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Research paper

Risk information, risk salience, and adolescent sexual behavior: Experimental evidence from Cameroon[☆]Pascaline Dupas^{a,*}, Elise Huillery^b, Juliette Seban^c^a Stanford University, NBER, CEPR, BREAD and J-PAL, United States^b University of Paris-Dauphine and J-PAL, France^c Sciences Po LIEPP, France

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ABSTRACT

Why do teenagers take risks and what can be done about it? Results from a randomized experiment conducted with teenage schoolgirls in Cameroon suggest that risky sexual behavior responds to both risk mitigation information and risk salience. We find that sexual education sessions delivered to students either by specialized consultants over an hour, or through regular school staff over multiple weeks, led to improved health knowledge and decreased teen pregnancy rates in the following 9–12 months. A one-time, one-hour group-administered questionnaire on HIV and sexual behavior had an equally large impact on teen pregnancy without improving knowledge – it instead made the risks more salient and changed subjective beliefs. We find no effects among urban schoolgirls, who are more exposed to information and experience much lower rates of teenage pregnancy under the status quo.

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1. Introduction

Every day young people engage in risky behaviors, including teen drinking and driving, smoking, drug use, criminal activity, and unprotected sex. Future costs of these behaviors are often immense. For example, unprotected sex presents the dual risk of unwanted pregnancy and HIV infection. These risks are disproportionately borne by young women. Women aged 15–24 years are at particularly high risk of HIV infection, accounting for 20% of new HIV infections among adults globally in 2015, despite accounting for just 11% of the adult population. These same young women are also at risk of early, unwanted pregnancy, and complications during pregnancy and childbirth are the second cause of death for 15–19 year-

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old girls globally.¹ What determines their behavior and what policy tools, if any, can help them successfully avoid these risks? In economic models, risky behaviors are the consequence of ignorance or time discounting (see Levine, 2001 for an overview). These models assume that teenagers' decisions are made on the basis of a comparison of the benefits and costs of the alternatives. In this view, teenagers engage in risky behavior either because they ignore the “prices” (consequences of these behaviors), or because the benefits incurred at the moment are valued more highly than the potential high costs that may be incurred sometime in the future (Leibowitz et al., 1986). An important implication is that teens' behavior can be changed by increasing awareness about the risks and their consequences for the future, or by decreasing the present cost of safe behaviors.

This paper tests the hypothesis that the behavior of adolescents responds to risk information and risk salience. We consider one type of risky behavior: risky sex, in one context: Cameroon. We focus on adolescent girls, who face a particularly high risk burden as mentioned above. Given that the majority of youths, in Cameroon as in most of the world, are in school until age 15, an obvious way to provide risk information to youths is through schools. And indeed, most countries have adopted a national sexual education curriculum that teachers are required to integrate in their classes. However, evidence on the effectiveness of school-based sex education is mixed: systematic reviews of the effects of HIV education programs in Sub-Saharan Africa reveals great heterogeneity in effectiveness (Paul-Ebhohimhen et al., 2008; Gallant and Maticka-Tyndale, 2004). de Walque (2014) provides an overview of school-based sex education programs to prevent risky sexual behavior and points to the difficulty in translating knowledge into concrete behavioral changes. Behrman and Kohler (2012) make clear that the evidence on the efficacy of prevention intervention is limited.

One important question that emerges from the literature to date concerns how to present risk information. Risk levels are typically thought of by scientists as prevalence or incidence rates, but probabilities may not be as palatable to a more general audience: what does a 0.08% HIV transmission risk-per-exposure represent?² When asked about prevalence rates or probabilities, survey respondents typically vastly overstate risk. For example, Delavande and Kohler (2017) show that individuals in Malawi overestimate the risk associated with having multiple partners relative to only one partner. In such context, providing statistics from medical studies may well be counter-productive and increase rather than decrease risk taking. Given this, risk information often takes the form of a simple messages: “abstain or be faithful”, “smoking kills”, “this well's arsenic contamination level is above the approved maximum.”³ Yet such simple messages, which aim for complete risk avoidance, may be too prescriptive and not informative enough to allow individually optimal risk mitigation responses (Dupas, 2011).

A second question concerns the way to engage youths in critically assessing the risks they face. Despite the fact that teacher-led interventions are logistically easier to implement, they can have some limitations because of teachers' status in relation to pupils or their discomfort in discussing sensitive topics such as sexually transmitted infections and pregnancy, or sexual behavior in general (Ross et al., 2006). An observational study conducted over 15 sub-Saharan countries between 2007 and 2010 found a very large gap in knowledge between students and their teachers, concluding that teachers lack either motivation or adequate teaching methods (or both) to effectively deliver HIV risk and sexual education (UNESCO, 2011). What are possible alternatives to teachers? One (expensive) option could be outside professionals. Dupas (2011) found that a 45-min session delivered by an outside facilitator with a focused message on the heightened risk of HIV faced by girls having sex with older partners was effective at reducing unprotected sex among adolescent girls in Kenya, while the regular HIV and sexual education curriculum delivered by trained teachers and focusing on abstinence and faithfulness promotion had no impact. It is unclear what part of this difference comes from the specific relative risk message, and what part could come from the fact that the trained professionals were better equipped to discuss sensitive issues than teachers. Another alternative to teachers is technology: online sex education and health programs, whereby youth can ask questions by SMS, have been tried, though evidence of their impacts is mixed (Chong et al., 2013; Jamison et al., 2013). More promising evidence suggests that interactive ways of communicating information (such as feedback to guesses about facts such as HIV prevalence by age groups) can be more effective at increasing knowledge than providing the same information through a brochure (Datta et al., 2015). How much of this comes from the fact that asking participants to engage with the information increases its salience? At the extreme, can a simple questionnaire administered in class about HIV risk and own plans to avoid it be sufficient to make risk salient and spur adolescents to actively think through the types of behavior they want to avoid?

We use a field experiment conducted with teenage girls in 318 junior high schools in Cameroon to study, within one context, how the type of risk information being provided and the delivery method (teacher, outside professional or questionnaire) affect adolescents knowledge, perceived risks and behavior. According to UNAIDS, Cameroon is the West and Central African country with the highest rate of HIV prevalence at 4.5% of the 15–49 population in 2015 (5.3% among women and 3.7% among men). We randomized HIV and sexual education interventions that differed in their delivery mechanism and intensity, as well as content, across schools. In each school, one eighth grade class was targeted for the study.

¹ WHO factsheet, last accessed 18 November 2016 at: <http://www.who.int/mediacentre/factsheets/fs364/en/>.

² Risk-per-exposure is the risk of HIV infection when an uninfected person has unprotected sex with an infected partner.

³ See Dupas (2011) on HIV risk information in Kenya, Delavande and Kohler (2017) on HIV risk information in Malawi, and Benneer et al. (2013) on arsenic risk communication in Bangladesh.

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