195.
46. *2008 Report on the Global AIDS Epidemic*. Geneva, Switzerland: Joint United Nations Programme on HIV/AIDS; 2008.
47. Petersen I, Bhana A, McKay A. Sexual violence and youth in South Africa: the need for community-based prevention interventions. *Child Abuse Negl*. 2005;29(11):1233–1248.