Introducing the Well-Being of Adolescents in Vulnerable Environments Study: Methods and Findings

Numerous reports and studies have exhorted public health officials to target more prevention efforts toward adolescents who compose about 18% of the world’s population and whose behaviors as they mature can set the course for their future health and eventual life expectancy [1–3]. These calls have been bolstered by an accumulating body of evidence documenting indicators of comparative health of adolescents across countries and across time [4]. The Well-Being of Adolescents in Vulnerable Environments (WAVE) study was launched to complement this evidence base. It focuses on a very vulnerable segment of the adolescent population, young people who live in the poorest neighborhoods of some of the world’s largest cities. Although economic development and urbanization worldwide have generally led to more opportunity, higher education, better access to health care, and lower morbidity and mortality, less is known about the well-being of adolescents growing up in disadvantaged neighborhoods with limited access to health, education, and social services.

The share of the urban population living in these impoverished enclaves is substantial and growing, especially in countries with rapid rural to urban migration. However, it is difficult to find comparable statistics across countries. Both levels of urbanization and poverty vary substantially across low-, middle-, and high-income countries. For example, 32% of the Indian population is estimated to live in urban areas, contrasted to just over 50% in China and Nigeria, 63% in South Africa, and 83% in the United States [5]. In Nigeria, it is estimated that 34% of the urban population lives below the poverty line [6]. In South Africa, about 30% of urban dwellers are poor [7]. In India, the statistic is 14% [6], and in the United States, 20% of the people living in the largest urban areas reside in census tracts with concentrated poverty [8].

The WAVE study was designed to focus specifically on adolescents growing up in highly impoverished sections in Baltimore, Ibadan, Johannesburg, New Delhi, and Shanghai [9]. The choice of cities was related to the home bases of the participating institutions, which included Johns Hopkins Bloomberg School of Public Health, the Population Council, New Delhi, India, the Shanghai Institute of Planned Parenthood Research, the University of Ibadan/University College Hospital Ibadan, Nigeria, and the Witwatersrand Reproductive and HIV Institute, Johannesburg, South Africa. This focus was chosen because the team recognized that youth living in these deteriorated urban areas are vulnerable to health challenges from dirty and crowded physical environments, few education or job opportunities, frequent encounters with violence, crime and drugs, often dangerous working conditions, and limited health services, especially for adolescents. The team sought to document these problems systematically and to examine factors associated with poorer and better health to identify potential vectors for improving the well-being of these youth. As Blum [10] points out in his commentary in this volume, the physical and social environment adolescents grow up in can both mitigate and magnify health problems. The team sought to measure both the positive and negative aspects of the adolescents’ environments from the youths’ perspectives.

Studying adolescents in these areas of concentrated poverty is challenging. School-based surveys can miss youth who have dropped out or sporadically attend school, situations that are common among the urban poor. Household surveys can miss youth who move frequently, lack a regular place to stay, or circulate through relatives and friends’ homes; and poor youth are more likely to lack residential stability. In addition, many urban settings are characterized by high-rise apartments and abandoned buildings, making residents hard to access. Also, some cities house a high number of migrants who are either not documented or lack a permanent home. Surveillance using conventional sampling frames can therefore miss the adolescents who are the most vulnerable to health problems. In order not to exclude these youth, the team designed a study using respondent-driven sampling, a strategy that has been used extensively to sample rare or hidden and at risk populations like men who have sex with men, drug users, or sex workers. Its use with adolescents has been limited to studies of street children and homeless youth [11,12]. To our knowledge, this sampling strategy has not been used for comparative research with marginalized youth although it has been proposed as a strategy [4]. The first article in this issue by Decker et al. [9] describes the study methodology and the challenges that were overcome as we carried out the study using similar protocols in five different cities with distinct cultural environments. In addition to detailing our methods and providing context for the subsequent articles, this article will be a resource for researchers who want to undertake respondent-driven sampling or cross-national studies of adolescents.
The second article, by Mmari et al. [13], focuses on the adolescents’ perceptions of their physical and social environment and how these perceptions are associated with their health. In the earlier qualitative phase of our research, we found that youth across the sites were very much focused on the unhealthful aspects of their physical and social environment when they were asked to talk about or depict their health [14]. These analyses distinguish between different aspects of the youth’s neighborhood environment: physical deterioration, social cohesion, perceptions of safety and fear, and observed violence. Although the neighborhoods studied were all chosen because they represented the poorest sections in the participating cities, there is great variability across sites in the adolescents’ ratings of their communities. Those from Baltimore and Johannesburg give their communities the lowest ratings, and those from Ibadan and Shanghai provide the highest ratings, with those from New Delhi in the middle. It is worth noting that in spite of its location in a high-income country, the Baltimore neighborhood had some of the lowest ratings. In contrast, Ibadan with its high ratings is located in a lower middle-income country with substantially fewer resources.

Although the youth across the sites hold varied views of their neighborhoods’ physical characteristics, their reports about their access to social capital in four domains: family, school, peers, and neighborhood are similar across the sites. The next article in the issue, by Marshall et al. [15], examines the supports available to the adolescents in these neighborhoods from caring adults in their homes, teachers in their schools, trusted friends, and neighborhood connections. The surprising lack of variation across the sites suggests that structural constraints of urban poverty may operate similarly across the sites in the distribution of social resources. This article also assesses the relationship between the adolescents’ perceptions of their supports in these four domains and participants’ demographic characteristics, which are often used as indicators of social capital such as school enrollment, perceived relative wealth, availability of two parents, and housing stability. These associations are inconsistent and vary by site and gender. Nonetheless, across the sites, direct measures of social capital are associated with good health. For young women, the indicators of social capital across the four domains are positively associated with self-reported health. Across both young men and women, the indicators of neighborhood social capital appear to be the most important.

The fourth article in the issue examines the mental health of the adolescents across the five city neighborhoods and whether access to social support is associated with more positive health [16]. Cheng et al. report that adolescents in these very economically distressed areas register high levels of self-reported depression, post-traumatic stress, and suicide ideation. In Johannesburg, for example, more than 40% of the adolescents report depressive symptom scores above the cut point. In Baltimore and Ibadan, the levels are also high with more than one quarter of the adolescents registering high levels of symptoms. The lowest levels are reported among Shanghai males (17%) and Delhi females (13%). Adolescents with more access to social support report better mental health scores. Elevated perceptions of having a caring adult in the home and feeling connected to their neighborhoods are positively associated with levels of hope and negatively associated with depression and post-traumatic stress with some variation across sites and gender.

Substance use is common among the adolescents in these impoverished urban areas. Olumide et al. report very high levels of substance use with about two-thirds of the adolescents reporting lifetime use of at least one substance [17]. Within each site, the most common type of substance varies. In Ibadan, Johannesburg, and Shanghai, alcohol is most common. Marijuana is the most common in Baltimore (55%), although alcohol is also high (52%). Inhalants are most common in Delhi (15%). Current cigarette smoking is the highest in Johannesburg (33%) and the lowest in Delhi and Ibadan (4%). Being female and in school are generally associated with lower alcohol and cigarette use across the study sites. The association between social support and current use of alcohol and cigarettes is inconsistent although having caring adults in the home generally correlates with lower use and high levels of peer support correlate with higher use in some sites.

The sexual and reproductive health issues among adolescents in these five similarly disadvantaged sites are very different. Brahmbhatt et al. report that among the youth studied, heterosexual sexual experience is not common in New Delhi, Ibadan, and Shanghai where rates varied from less than 1% in New Delhi to 16% in Ibadan among females, and among males, 16% in New Delhi and 26% in Shanghai [18]. It is not clear whether the low levels of reported sexual experience reflect under-reporting of a highly stigmatized behavior, the lack of married youth recruited into the sample, or other factors. The levels of reported sexual experience are much higher in Baltimore and Johannesburg with the majority of youth reporting sexual experience. Among the sexually experienced, pregnancy is common especially in Baltimore where over half of these females report a pregnancy. Factors associated with pregnancy among the sexually experienced in Baltimore and Johannesburg are being out of school, greater community violence, and the perception of a poor physical environment.

The final article focuses on the young women in the five neighborhoods and their experiences with sexual violence and intimate partner violence [19]. Decker et al. report that upward of 25% of ever-partnered women experience past-year intimate partner violence in Baltimore, Ibadan, and Johannesburg, and over 10% of adolescent women in Baltimore and Johannesburg report nonpartner sexual violence. These findings confirm partners as the primary perpetrators of gender-based violence among these adolescents. Both intimate partner violence and nonpartner sexual violence are associated with poor health across domains of substance use, sexual and reproductive health, mental health, and self-rated health in Baltimore and Johannesburg where sufficient cases allowed additional analyses. The prevalence of violence suggests that in some settings, disadvantaged urban environments serve as incubators of gender-based violence risk for young women.

The articles in this supplement as a whole depict the common and unique experiences of adolescents from very different cultures, in countries at different levels of economic development but all living in the least affluent sections of their cities. Adolescents in Baltimore and Johannesburg appear to experience the most severe health consequences with high rates of mental health problems, substance use, sexual experience and pregnancy, and sexual violence. They also give their communities very poor scores in terms of the physical environment and violence. Although these communities appear to be the most toxic, adolescents in the other cities also have very elevated levels of mental health problems and substance use relative to the general population. As Blum notes in the commentary, these conditions set the stage for later life chronic health problems [10].
The WAVE study has broken new ground by attempting to draw comparable health profiles of 15- to 19-year-old youth in similarly impoverished circumstances in five cities across the globe. Much can be learned from efforts such as these when researchers familiar with their own domestic situations join together to plan and design a study that can be implemented across their countries and cultures. Much work also remains to develop valid measures that work reliably across different settings and to improve sampling strategies to represent populations that are hard to reach. Coordinating this present study and the preparation of this volume have been a singular learning experience.

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