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Will HPV vaccination cause sexual disinhibition? Revisiting the risk compensation hypothesis

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HPV vaccination is a milestone in cancer prevention. This recent good news of a vaccine able to prevent most cervical cancers was met with clear delight by health officials and others interested in the public's health. Some conservative religious groups in the United States vocally opposed the vaccine, claiming that it would make adolescent girls sexually promiscuous. These claims shifted the policy debate to concerns over possible sexual disinhibition instead of the certainty of the deaths from cervical cancer that will continue to accrue in the absence of the vaccine.

The Risk Compensation Hypothesis

Surprisingly, the idea of sexual disinhibition is well rooted in known conceptual work. In brief, the risk compensation hypothesis states that people engage in a level of risky and protective behavior that satisfies their risk preferences. When they reduce risk in one way, they will increase it in another. The lynchpin of this formulation is that people experience changes in their perceived risk that reflect their behavior. Turning back to HPV vaccination, this means that vaccinating a girl against HPV could cause her to feel less at risk for cervical cancer and subsequently to increase her (perceived) risk in whatever way, perhaps through sex.

Unlike many such debates, this one can be settled by data. Unfortunately, the existing data testing the risk compensation hypothesis are of very poor quality. The seminal studies of the effects of seat belt use on speeding are contested. Studies of disinhibition related to HIV medication use and other protective health behaviors have yielded similarly inconclusive – and often contradictory – findings (Brewer, Weinstein, Cuite, & Herrington, in press, offer a brief review). Data on risk compensation resulting from HIV vaccine trials yield no clear pattern. More worrisome, none of the studies measured the hypothesized changes in risk perception, changes in which are the “moving part” that is meant to power risk compensation.



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Some Data

Because data on behavioral effects of HPV vaccination are likely to be years away, I decided to dust off an old dataset on uptake of another vaccine (against Lyme disease). Colleagues and I had data that examined over an 18 month period the reciprocal relationships of risk perception, decisions to get vaccinated against Lyme disease, and engaging in other Lyme disease protective behaviors. We report the details in the upcoming issue of the *Annals of Behavioral Medicine* (Brewer et al., in press). We believed the data to be especially relevant because both vaccines offer only imperfect protection against their target disease (in the range of 70% to 80%), suggesting a potential concern should people become less vigilant after getting vaccinated.

In brief, we found that getting vaccinated caused a steep drop in risk perception (the first step hypothesized in behavioral disinhibition). But vaccination caused a slight drop only in one of five other Lyme disease-protective behaviors that we assessed. (If you torture the data, a second behavior could be argued to have been similarly affected).

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Moreover, risk perception did not mediate the very small effect of getting vaccinated on other behaviors. Perhaps more important, the vaccinated cohort's reduction in wearing light colored clothing to detect ticks merely regressed them to levels of this behavior found among the unvaccinated cohort. In simpler terms, those vaccinated were already especially vigilant and merely started doing what everyone else was doing. Thus, we found that people who lowered their risk by getting vaccinated accurately perceived this change in their risk, but they did not do much to increase their risk again.

Generalizing

A reasonable question is what adults' Lyme disease vaccination decisions have to do with adolescents and HPV vaccination. Potentially quite a lot. The findings of the study suggest that, at least for one type of vaccination, only a very weak form of disinhibition held, it was not motivated by changes in risk perception, and it did not make people any riskier than the general population (i.e., those not vaccinated). Moreover, Lyme disease may yield a very conducive context for risk compensation, presenting the many conditions necessary required by the risk compensation hypothesis.

For risk compensation to hold for HPV vaccination, quite a few things would have to hold that seem unlikely. Adolescents would have to believe sex and HPV and cervical cancer are linked; evidence suggests that people do not naturally link these three and find these links hard to believe. Adolescents would have to exhibit the usual relationship between perceived risk and behavior, a link that many researchers are skeptical of for this specific age group. Even allowing this, perceived risk is not the main driver of adolescent risk behavior, with perceived benefits and peer norms playing much more prominent roles.

Although all of these steps hold for analogous constructs relevant to Lyme disease (i.e., perceiving a risk for infection, believing that infection causes disease, and risk perception motivating risk behaviors), we only found very weak disinhibition in Lyme disease protective behaviors. Such links seem unlikely to be supported by future research on adolescents and HPV vaccination, making risk compensation in this context

highly unlikely. Even if it were to be found, whether one would find support for disinhibition or regression is unclear, making the public health relevance of this unlikely finding even more speculative.

Postscript

The study received modest coverage in the media from *USA Today* and a few other media outlets. Although these articles offered a charitable assessment of the study, a screening interview with a *CNN* reporter seemed to summarize the problems some had with the story. In brief, the reporter saw no way that a study of adults could say anything about adolescents' reaction to a different vaccine. So much for theory offering a bridge from existing data to novel situations. The problem is that by the time data for adolescents become available, policies about vaccination will have largely been settled, informed by best guesses, various agendas, and hopefully a sincere desire to aid the public's health.

Then again, maybe the reporter had it right. A recent review of the HPV vaccination acceptability literature (Brewer & Fazekas, in press) found that only 6%-12% of people in U. S. studies were concerned about sexual disinhibition. The two studies that suggested that such concerns were widespread relied on impressions from qualitative interviews that were never quantified. The over-generalized hysteria about possible sexual disinhibition is news, but the remote likelihood of sexual disinhibition is not.

References

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