



CHILD GENITAL CUTTING AS AN ADVERSE CHILDHOOD EXPERIENCE

By Dan Bollinger and Georganne Chapin

Executive summary

This white paper presents compelling evidence that child genital cutting (CGC)—in its myriad forms performed on males, females, and intersex children—is a known early trauma. As such it is also an Adverse Childhood Experience (ACE). More than a million children in the United States continue to suffer from CGC annually; many go on to experience repercussions, some lasting for years or even decades. Yet CGC is not included in the ACE questionnaire, while less frequent and possibly less traumatic experiences are. Consequently, victims of CGC are being ignored by the ACEs' community. To solve this, we have created this paper and [AdverseChildhoodExperiences.net](https://www.adversechildhoodexperiences.net), which together alert health authorities and researchers to this omission and propose a minor addition to the popular ACE questionnaire.



Intact America is the largest national advocacy group working to end male child genital cutting in the United States, and to ensure a healthy sexual future for all people. Intact America fulfills its mission by challenging social and sexual norms and by advocating for the health and wellbeing of all children and the adults they will become. Intact America operates under the auspices of the Hudson Center for Health Equity & Quality, a not-for-profit 501(c)(3) corporation.

Contents

Problem statement	2
Background	3
Male genital anatomy and foreskin removal	4
Surgical description	4
Historical description	5
Does MCGC meet the criteria for an ACE?	5
Men’s grief	6
Epigenetic factors	6
Boy’s psyche	6
Should MCGC be added to the ACE questionnaire?	6
Adverse Genital Cutting Experience	7
Toxic stress	8
Perception	8
About Men	8
Sex ratio	9
What are the implications of adding CGC to the questionnaire?	10
Incorporating CGC into Current ACE questionnaires	11
Proposed solution	12
Conclusion	12
Acknowledgment	12
References	13

Problem statement

The Adverse Childhood Experience Study¹ was a long-term health-outcomes study conducted from 1995–1997 by Kaiser Permanente and the Centers for Disease Control and Prevention. The study measured childhood traumas and exposures to stressors using a 10-item Adverse Childhood Experience (ACE) questionnaire and found that they were strongly associated with health and social problems in adulthood. For instance, high-risk health behaviors such as smoking, alcohol and drug abuse, promiscuity, and obesity. ACEs have a dose-response relationship with many health problems—among them depression, heart and lung disease, cancer, and shortened lifespan. Further, the more ACEs a person accumulates, the more likely s/he is to accumulate others in the future.

But the questionnaire as designed does not adequately capture all major traumas. In particular, only one question covers sexual abuse, and that question leaves out a major and common trauma inflicted on children’s genitals.

Child genital cutting (CGC)ⁱ—regardless if it is forced, prescribed, or imagined imperative—is painful and traumatic and has been found to permanently alter individuals’ sexuality, and to have other lifelong consequences. Yet CGC—whether performed on a boy, a girl, or an intersex child—is not captured by the ACE questionnaire despite its sizable incidence [Figure 1].

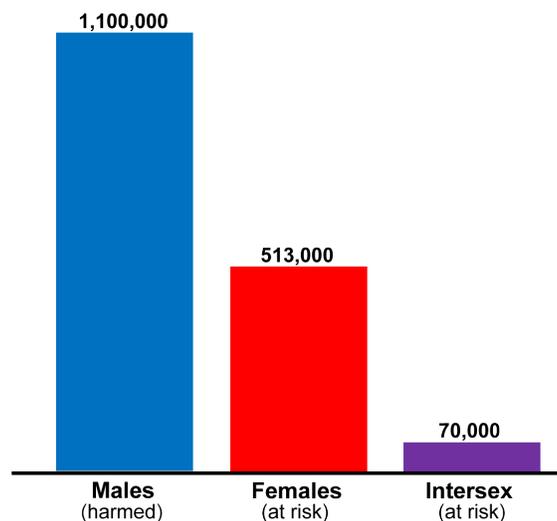


Figure 1. Boys harmed annually by CGC, plus girls and intersex children under the age of 18 at risk for CGC.ⁱⁱ

Given the pervasiveness of CGC in the United States (especially infant/newborn male CGC), the concern about female CGC (particularly among immigrant populations), and the emerging reservations about gender-norming CGC upon the intersex, one might ask why there has not

ⁱ We will use the term “child genital cutting” to refer to involuntary surgery undertaken to modify the genitalia of a child by any adult (but excluding self-harm) from birth to age 18. We do this to avoid euphemisms like “circumcision,” vague terms like “procedure,” and inflammatory terms like “mutilation.”

ⁱⁱ MCGC incidence is documented in hospital records, but the liberal “at risk” estimates are the only statistics available for FCGC and ICGC in the U.S. The authors have reservations about using them since the true incidence is likely lower, but until better data are published, we have no choice but to employ them to illustrate the scope of the problem.

Further hindering the discussion of CGC is the language proponents and opponents employ. One only need look at the difference in popular terminology describing male “circumcision” (a soft-sell, vague mechanistic reference to the cutting away of normal genital tissue from around the penis) and “female genital mutilation” (an inflammatory term meant to elicit revulsion^v).

In the United States, cutting of a girl’s genitalia for cultural or social reasons is widely abhorred, and there are federal and state laws prohibiting it, even though a hundred years ago “female circumcision” was an accepted medical procedure, albeit unsupported by science. Indeed, as the term “female genital mutilation” suggests, cutting a girl’s genitals is now always portrayed as unequivocally harmful and discriminatory.

Intersex child genital cutting (ICGC) and MCGC—unlike female child genital cutting (FCGC)—are generally perceived as beneficial interventions, or at least safe and benign, and have largely gone unquestioned until recently. This is due almost entirely to the status of the former two as medical procedures, and the related “ownership” of the diagnostic and treatment criteria by a medical establishment whose knowledge, expertise, and good intentions are presumed. This attitude precludes a critical assessment of what is a pseudo-medical “procedure,” and consequently thwarts impartial discussion of the entire practice of child genital cutting.

However, more and more victims of male and intersex genital cutting are speaking out about surgical sexual violations—a phenomenon closely resembling the “Me Too” movement against hidden female sexual assault. In this regard, the ACEs questionnaire is elevated in stature as an appropriate instrument for measuring this heretofore concealed trauma.

Male genital anatomy and foreskin removal

MCGC (widely referred to as male “circumcision”) is the most common pediatric surgery in the United States, but few among the general public know what it entails. This is due at least in part to the non-specific nature of the term “circumcision,” coupled with widespread ignorance about the normal male anatomy. Euphemisms such as “just a snip,” labeling the uncut penis as “unhygienic,” and defending MCGC as “no more invasive than cutting the umbilical cord” all contribute to the widespread cognitive dissonance about CGC in American culture.

The male foreskin (prepuce) is a protective double-layer of specialized tissue that surrounds the glans (head of the penis). At birth, it is attached to the glans, a normal condition called physiologic phimosis. Over time, and usually by the end of puberty, the connective tissue that keeps the foreskin attached will loosen and the foreskin will become mobile, preparing the male for comfortable erections, pleasurable masturbation, and intercourse.

The foreskin has multiple functions—protective, immunological, and sensory. Contrary to some still-popular beliefs, the male foreskin is a functional, integral part of the penis, and the tissue taken from the boy during circumcision is the equivalent of 12–15 square inches of vascularized and highly sensitive tissue in an adult man. MCGC victims will never experience the full breadth and depth of sexual experience enjoyed by intact men.

Surgical description

MCGC involves the forcible detachment and removal of the foreskin. After the child is secured in a restraint, the highly innervated foreskin is forcibly separated from the glans with a metal

^v The cutting of a girl’s genitals is commonly called “female circumcision,” but human rights activists were able to engender far greater disapprobation regarding the practice, and to distance it from its generally accepted counterpart carried out on boys, by rebranding it as female genital mutilation (FGM).

probe, tearing the connective tissue. Next, it is clamped to stanch bleeding. At this point the excision begins by cutting the foreskin, first vertically with forceps, and then around the base of the glans with a scalpel. This surgery is not only extraordinarily painful for the infant (anesthesia is not always used and when employed it only partially and temporarily blocks the pain), but it is also wholly unnecessary.

Physically, MCGC removes half of the penis' skin, destroys its functional foreskin, and ablates three-fourths of its nerve endings.² Adding sexual insult to sexual injury, MCGC is also associated with erectile dysfunction later in life.³

Historical description

Foreskin removal has a long history as a tribal and religious ritual—particularly among Muslims and Jews. As a medical procedure, the practice took hold during the Victorian era in English-speaking countries including the United States, Britain, Canada, Australia, and New Zealand. Beginning in the late 19th century, the evils [sic] of masturbation became a topic of great concern within the medical establishment, and doctors began to remove the foreskins of adolescent boys in order to keep them from pleasuring themselves. Girls were also subjected to the removal or destruction of their clitorises for the same reason, though not to the same extent.

Over the next few generations, foreskin removal became more common on ever younger boys. Infant circumcision finally took hold as the development of obstetrics transformed childbirth from a normal life event mediated by women to a medical “problem” demanding the dramatic intervention of (male) physicians. Thus, as physicians replaced midwives and hospital-based birth replaced home birth among families who could afford the former, circumcision became a mark of affluence. This trend developed in parallel fashion in other English-speaking countries until the 1940s, and then the practice began to diverge. As David Gollaher states in his circumcision history book, “The ultimate popularity of circumcision depended not on convincing normal men to undergo the ordeal of surgery, but on targeting a group of patients who could not object.”⁴

England, financially bankrupt following the Second World War, established a national health care system, and began scrutinizing medical practices and expenditures for their efficacy. British physician Douglas Gairdner's influential 1949 article exposed the fallacy of male circumcision as a health-improvement measure, and the procedure was deemed unworthy of reimbursement.⁵

In the United States, however, a privatized health care system was established and every procedure, necessary or not, became a billable service. By the mid-20th century, and prior to the requirement of signed consent, few U.S. boys escaped genital cutting.

Does MCGC meet the criteria for an ACE?

In adults, abnormal and painful neonatal experiences can manifest in a host of altered adult behaviors, among these “increased anxiety, altered pain sensitivity, stress disorders, hyperactivity, and attention deficit disorder. These in turn may lead to impaired social skills and patterns of self-destructive behavior”⁶—hallmarks of high ACE scores.

Three out of four U.S. men have had their foreskins removed as infants; however, because they likely don't have an early recollection of the trauma, or because they never thought about it, most would not think to label their newborn circumcision as an adverse experience unless they are specifically asked.

Men's grief

However in a growing trend, many men are speaking out on social media saying that they believe their genital cutting was a sexual abuse; some refer to it as a rape, and say that they are reminded of it daily, every time they look at the surgical scar on their penis.

A recent national survey by Intact America found that 20 percent of the men surveyed said they have a “snapshot,” early recollection, or night terrors they believe to be associated with their infant circumcision.⁷ Whether or not men consciously recall the surgery, the fact remains that the cutting was painful and traumatic, and they DID experience it. We have known for a century that self-imposed amnesia is one way in which the psyche protects itself from trauma,⁸ and no amount of forgetfulness or denial is enough to negate its deleterious effects.

Epigenetic factors

Two recent studies found that neonatal pain creates long-term alterations in brain development, and that exposure to pain during a period of rapid brain development can result in major changes to the brain.^{9 10} The removal of the foreskin reorganizes a male's somatosensory cortex, which may affect his overall sexual behavior; and the earlier in the male's life the circumcision occurs, the more impact it would have.¹¹

Another study showed abnormally increased behavioral responses to vaccination at 4–6 months of age in infants who had undergone circumcision shortly after birth. The researchers concluded that the boys' reactions were “an infant analogue of a post-traumatic stress disorder triggered by a traumatic and painful event,”¹² illustrating that these early adverse experiences have long-term effects.

Boy's psyche

A literature review of more than a hundred psychological studies shows that early traumas have a detrimental effect on a boy's psyche, and about half of those specifically mentioned circumcision.¹³ Whether the child consciously remembers a negative experience is irrelevant to its impact and categorization as an ACE. It is not the recollection of a trauma that is harmful, rather the body's and mind's response to it, both immediately and over time.

In one study, MCGC was found to be closely associated with alexithymia—the inability to identify and express emotions.¹⁴ Other studies similarly have found childhood sexual abuse and maltreatment to be associated with this personality trait.^{15 16} Notably, alexithymia also has a negative effect upon resilience, or “bouncing back,” from ACEs.¹⁷ In another study, four- and five-year-old boys were given a battery of standard psychological tests before and after their circumcision. The study concluded that MCGC's trauma had detrimental effects on the child's function and adaptation and that “the child seeks safety in withdrawal and isolation.”¹⁸

Should MCGC be added to the ACE questionnaire?

A 2016 study on HIV risk behaviors found that accruing just *one or more* ACEs significantly increased males' engagement in high risk behavior, whereas, for women, *three or more* ACEs were required to correspondingly increase their engagement in high risk behavior.¹⁹ A newer study found that boys are generally burdened with more ACEs than girls.²⁰ Notably, boys' brains mature more slowly than girls' brains, making them more vulnerable to early stressors, for a longer period of time.²¹ Hence, despite popular opinion, it seems that boys, not girls, are “the weaker sex”²² in that they are more vulnerable than girls to early adverse experiences.²³

A new ACE study concluded that non-explicit adverse experiences (those not listed on the current ACE questionnaire) also put children at risk,²⁴ highlighting that these non-explicit

experiences may be just as important to consider. Further evidence suggests that the adverse consequences of high ACE exposure don't wait until adulthood to manifest; rather they show up in children as physical, mental and developmental problems.²⁵

Adverse Genital Cutting Experience

The current ACE questionnaire does not explicitly mention genital cutting, but neither does it explicitly exclude it. Physical and sexual abuse are ACEs, and given that MCGC is painful, traumatic, and directed at the sex organs it is reasonable to dispassionately examine this act as constituting sexual abuse.

A large cohort international study concluded that accumulation of early stressors predicts deaths from Sudden Infant Death Syndrome (SIDS).²⁶ Pertinent to this essay is that the study controlled for prematurity and male circumcision, which they identified as “common stressors.” They found a positive correlation between SIDS prevalence and both stressors, but together, the stressors were more strongly associated with SIDS than each one separately. The take-aways from this study are that: (1) the researchers assumed that male child circumcision was an ACE; and (2) that male child circumcision accumulated with another early trauma increased the child's health risk.

Infant MCGC is very painful. Most baby boys are not given anesthesia, and even when they are, it is inadequate to block all pain.²⁷ Despite decades of misinformation, we now know that newborns feel pain as intensely or more intensely than adults.^{28 29} Two studies by the same research team—one objective³⁰ and the other subjective³¹—found that circumcision is the most painful of the twelve most common perinatal procedures. Another team of researchers studying anesthesia efficacy halted their study when they saw that their subjects' cortisol levels spiked³² [Figure 3].



Figure 3. Typical hospital circumcision of a newborn boy.^{vi}

Higher levels of cortisol are associated with early stressful experiences and behavior changes. A cohort of mostly boys who experienced neonatal procedural pain was found to experience subsequent behavioral problems.³³ Furthermore, a study of children with post-traumatic stress symptoms also found that their cortisol levels were higher than normal, and that their hippocampi were smaller than normal.³⁴

^{vi} iStock photo #174655273

Toxic stress

MCGC sequelae are indicative of toxic stress activation, which can be particularly problematic during early childhood. In Nadine Burke Harris's book³⁵ on toxic stress and the accumulation of ACEs, the author observed: "The fact that our patients with four or more ACEs were 32.6 times as likely to have been diagnosed with learning and behavioral problems signaled to us that ACEs had an outsize effect on children's rapidly developing brains."

Like ACEs, MCGC has been associated with addiction and suicide,³⁶ and victims of childhood sexual abuse are more than twice as likely to attempt suicide.³⁷ Recently, a preliminary study by Danish researchers found an association between MCGC and autism,³⁸ a frightening prospect if this association is proven.

Perception

It is important to note here that the perpetrator's motivation does not determine whether a child experiences an event as traumatic. Certain parental practices (such as spanking) that were previously accepted as being administered "for the child's own good" have now been recognized as causing long-term psychological damage. Similarly regarding MCGC, any good intentions of the circumciser (to make the child "fit in," "look like the father," or to "prevent future problems") or associated assertions that the child "shouldn't be troubled" by the experience, are unrelated to the child's experience of the inflicted trauma.

Additionally, while activists against MCGC might be dismissed in some circles for using language imputing negative motive such as "abusive wounding of males"³⁹ or "adult aggression directed at children,"⁴⁰ these descriptors closely resemble widely accepted critiques of FCGC in western culture. Thus, while discussing ACEs, it is important to remember that the only pertinent perspective is that of the child-victim.

ACE researchers agree that their results are consistent with an "accumulation" model of trauma that assigns increased lifetime risk of psychosocial impact with each additional traumatic exposure during childhood. If so, then MCGC is a harbinger of more ACEs to come.

About Men

Approximately 85 million (75%) U.S. men over the age of 18 have been circumcised,⁴¹ i.e., have experienced CGC. Adding an additional ACE to the other ACEs that these men have experienced reveals a significant negative outcome for them. For instance, if MCGC is added to the ACEs inventory, the proportion of men who have an ACE score of zero declines from 38 percent⁴² to 9.5 percent. For men with only one ACE, if CGC is added to their self-reported experiences, their scores then increase by one, and this trend continues all along the continuum [Figure 4].

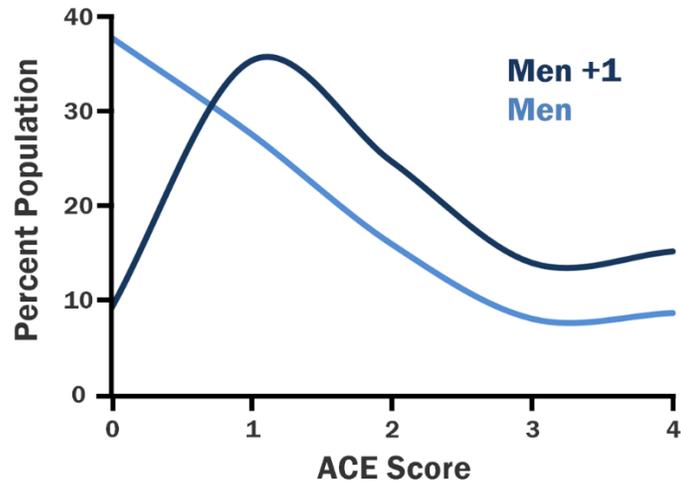


Figure 4. Effect of men’s ACE scores distribution after adding one to the ACE scores of men in the United States who are circumcised.

We know that 17.8 percent of men have ACE scores of 3, 4, and 5. Adding one more ACE to the scores of this group would reveal that an additional 23 million men are at a much higher health risk than previously thought. An ACE score above six is associated with a 30-fold increase in suicide attempts and a lifespan shortened by almost 20 years.⁴³

According to a recently published international study, boys with overall higher ACE scores have 12 times greater odds for violence perpetration compared with girls at 4 times.⁴⁴ Adding one more ACE from MCGC would identify a larger number of boys likely to perpetrate violence as men than previously known; a finding that would be useful for health and legal authorities.

Sex ratio

The Adverse Childhood Experiences Study⁴⁵ reported that the average ACE score for women is 1.47 and for men 1.23, but if one ACE is added to the 75 percent of men who are MCGC victims, the score for U.S. men jumps to 2.11, reversing the at-risk sex ratio.

In yet another ACE study, one in four women and one in six men reported having experienced childhood sexual abuse.⁴⁶ When MCGC is included for the 75 percent of men who had not reported a childhood sexual abuse (and presumably had been circumcised), the ACE childhood sexual abuse ratio rises to four out of five men [Figure 5].

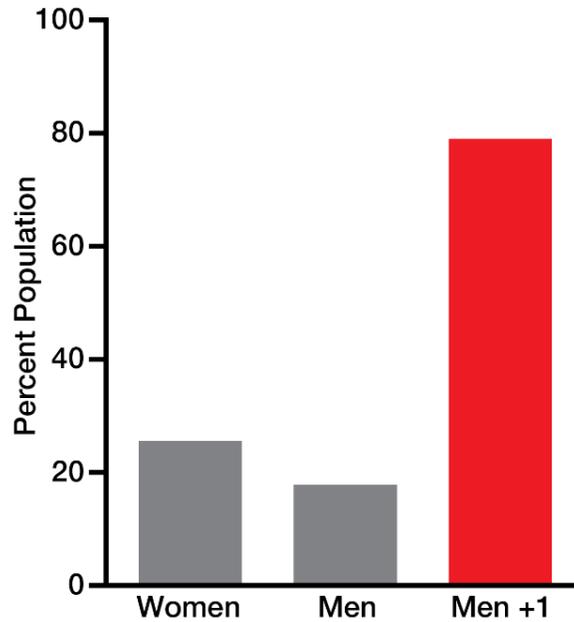


Figure 5. Percent of adults reporting childhood sexual abuse and after MCGC is accounted for.

What are the implications of adding CGC to the questionnaire?

The ACE questionnaire in use by researchers today does not represent the entire spectrum of early adversities that exist, nor does it measure critical dimensions of exposure, such as severity or the age at onset, which can also significantly affect health and well-being. Rather, it is intended as a preliminary screening tool to quickly identify at-risk individuals and communities who might subsequently benefit from interventions such as resilience training.

As the field of risk assessment evolves, ACE researchers and practitioners are adding additional questions to their interview inventories, acknowledging that certain experiences heretofore not explicitly recognized may be powerful predictors of adult health.

Adverse Childhood Experience studies to-date—even those controlling for gender—have not controlled for CGC.^{47 48} This oversight skews gender results and obscures a major adverse experience for a large portion of the population. All these facts, taken together with the extraordinarily high prevalence of MCGC in the United States, seriously disrupt current understanding regarding gender disparities and ACEs.

For instance, a person with an ACE score of four or more crosses a *Critical At-Risk Threshold* for Adverse Childhood Experiences (CART/ACeT).^{49 50} A score of four ACEs is associated with a seven-fold increase in alcoholism and doubles the risk of cancer,⁵¹ and is associated with a 32-times increase in learning/behavior problems as well as obesity.⁵²

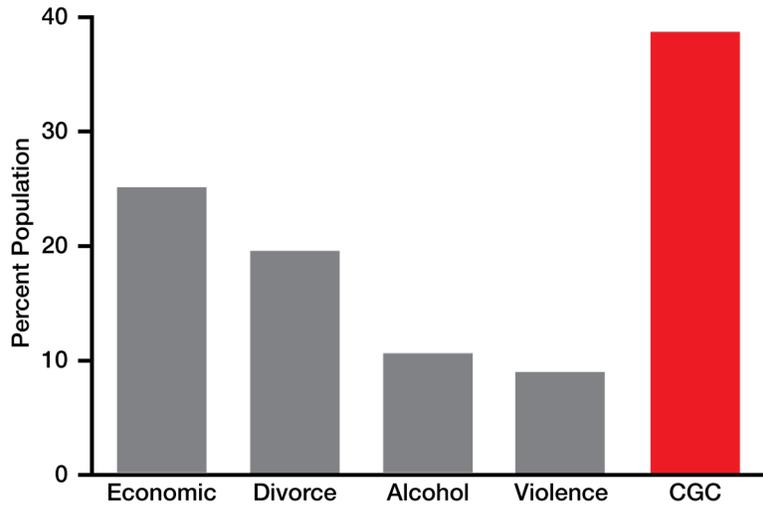


Figure 6. Prevalence of the four most common ACEs compared to the percent of CGC victims and those at risk in the US adult population.^{vii}

Compared to the prevalence of the most commonly experienced ACEs included in the ACE questionnaire (economic hardship, parental divorce, living with anyone who had an alcohol problem, or witnessing violence),⁵³ CGC trumps them all [Figure 6].

Incorporating CGC into Current ACE questionnaires

A group of ACE researchers stated in 2018, “Currently, there is no validated tool to screen for ACEs exposure in childhood.”⁵⁴ A recent study aimed at improving and validating the ACE questionnaire stated that the original version was “not formulated by any systematic process, and there is much reason to believe it could be improved,” especially “in their prediction of health outcomes by adding some additional widely recognized childhood adversities.”⁵⁵ Many other researchers have proposed improvements to the original 1998 ACE questionnaire,^{56 57} and have begun the task of validating the instrument.^{viii} The *ACES Connection* website resource section elaborated upon the adaptation and expansion of the original questionnaire:

Subsequent ACE surveys include racism, witnessing violence outside the home, bullying, spanking, losing a parent to deportation, living in an unsafe neighborhood, and involvement with the foster care system. Other types of childhood adversity can also include being homeless, living in a war zone, being an immigrant, moving many times, witnessing a sibling being abused, witnessing a father or other caregiver or extended family member being abused, involvement with the criminal justice system, attending a school that enforces a zero-tolerance discipline policy, etc.⁵⁸

The CDC’s 2018 11-question Behavioral Risk Factor Surveillance System (BRFSS) questionnaire has three questions concerning sexual abuse⁵⁹ (but none covering CGC) while the original 1998

^{vii} Calculation: About 75% (~34% of all adults) of U.S. men are MCGC victims (whqlibdoc.who.int/publications/2007/9789241596169_eng.pdf) PLUS the estimated 513,000 (~1.7%) women at risk for FCGC (equalitynow.org/fgm_in_the_us_learn_more), PLUS ~1.6% of all children who are born intersex (intersexequality.com/how-common-is-intersex-in-humans) and presumably all at risk, TOTALS ~38.3%.

^{viii} Note to researchers: CGC can be verified by physical examination, not so with other ACEs that are susceptible to recall bias. MCGC can be adequately assessed in studies without a physical examination using a 3-part self-report survey question. See the example used in this study: https://www.researchgate.net/publication/270190401_Alexithymia_and_Circumcision_Trauma_A_Preliminary_Inv estigation

ACE 10-question questionnaire has one.⁶⁰ This indicates an appropriate shift toward a greater emphasis on sexual abuses. Furthermore, the expanded Adverse Childhood Experiences International Questionnaire (ACE-IQ) has 18 questions, indicating that the original ACE questionnaire is not only adaptive but not yet standardized.⁶¹

Proposed solution

Intact America proposes a gender-neutral solution to improve the ACE questionnaire so it will better represent the childhood trauma spectrum. Modifying *Question #3* in the standard 10-item questionnaire (the only question that covers sexual abuse) would maintain the existing 10-point questionnaire and scoring system by appending:

Did an adult or person at least 5 years older than you ever: Touch or fondle you or made you touch their body in a sexual way, OR Attempt or actually have oral, anal, or vaginal intercourse with you, OR Surgically alter your genitals or circumcise you at birth or later?
--

To promote this change, Intact America has launched a companion website appropriately named AdverseChildhoodExperiences.net to disseminate this proposal, provide an auto-scoring online quiz and a mobile app employing our proposed change, and provide ACEs resources.

Conclusion

Incorporating CGC into ACE questionnaires should be seriously considered by researchers—especially those working on survey validation. Doing so would capture a major psychological, sexual, and physical trauma of a large portion of the population that occurred during a vulnerable age, thereby creating a superior screening tool. And—just as with other ACEs—methods for prevention should be examined.

Acknowledgment

The authors wish to acknowledge Caitlyn Rhorer for her keen insight and prompt editorial participation.

References

- ¹ The Adverse Childhood Experiences (ACE) Study. Centers for Disease Control and Prevention. Retrieved March 10, 2017 from: <https://www.cdc.gov/violenceprevention/acestudy/>
- ² Sorrells ML, Snyder ML, Reiss MD, Eden C, Milos MF, Wilcox N, Van Howe RS. Fine-touch pressure thresholds in the adult penis. *BJU Int.* 2007;99:864–869.
- ³ Bollinger D. Adding insult to injury: Acquisition of erectile dysfunction from circumcision. 2011. Retrieved March 10, 2017 from: https://www.researchgate.net/publication/322056383_Adding_Insult_to_Injury_Acquisition_of_Erectile_Dysfunction_from_Circumcision
- ⁴ Gollaher D, *Circumcision: A history of the world's most controversial surgery.* New York: Basic Books. 2000. p. 100.
- ⁵ Gairdner D. The fate of the foreskin: a study of circumcision. *Br Med J.* 1949;2:1433–7.
- ⁶ Anand KJ, Scalzo FM. Can adverse neonatal experiences alter brain development and subsequent behavior? *Biol Neonate.* 2000;77(2):69–82.
- ⁷ Intact America. Qualtrics Research Team public opinion survey, (private dataset) 2018.
- ⁸ Glover E. The 'screening' function of traumatic memories. *Int J Psychoanal* 1929; 10:90–93.
- ⁹ Duerden EG, Grunau RE, Guo T, Foong J, Pearson A, et al. Early procedural pain is associated with regionally-specific alterations in thalamic development in preterm neonates. *Journal of Neuroscience,* 2018;38(4):878–886.
- ¹⁰ Dunn EC, Soare TW, Zhu Y, Simpkin AJ, Suderman MJ, Klengel T, Andrew Smith A, Ressler KJ, Relton CL. Sensitive periods for the effect of childhood adversity on DNA methylation: Results from a prospective, longitudinal study. *Biol Psychiatry.* 2019;85(10):838–849.
- ¹¹ Immerman RS, Mackey WC. A proposed relationship between circumcision and neural reorganization. *Journal of Genetic Psychology,* 1998;159.3:367–378.
- ¹² Taddio A, Katz J, Ilersich AL, Koren G. Effect of neonatal circumcision on pain response during subsequent routine vaccination. *Lancet.* 1997;349(9052):599–603.
- ¹³ Bollinger D. Normal versus cut: Final psychological score, 100–0. Retrieved March 10, 2017 from: [https://www.researchgate.net/publication/321837425_Normal_versus_Cut_-_Final_Psychological_score_100-0.](https://www.researchgate.net/publication/321837425_Normal_versus_Cut_-_Final_Psychological_score_100-0)
- ¹⁴ Bollinger D, Van Howe RS. Alexithymia and circumcision trauma: A preliminary investigation. *Int J Men's Health.* 2011;10(2):184–195.
- ¹⁵ Bermond B, Moormann PP, Albach F, van Dijke A. Impact of severe childhood sexual abuse on the development of alexithymia in adulthood. *Psychother Psychosom.* 2008;77:260–262.
- ¹⁶ Hahn AM, Simons RM, Simons JS. Childhood maltreatment and sexual risk taking: The mediating role of alexithymia. *Arch Sex Behav.* 2016;45(1):53–62.
- ¹⁷ Smith BW, Dalen J, Wiggins K, Tooley E, Christopher P, Bernard J. The brief resilience scale: Assessing the ability to bounce back. *Int J Behav Med.* 2008;15:194–200.
- ¹⁸ Cansever G. Psychological effects of circumcision. *British Journal of Medical Psychology,* 1965;38,321–331.
- ¹⁹ Bollinger D, Van Howe RS. Alexithymia and circumcision trauma: A preliminary investigation. *Int J Men's Health.* 2011;10(2):184–195.
- ¹⁹ Bermond B, Moormann PP, Albach F, van Dijke A. Impact of severe childhood sexual abuse on the development of alexithymia in adulthood. *Psychother Psychosom.* 2008;77:260–262.
- ¹⁹ Hahn AM, Simons RM, Simons JS. Childhood maltreatment and sexual risk taking: The mediating role of alexithymia. *Arch Sex Behav.* 2016;45(1):53–62.
- ¹⁹ Smith BW, Dalen J, Wiggins K, Tooley E, Christopher P, Bernard J. The brief resilience scale: Assessing the ability to bounce back. *Int J Behav Med.* 2008;15:194–200.
- ¹⁹ Cansever G. Psychological effects of circumcision. *British Journal of Medical Psychology,* 1965;38,321–331.
- ¹⁹ Fang L, Chuang DM, Lee Y. Adverse childhood experiences, gender, and HIV risk behaviors: Results from a population-based sample. *Prev Med Rep.* 2016;4:113–120.

-
- ²⁰ Blum R, Li M, Naranjo G. Measuring adverse child experiences among young adolescents globally: Relationships with depressive symptoms and violence perpetration. *J Adolesc Health*. <https://doi.org/10.1016/j.jadohealth.2019.01.020>. [Epub ahead of print].
- ²¹ Shore AN. All our sons: The developmental neurobiology and neuroendocrinology of boys at risk. *Inf Mental Health J*, 2017;38(1):15–52.
- ²² Kraemer S. The fragile male. *BMJ*. 2000;321:1609–1612.
- ²³ Narvaez D. Be worried about boys, especially baby boys. *Psychology Today*. Retrieved March 10, 2017 from: <https://www.psychologytoday.com/us/blog/moral-landscapes/201701/be-worried-about-boys-especially-baby-boys>
- ²⁴ McKelvey LM, Conners Edge NA, Fitzgerald S, Kraleti S, Whiteside-Mansell L. Adverse childhood experiences: Screening and health in children from birth to age 5. *Families, Systems, & Health*. 2017;35(4):420–429.
- ²⁵ Bright MA, Knapp C, Hinojosa MS, Alford S, Bonner B. The comorbidity of physical, mental, and developmental conditions associated with childhood adversity: A population based study. *Maternal and Child Health Journal*. 2016;20(4):843–853.
- ²⁶ Elhaik E. Adversarial childhood events are associated with Sudden Infant Death Syndrome (SIDS): An ecological study. *bioRxiv*. preprint first posted online Jun. 7, 2018.
- ²⁷ Brady-Fryer B, Wiebe N, Lander JA. Pain relief for neonatal circumcision. *Cochrane Database of Systematic Reviews 2004*. Issue 3. Art. No.: CD004217.
- ²⁸ Anand KJS, for the International Evidence-Based Group for Neonatal Pain. Consensus statement for the prevention and management of pain in the newborn. *Arch Pediatr Adolesc Med*. 2001;155:173–180.
- ²⁹ Goksan S, Hartley C, Emery F, Cockrill N, Poorun R, Moultrie F, Rogers R, Campbell J, Sanders M, Adams E, Clare S, Jenkinson M, Tracey I, Slater R. fMRI reveals neural activity overlap between adult and infant pain. *eLife*. 2015;4:e06356
- ³⁰ Porter FL, Wolf CM, Miller JP. Procedural pain in newborn infants: The influence of intensity and development. *Pediatrics*. 1999;104(1), electronic version.
- ³¹ Porter FL, Wolf CM, Gold J, Lotsoff D, Miller JP. Pain and pain management in newborn infants: A survey of physicians and nurses. *Pediatrics*. 1997;100:626.
- ³² Lander J, Brady-Fryer B, Metcalfe JB, Nazarali S, Muttitt S. Comparison of ring block, dorsal penile nerve block, and topical anesthesia for neonatal circumcision. *JAMA*. 1997;278:2158–2162.
- ³³ Brummelte S, Chau C, Cepeda IA, Degenhardt A, Weinberg J, Synnes AR, Grunau RE. Cortisol levels in former preterm children at school age are predicted by neonatal procedural pain-related stress. *Psychoneuroendocrinology*. 2015;0:151–163.
- ³⁴ Carrion VG, Weems CF, Richert K, Hoffman BC, Reiss AL. Decreased prefrontal cortical volume associated with increased bedtime cortisol in traumatized youth. *Biol Psychiatry*. 2010;68(5):491–493.
- ³⁵ Harris NB. “The deepest well: Healing the long-term effects of childhood adversity.” New York: Houghton Mifflin Harcourt Publishing Company, 2018. p58.
- ³⁶ Boyle GJ, Goldman R, Svoboda JS, Fernandez E. Male circumcision: Pain, trauma and psychosexual sequelae. *J Health Psychology*. 2002;7(3):329–343.
- ³⁷ Dube SR, Anda RF, Whitfield CL, Brown DW, Felitti VJ, Dong M, Giles WH. Long-term consequences of childhood sexual abuse by gender of victim. *Am J Prev Med*. 2005;28(5):430–438.
- ³⁸ Frisch M, Simonsen J. Ritual circumcision and risk of autism spectrum disorder in 0- to 9-year-old boys: National cohort study in Denmark. *J R Soc Med*. 2015;108(7):266–279.
- ³⁹ Zoske J. Male circumcision: A gender perspective. *The Journal of Men’s Studies*. 1998;6(2):189–208.
- ⁴⁰ Morris D. *Intimate behavior*. New York: Bantam Books, 1973. p 243.
- ⁴¹ Male circumcision: Global trends and determinants of prevalence, safety and acceptability". World Health Organization. 2007. Retrieved March 2017 from: http://whqlibdoc.who.int/publications/2007/9789241596169_eng.pdf
- ⁴² The Adverse Childhood Experiences (ACE) Study. Centers for Disease Control and Prevention. Retrieved March 10, 2017 from: <https://www.cdc.gov/violenceprevention/acestudy/>

-
- ⁴³ CDC Infographics. Retrieved March 10, 2017 from: http://vetoviolence.cdc.gov/apps/phl/resource_center_infographic.html
- ⁴⁴ Blum R, Li M, Naranjo G. Measuring adverse child experiences among young adolescents globally: Relationships with depressive symptoms and violence perpetration. *J Adolesc Health*. <https://doi.org/10.1016/j.jadohealth.2019.01.020>. [Epub ahead of print].
- ⁴⁵ Felitti VJ, Anda RF, Nordenberg D, Williamson DF, Spitz AM, Edwards V, Koss MP, Marks JS: Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. *Am J Prev*. 1998;14(4):245–258.
- ⁴⁶ Dube SR, Anda RF, Whitfield CL, Brown DW, Felitti VJ, Dong M, Giles WH. Long-term consequences of childhood sexual abuse by gender of victim. *Am J Prev Med*. 2005;28(5):430–438.
- ⁴⁷ Fang L, Chuang DM, Lee Y. Adverse childhood experiences, gender, and HIV risk behaviors: Results from a population-based sample. *Prev Med Rep*. 2016;4:113–120.
- ⁴⁸ Dube SR, Anda RF, Whitfield CL, Brown DW, Felitti VJ, Dong M, Giles WH. Long-term consequences of childhood sexual abuse by gender of the victim. *Am J Prev Med*. 2005;28(5):430–438.
- ⁴⁹ Felitti VJ, Anda RF, Nordenberg D, Williamson DF, Spitz AM, Edwards V, Koss MP, Marks JS. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. *Am J Prev*. 1998;14(4):245–258.
- ⁵⁰ Pretty C, O’Leary DD, Cairney J, Wade TJ. Adverse childhood experiences and the cardiovascular health of children: a cross-sectional study. *BMC Pediatrics*. 2013;13:208.
- ⁵¹ Brooks D. “The Psych Approach.” *The New York Times*. September 27, 2012 [2].
- ⁵² Burke NJ, Hellman JL, Scott BG, Weems CF, Carrion VG. The impact of adverse childhood experiences on an urban pediatric population. *Child Abuse Negl*. 2011;35(6):408–413.
- ⁵³ Sacks V, Murphey D, Moore K. Adverse childhood experiences: National and state level prevalence. *Child Trends*. 2014–28. Table 2.
- ⁵⁴ Koita K, Long D, Hessler D, Benson M, Daley K, Bucci M, Thakur N, Harris NB. Development and implementation of a pediatric adverse childhood experiences (ACEs) and other determinants of health questionnaire in the pediatric medical home: A pilot study. *PLOS ONE*, 2018;1–16.
- ⁵⁵ Finkelhor D, Shattuck A, Turner H, Hamby S. A revised inventory of Adverse Childhood Experiences. *Child Abuse Negl*. 2015;48:13–21.
- ⁵⁶ Finkelhor D, Shattuck A, Turner H, Hamby S. Improving the Adverse Childhood Experiences Study scale. *JAMA Pediatr*. 2013;167(1):70–75
- ⁵⁷ Cronholm PF, Forke CM, Wade R, Bair-Merritt MH, Davis M, Harkins-Schwarz M, Pachter LM, Fein JA. Adverse childhood experiences: Expanding the concept of adversity. *Am J Prev Med*. 2015;49(3):354–361.
- ⁵⁸ ACES Connection. Retrieved March 10, 2017 from: <https://www.acesconnection.com/g/resource-center/blog/resource-list-extended-aces-surveys>
- ⁵⁹ Merrick MT, Ford DC, Ports KA, Guinn AS. Prevalence of Adverse Childhood Experiences from the 2011–2014 Behavioral Risk Factor Surveillance System in 23 states. *JAMA*. 2018 online edition.
- ⁶⁰ Felitti VJ, Anda RF, Nordenberg D, Williamson DF, Spitz AM, Edwards V, Koss MP, Marks JS: Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. *Am J Prev*. 1998;14(4):245–258.
- ⁶¹ Adverse Childhood Experiences International Questionnaire (ACE-IQ). *World Health Organization*. Retrieved March 10, 2017 from: http://www.who.int/violence_injury_prevention/violence/activities/adverse_childhood_experiences/en/