A Public Health Approach to Reducing Sexual Assault

A Report for College Campuses

JOHNS HOPKINS
BLOOMBERG SCHOOL
of PUBLIC HEALTH

Johns Hopkins Center for
Injury Research & Policy

Dear Colleague,

According to the CDC, *"The evidence for sexual violence prevention is still emerging, but the problem is too urgent to wait until the field has perfect solutions."** We agree! That's why we prepared **"A Public Health Approach to Reducing Sexual Assault: A Report for College Campuses."**

Based on a systematic literature review of the evidence and Haddon Matrix analysis, this report provides program developers, funders, advocates, preventionists, and public health professionals with a tool to identify intervention opportunities before, during, and after a sexual assault.

Thank you for all you do to prevent sexual assault on college campuses and to ameliorate the potentially life-altering consequences.

Sincerely,

Andrea Gielen, ScD, ScM
Professor and Director
Johns Hopkins Center for Injury Research and Policy

How to Use This Report

This report introduces leaders in the campus community to a novel approach to thinking about sexual assault prevention, the Haddon Matrix and the 3Es of interventions—Education, Engineering, and Enforcement.

· First, you will find an explanation of the basic concepts of the Haddon Matrix and the 3Es using a familiar example, motor vehicle crashes.

· Second, you will see how these same concepts can be applied to sexual assaults, based on the published evidence of what works for sexual assault prevention programming.

· Third, you will be able to identify where there are successes, gaps, and new opportunities for your college campus to enhance its programming.

By going through this report, you will become skilled in using the Haddon Matrix and the 3Es, which we hope will help you identify innovative and comprehensive approaches to your sexual assault prevention programming.

* Dills J, Fowler D, Payne G. Sexual Violence on Campus: Strategies for Prevention. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, 2016. Page 15. Available at: https://www.cdc.gov/violenceprevention/pdf/campussv-prevention.pdf (Accessed 1/15/18).
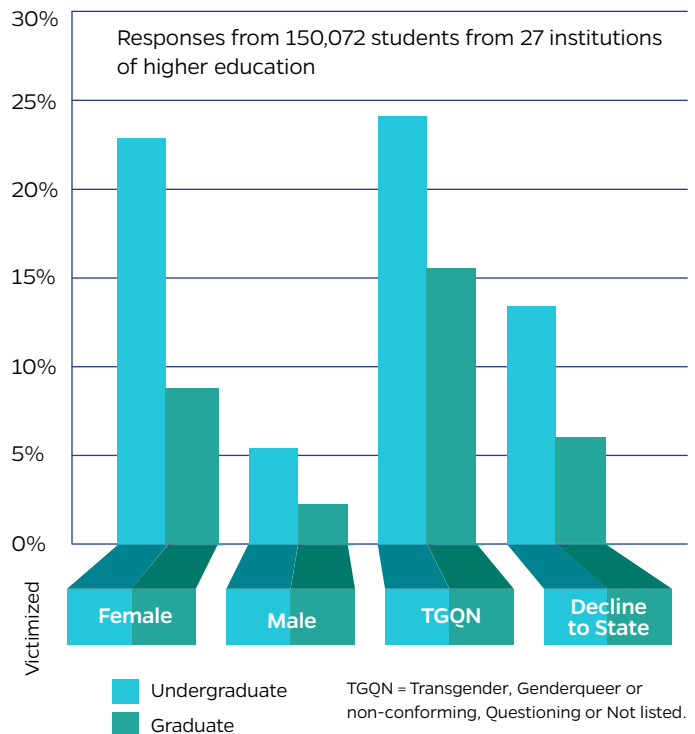
Acknowledgements

There Are Many Types of Sexual Violence

· Completed or attempted forced penetration of a victim

· Completed or attempted alcohol/drug-facilitated penetration of a victim

· Completed or attempted forced acts in which a victim is made to penetrate a perpetrator or someone else

· Completed or attempted alcohol/drug-facilitated acts in which a victim is made to penetrate a perpetrator or someone else

· Non-physically forced penetration which occurs after a person is pressured verbally or through intimidation or misuse of authority to consent or acquiesce

· Unwanted sexual contact

· Non-contact unwanted sexual experiences

From: https://www.cdc.gov/violenceprevention/pdf/sv_surveillance_definitionsl-2009-a.pdf (Accessed 1/15/18).

Figure E-2: Percent reporting sexual contact involving physical force or incapacitation since enrolling in the college

Responses from 150,072 students from 27 institutions of higher education

Undergraduate
Graduate

TGQN = Transgender, Genderqueer or non-conforming, Questioning or Not listed.

From: https://www.aau.edu/key-issues/aau-climate-survey-sexual-assault-and-sexual-misconduct-2015, page ix, (Accessed 6/2/18).

11.7% STUDENTS **27** UNIVERSITIES

An estimated 11.7% of students across 27 universities report experiencing sexual violence since enrolling, according to the national AAU Campus Climate Survey.

Rates of sexual violence vary by sex and year in school.

Certain Characteristics of Sexual Assaults are Well Documented

About **85%-90%** are perpetrated by someone known to the victim

They occur most often in the man's or woman's **home** in the context of a party or a date

About **50%** occur on a date

Fewer than **5%** are reported to campus administrators or law enforcement

From: https://www.nij.gov/topics/crime/rape-sexual-violence/campus/pages/know-attacker.aspx (Accessed 1/6/18).

Additional Resources

Sexual Violence on Campus: Strategies for Prevention. CDC. November 2016. Available at: https://www.cdc.gov/violenceprevention/pdf/campussv-prevention.pdf (Accessed 1/15/18).

Maryland Coalition Against Sexual Assault, MCASA, Available at: https://www.mcasa.org/ (Accessed 1/15/18).

Sexual Assault Legal Institute, SALI, Available at: https://www.mcasea.org/survivors/sali (accessed 8/17/18)

STOP SV: A Technical Package to Prevent Sexual Violence. CDC. 2016. Available at: https://www.cdc.gov/violenceprevention/pdf/sv-prevention-technical-package.pdf (Accessed 1/15/18).

Guidance for Creating College and University Domestic Violence, Dating Violence, Stalking, and Sexual Violence Prevention and Intervention Programs and Policies for Students. June 2015. NC Coalition Against Domestic Violence. Available at: http://nccadv.org/images/pdfs/NCCADV_Model_College-University-IPV-Stalking-SV_Policy.pdf (Accessed 1/15/18).

Haddon Matrix

One of the most widely used frameworks in the injury prevention field is the Haddon Matrix, which explains injury as a function of time phases and influencing factors. The three phases include: pre-event, before an event with the potential to cause an injury happens (e.g., before a motor vehicle crash); during an event that can cause an injury (e.g., during the crash); and after the event occurs (e.g., after the crash). The influencing factors include: the host (e.g., the person who is at risk of injury); the agent, which impacts the host through a vehicle or vector (e.g., inanimate object, person, or other animal/organism); and the environment, both the social (e.g., drunk driving policies) and physical (e.g., roadway). By combining the phases and factors in a matrix, multiple opportunities for intervention are apparent. See Figures 1 and 2.

Figure 1. Overview of Haddon Matrix Applied to Motor Vehicle Crashes

	HOST Characteristics and behaviors of the driver	VEHICLE/AGENT Features of the car	ENVIRONMENT	
			PHYSICAL Features of the roadway	SOCIAL Features of the social environment
PRE-EVENT Before the crash	What factors influence the likelihood that a crash will occur?			
EVENT During the crash	During a crash, what factors influence the likelihood that an injury will occur?			
POST-EVENT After the crash	After an injury occurs, what factors influence how serious the injury will be?			

Adapted from U.S. Department of Transportation, Federal Highway Administration.
Available at: https://safety.fhwa.dot.gov/hsip/resources/fhwasa09029/app_c.cfm, Accessed 1/15/18.

Figure 2. Haddon Matrix Showing Risk and Protective Factors for Motor Vehicle Crashes

	HOST	VEHICLE/ AGENT	ENVIRONMENT	
			PHYSICAL	SOCIAL
PRE-EVENT Before the crash	Driver's vision, experience, use of alcohol, speeding	Condition of tires, brakes, lights, warning systems	Narrow shoulders, availability and timing of traffic signals	Cultural norms about speeding, drinking and driving, obeying traffic signs
EVENT During the crash	Driver's seat belt use	Availability of airbag	Presence and design of guardrails	Vehicle design regulations
POST-EVENT After the crash	Driver's pre-existing health problems	Crash-worthiness of fuel tank	Availability of emergency communication system	Availability and quality of EMS and trauma systems

Adapted from U.S. Department of Transportation, Federal Highway Administration, Available at: https://safety.fhwa.dot.gov/hsip/resources/fhwasa09029/app_c.cfm, Accessed 1/15/18.

3Es for Interventions from a Haddon Matrix Analysis

Source: Sleet DS and Gielen AC, Injury Prevention, in S Sheinfeld Gorin and J Arnold (Eds), Health Promotion Handbook, St. Louis, MO: Mosby, 1998.

ENGINEERING	EDUCATION	ENFORCEMENT
Using engineering design and development strategies to create safer vehicles, products, and physical and social environments	Providing counseling, campaigns, courses, media, and other strategies to shape the social environment, and to influence the behavior of potential victims and perpetrators	Implementing laws, regulations, codes and policies to shape the social and physical environments, and to influence the behavior of potential victims and perpetrators

For engineering to work, the strategy must:

· Be effective and reliable.
· Be acceptable to the intended audience and compatible with the environment.
· Result in products that dominate the marketplace.
· Be easily understood and properly used by the intended audience.

For education to work, the intended audience must:

· Be exposed to the information.
· Understand and believe the information.
· Have the resources and skills to follow the information/take up the recommended actions.
· Derive benefits (or perceived benefits) from following the information/ taking up the recommended actions.
· Be reinforced for following the information/taking up the recommended actions.

For enforcement to work, the strategy (policy/law/ regulation/codes) must:

· Be widely known and understood.
· Be acceptable to the intended audience.
· Have high probability (or perceived probability) of enforcement actions happening.
· Have consequences of enforcement actions and punishments that are swift and severe (or perceived to be).

The importance and relevance of the 3Es will become even clearer as we turn our attention to the issue of sexual assault on college campuses, and how the Haddon Matrix can help identify prevention opportunities.

Haddon Matrix Applied to Sexual Assault

Unlike in the motor vehicle example, for sexual assault there is a victim and a perpetrator. In the Haddon Matrix, these individuals are the "Host" (victim) and the "Vehicle/ Agent" (perpetrator). It is the perpetrator's actions that injure the victim, but there are also actions that a victim can take to enhance their protection and reduce the negative outcomes of an assault. The use of the Haddon Matrix can illuminate when efforts are disproportionately focused on changing the victim's behavior rather than on the perpetrator's behavior and the environment (social and physical) in which an assault can occur.

IN THE PRE-EVENT PHASE—before the assault occurs— we are concerned with factors that influence whether an assault will occur.

IN THE EVENT PHASE—while the assault is occurring— we are concerned with factors that influence whether the victim will be psychologically and/or physically injured.

IN THE POST-EVENT PHASE—after the assault has occurred—we are concerned with the factors that influence the severity of the psychological and/or physical injuries that the victim experiences, and the consequences to the perpetrator that affect the victim and the likelihood that the perpetrator will re-assault the victim or someone else.

The Haddon Matrix analysis can help a college campus identify prevention strategies to address the victim, the perpetrator, and the environment in which they interact. Both the physical environment and the social environment can influence the likelihood, severity, and outcomes of a sexual assault.

By expanding our understanding of all the elements leading up to a sexual assault—including mutable and nonmutable factors—we can find many touch points for interventions. Next, we use the Haddon Matrix to explore the focus of programs that have been systematically evaluated, as identified in our literature review.

Figure 3. Haddon Matrix Applied to Sexual Assault on College Campuses: Definitions and Examples

	HOST Characteristics and behaviors of the victim/potential victim	VEHICLE/AGENT Characteristics and behaviors of the perpetrator/potential perpetrator	COLLEGE CAMPUS ENVIRONMENT	
			PHYSICAL Features of the campus (buildings and grounds)	SOCIAL Features of the campus culture/social environment
PRE-EVENT Before the assault What factors influence the likelihood that an assault will occur?	Trauma and victimization history Alcohol consumption Beliefs re: relationships and sexual expectations Communication skills	Trauma and perpetration history Beliefs about gender, what constitutes consent Beliefs re: relationships and sexual expectations	Availability of alcohol Physical design of student housing, including buildings where parties are held	Enforcement of alcohol use laws Level of misogyny in campus culture Campus culture surrounding sexual assault
EVENT During the assault What factors influence the likelihood that a physical and/or psychological injury will occur?	Trauma and victimization history Alcohol consumption Self-defense abilities	Perpetrator size, strength, and ability to isolate, coerce, and/or threaten	Availability of police and campus security Availability of call boxes to police/security Well-lit high traffic areas	Campus culture surrounding helpfulness of police/security Availability of bystanders prepared and willing to intervene
POST-EVENT After the assault What factors influence the severity of physical and/or psychological long term consequences for the host, and the likelihood of re-perpetration by the agent?	Trauma and victimization history Knowledge about campus and community services for victims Help seeking interests and skills	Perpetrator removed from classes with victim and/or expelled. Perpetrator prosecuted Perpetrator mandated to sexual aggression counseling	Availability of SANE nurses Availability of information for SA victims on where to get services Availability and accessibility of support services for victims	Campus climate of support for SA victims Availability of bystanders prepared and willing to support victim Accommodations for victims to meet academic requirements

A Systematic Literature Review

Mahoney P, Gielen AC, Bailey MM, and Gabel C (2018) Applying the Haddon Matrix to Evaluate Sexual Assault Interventions on College Campuses, manuscript in review. To receive a copy of the published article, please email pmahone3@jhu.edu.

The purpose of the literature review of research published in peer reviewed journals from 1/1/2001- 12/31/2017 was to see what interventions were currently being tested and evaluated on college campuses. For articles to be included, they needed to meet the following criteria: Conducted in U.S. with undergraduates, experimental or quasi-experimental design, and an outcome related to sexual assault. A review using *PubMed, PsychInfo,* and *Scopus* yielded 193 records, with 31 meeting our full inclusion criteria.

These studies reported on interventions such as bystander interventions, informational/educational programs (of rape myths, gender norms, statistics, and/or campus policies and services), and communication skills or physical resistance trainings. Some interventions were delivered electronically while others were face-to-face; some were targeted at single sex audiences, others included both sexes. Interventions also varied in program length, number of sessions, and length of follow up period.

Each article included in this review was classified according to the cells defined in the Haddon Matrix. Figure 4 shows the number of studies in each cell, along with a sample of an intervention. For cells in which there were no studies in the literature, a possible intervention consistent with the Matrix is suggested, although it would need to be evaluated.

Figure 4. Haddon Matrix Applied to Sexual Assault on College Campuses: Literature Review Results

	HOST 15 studies	VEHICLE/AGENT 10 studies	COLLEGE CAMPUS ENVIRONMENT	
			PHYSICAL 0 studies	SOCIAL 19 studies
PRE-EVENT Before the assault	**14 studies** Sample: Educate students on psychological barriers to resistance	**10 studies** Sample: Educate students about the four basic components of consent	**0 studies** Possible intervention: Reduce alcohol availability Adequate security Enhance lighting	**18 studies** Sample: Provide bystander training
EVENT During the assault	**8 studies** Sample: Train on verbal and physical self-protection techniques	**0 studies** Possible Intervention: Ban weapon carrying	**0 studies** Possible Intervention: Emergency alarm systems Adequate security Enhance lighting	**18 studies** Sample: Provide bystander training
POST-EVENT After the assault	**5 studies** Sample: Offer program addressing rape-related PTSD	**0 studies** Possible Intervention: Expel from school Prosecute in legal system	**0 studies** Possible Intervention: Emergency alarm systems Accessible and available services (medical, legal, counseling)	**16 studies** Sample: Provide bystander training

Literature Review Results

All of the 31 eligible studies relied on self-report measures, and three-quarters had follow-up periods of less than 6 months. Of the 3Es for interventions that can come from a Haddon Matrix analysis, only educational programs were found in our review of the literature. Positive impacts were reported by six of ten studies that measured bystander behavior, six of ten that educated potential victims and assessed victimization, and one of four that educated potential perpetrators and measured perpetration.

Effectiveness of Bystander Programs

Bystander programs focus on all three phases of the Haddon Matrix and seek to change the social environment. They have shown to be effective at:

· increasing bystander efficacy, positive outcome expectancies for intervening, intent and willingness to intervene;

· pro-social behaviors including engagement in active bystander behavior, and;

· lowering rates of reported stalking, sexual harassment, and sexual violence victimization and perpetration.

Lack of Policy Research

Although there are extensive policies related to sexual assaults, such as educating students and reporting requirements in place on virtually all college campuses, we could find no evaluations of how they are being enforced or the impact of that enforcement on assaults. There were no studies evaluating interventions focused on perpetrators in the event or post-event stage. For example, it would be useful to study the impact of policies related to expulsion from school or involvement of the legal system on rates of re-perpetration at the individual level (i.e., vehicle/ agent) or at the campus level (i.e., social environment). The role of alcohol in assaults suggests that enforcement of alcohol policies should also be evaluated.

Lack of Research on the Environment

There were no engineering interventions reported. The absence of studies focused on the physical environment offers opportunity for innovation in campus efforts. Security, lighting, changes in residences and other changes should be evaluated as more is learned about where (e.g., types of private or public settings) and with whom (e.g., stranger, acquaintance, partner) attempted and completed sexual assaults occur on college campuses.

Conclusions

The Haddon Matrix and the 3Es serve as useful frameworks to identify gaps in knowledge about how to prevent or reduce the impact of sexual assaults on college campuses. The Haddon Matrix analysis identified a need to evaluate the enforcement of existing sexual assault prevention and intervention policies to determine their impact on the social environments of college campuses, and to identify engineering solutions that could enhance the safety of the physical environments in which sexual assaults occur. Such new knowledge is likely to have impacts across all phases—before, during, and after an assault—and thereby reduce perpetration and better protect victims and potential victims.

JOHNS HOPKINS
BLOOMBERG SCHOOL
of PUBLIC HEALTH

**Johns Hopkins Center for
Injury Research and Policy**

**Helping people to live in a society that is safe,
where all are free from the burden of life-altering injuries.**

Johns Hopkins Center for Injury Research and Policy
624 N. Broadway
Hampton House 554
Baltimore, Maryland 21205

410-955-2397
agielen1@jhu.edu
www.jhsph.edu/injurycenter