

**Snakes, Spiders, Strangers:
How the Evolved Fear of Strangers may Misdirect Efforts to
Protect Children from Harm**

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Case Studies

The men began to kill the children; little ones, bigger ones, they killed many of them.

They tried to run away but [the Karawetari raiders] caught them, and struck them with bows.

—Helen Valero and Ettore Biocca (1970), *Yanoama: The narrative of a white girl kidnapped by Amazonian Indians.*

Eleven-year old Helen Valero was abducted by Yanomamo warriors while working as a Christian missionary near the Amazon in 1937. During her years of captivity, she witnessed male raiders of rival tribal groups targeting infants and children, especially boys. On one such occasion, Valero recalls a woman's pleas to save a male infant, "'Don't kill him,' shouted the other women, 'he's your son. The mother was with you and she ran away when she was already pregnant with this child. He's one of your sons!'" The raiders paused to weigh this possibility, then replied, "'No,' the men replied, 'he's [another group's] child. It's too long since she ran away from us'" (Valero & Biocca, 1970, pp. 34-35). The man then seized the baby by his feet and bashed him against the rocks.

Following her initial kidnapping, Valero was abducted once again by raiders from yet another village, where she was forced to marry and provide children for her new captors. Before she ultimately escaped, Valero witnessed frequent, violent intertribal raids in which men and children were regularly murdered and women were kidnapped as a sexual commodity. For the traditional Yanomamo, whose hunter-gatherer lifestyle likely resembles that of ancestral humans, the appearance of a strange male signaled imminent and dire peril.

Thousands of miles to the north in a contemporary urban metropolis, a 9-year-old boy named Izzy Skenazy asked his mother whether he could ride the subway home from Manhattan by himself (Skenazy, 2008). Lenore Skenazy, who would subsequently be dubbed “the worst mother in the world,” readily agreed, and later wrote about Izzy’s adventure in her weekly newspaper column. Within hours, Skenazy began receiving a torrent of outraged responses from all over the world. Many parents even accused her of criminal child neglect (Celizic, 2008). The public uproar over her decision to permit her young son to ride the subway alone was so intense that soon Skenazy was giving internationally broadcast television interviews. Her defense was straightforward: in contemporary New York City, parents’ fear of murderous strangers waiting to pounce on their children is based on hysteria. In reality, her young son, traveling alone among strangers, was safe.

‘Stranger danger’ is a widely used term to describe the perceived threats strangers pose towards children. Critics of contemporary stranger danger preoccupations typically blame the mass media for opportunistically sensationalizing incidents of child assault by strangers (e.g. Skenazy, 2008). Although we agree that the media influences public perceptions of stranger danger, the question remains: why do stranger abuse scenarios, rather than far more likely and equally severe threats to children, garner so much attention and concern from contemporary audiences? In this chapter, we will argue that stranger fear is an evolved predisposition that increased fitness over the course of human history. In modern, developed societies, however, the same native bias against strangers may obscure perception of the greater threat of child harm posed by familiar peers, acquaintances, friends and kin.

Literature Review

Stranger abductions and homicides account for less than 1% of the actual harm that befalls children in the United States (Center for Disease Control and Prevention, 1982.) By contrast, automobile accidents account for 41% of all non-natural child deaths each year (UNICEF, 2001). Yet despite the drastic differences in the actual frequency of these potential sources of harm to children, parents worry over them equivalently (Stickler, Salter, Broughton, Alario, 1991). In fact, several surveys report that stranger violence and abduction are the primary concern for parents (Kantrowitz, 1997; Kidscape, 1993). This emotional disconnect between the actual versus perceived risk posed by strangers toward children may stem from an innate human aversion which evolved in response to stranger violence in the ancestral past.

In the present chapter, we review evidence that strangers, particularly adult males aligned with out-groups, posed sufficient risk over evolutionary time to warrant the evolution of a “prepared” fear. Unlike prepared fears of snakes or spiders, which typically appear later in life after initial learning (Seligman, 1971), *stranger anxiety* emerges spontaneously. Stranger anxiety, also known as ‘*stranger wariness*’, ‘*fear of strangers*’ or ‘*8-month anxiety*’, is a developmental universal characterized by a marked increase in fearful reactions toward strangers, such as withdrawal, crying on sight and gaze aversion, during the second half of the first year of life (Campos, Emde, Gaensbauer & Henderson, 1975; Emde, Gaensbauer, & Harmon, 1976; Ricciuti, 1974; Skarin, 1977; Schaffer, 1966; Schaffer & Emerson, 1964; Sroufe, 1977; Tennes & Lampl, 1964; Waters, Matas, & Sroufe, 1975).¹ Infants who display stranger anxiety often cry

¹ At one time, most psychologists considered stranger anxiety a developmental milestone reflecting the child’s achievement of normal cognitive, social and emotional development (Spritz, 1965). Nevertheless, some researchers challenged the very existence

out and crawl toward their caregivers, behaviors that presumably defended them in the ancestral past against infanticidal attacks (Feinman, 1980). Such attacks have been documented in modern hunter-gatherer societies such as the Ache (Hill & Hurtado, 1996) and the Yanomamo (Chagnon, 1983; Valero & Biocca, 1970). These infanticidal behaviors are phenotypically ancient. Adult males from many non-human primate species, for example, target out-group infants (Goodall, 1977; Hrdy, 1977; Hrdy, 1984; van Schaik & Kappeler, 1997; Watts, Muller, Amsler, Mbabazi & Mitani, 2006).

Whereas infants demonstrate their fear of strangers overtly, adults often exhibit their aversion implicitly (Amodio, Harmon-Jones, Devine, Curtin, Hartley, & Covert, 2004; Devine, 1989; Navarrete, Olsson, Ho, Mendes, Thomsen, & Sidanius, 2009). Stranger anxiety may therefore be viewed as the onset of a psychological tendency which persists over the entire lifespan. Far from disappearing after the first year of life, stranger aversion seems to manifest in different ways throughout ontogeny, increasingly tempered by habituation and executive inhibition. One contemporary expression of this enduring bias may be the exaggerated concern commonly referenced as ‘stranger danger’.

We begin with an overview of infant stranger anxiety research, followed by a brief review of research on stranger aversion over childhood and into adulthood. We also review the evidence that strangers were sufficiently deleterious to our ancestors’ genetic fitness to have posed an adaptive problem fostering an evolved solution. We next discuss the realities of stranger threat in the modern era, and examine the possibility that our innate biases against

of stranger anxiety because in certain contexts infants usually react positively towards strangers (Rheingold & Eckerman, 1973). However, when variables such as the amount of time spent interacting with the stranger before their approach, the proximity of the caregiver, and the gender of the stranger are considered, the behavioral aversion toward strangers is apparent (Sroufe, 1977).

strangers may ironically undermine child protection today. We end by reviewing programs which may assist parents and policy makers to perceive the actual hazards facing children in the present environment, rather than those we have evolved naturally to fear.

Infant Stranger Anxiety

Humans everywhere are born with a firm dislike of stimuli such as hunger, cold, pain, and loud noises, whereas other aversions manifest later. Fearful reactions, for instance, often develop just when the relevant danger would first be encountered (Marks, 1987). A good example of this phenomenon is the fear of heights, the appearance of which roughly coincides with the newfound capacity to crawl. Bertenthal, Campos and Caplovitz (1983) found that within 41 days of initial crawling, 80% of infants refuse to cross an apparent visual cliff despite encouragement to do so by their mothers. Before this time, infants exhibit no distress when perched over the illusion of a cliff and willingly crawl over the apparent edge. Similarly, stranger anxiety may emerge with the fear of heights at around the eighth month because the capacity to crawl allows infants to move away from caregivers and toward strangers or steep drops, both of which posed significant survival threats in the ancestral environment (Heerwagen & Orians, 2002; Marks & Nesse, 1994). In both cases, fear motivates infants to alert caregivers and to withdraw from threat, thereby increasing the child's odds of survival and subsequent reproductive success. In this manner, natural selection may have favored the proliferation of psychological traits that prepared our ancestors to begin to fear strangers at an early age.

Novelty and size of the stranger alone do not predict infants' fearful reactions. The age, gender, and distance of the stranger all mediate the infant's responses. Stranger anxiety

increases as the stranger approaches, as their speed of approach increases, and when the stranger is male (Feinman, 1980). Infants also exhibit exaggeratedly fearful reactions towards strangers when their caregivers are farther away, even by a few feet (Morgan & Ricciuti, 1969). Although strange adults elicit fear, infants respond positively to unfamiliar children (Lewis & Brooks, 1974). Likewise, adult faces elicit more gaze aversion than child faces presented at an equivalent, typically adult height (Bigelow, MacLean, Wood & Smith, 1990). Theories of stranger anxiety based solely on stimulus familiarity would predict that child faces presented at adult height would elicit more anxiety, not less, due to their inherent bizarreness.

Infants are more fearful of male strangers than female strangers (Benjamin, 1961; Morgan & Ricciuti, 1969; Shaffran & Decarie, 1973; Skarin, 1977). Males are typically taller, but incidental height discrepancies fail to account for infants' disproportionately fearful reactions towards male strangers, as taller males do not evoke more fear than shorter ones (Weinraub & Putney, 1978). Infants' greater fear of adult males cannot be explained by their simple lack of experience with male adults, because infants raised by male caregivers still react with greater anxiety toward male strangers than they do female strangers (Lamb, Hwang, Frodi, & Frodi, 1982).

Noticing that adult male strangers evoked the greatest fear, Feinman (1980) first argued that infants respond to strangers as if stranger anxiety were a psychological adaptation designed to protect them from out-group strangers. Infants' fear increases with the danger a stranger would actually pose. Moreover, behaviors typical of stranger anxiety would help provide infants with protection from strangers. As strangers near, infants typically seek closer proximity to the caregiver or cry for their attention (Bretherton & Ainsworth, 1974; Skarin, 1977). Given their

physical helplessness, soliciting aid from caregivers constitutes infants' only defense (Bowlby, 1969).

Other evolutionary-minded researchers have also cited these factors to argue that stranger anxiety represents a true *ontogenetic adaptation*, one calibrated to protect infants from homicidal attacks by male strangers (Heerwagen & Orians, 2002; Hrdy, 1999; Marks, 1987; Marks & Nesse, 1994). The principal evidence posed by most previous evolutionary theorists that violent male strangers presented an adaptive problem (e.g. Marks & Nesse, 1994; Heerwagen & Orians, 2002) has been Daly and Wilson's (1988) finding that infants living with stepfathers are far more likely to be murdered than infants living with their biological fathers. However, stepparent perpetrators are, by definition, not strangers. Stranger anxiety disappears after mere minutes of exposure (Rheingold & Eckerman, 1973), yet the stepfathers in the Daly and Wilson data were cohabiting with the infants they killed. Stranger anxiety reactions are not elicited by familiar men, and therefore cannot protect infants from stepfathers. Consequently, Daly and Wilson's stepfather data do not pertain to hypotheses concerning the adaptive utility of stranger anxiety. Archeological, historical and anthropological approaches to stranger violence among humans, as well as comparative findings from non-human primate species, provide better evidence that strangers posed an adaptive threat.

Infanticide by strange males is commonplace throughout the animal world (van Schaik & Janson, 1997). Hrdy (1999) compares the prevalence of strange males committing infanticide across primate species with evidence gathered from the Ache Indians. Among this Paraguayan hunter-gatherer society, out-group male tribe members constituted the single greatest cause of mortality for children aged 4-14, accounting for 56% of deaths, and 16% of the deaths of children 0-3 years of age (Hill & Hurtado, 1989). History presents a gruesome litany of similar

cases; prehistory appears to have been even more fraught with intergroup bloodshed (see Keeley, 1997 and Komar, 2008 for reviews). During the nineteenth century, American soldiers were known to deliberately murder infants and children as part of the genocidal campaigns against native peoples (Churchill, 1998; Kane, 1999). Likewise, archeologists uncovered a mass grave containing nearly 500 bodies of children, men and women that had been murdered, scalped, and mutilated during a rival tribe's attack on their village in 1325 C.E. (Willey, 1990).

If out-group violence precipitated the evolution of stranger aversion, then out-group membership cues such as foreign accents, skin pigmentation or features might be expected to heighten fearful reactions.² In fact, infants do respond more fearfully towards strangers of differing race (Feinman, 1980). Kinzler, Dupoux, and Spelke (2007) also found that younger infants would rather look at people who previously spoke their native language, older infants are more likely to accept toys from native-speakers, and toddlers preferentially select native-language speakers as friends.³ Future research is needed to determine whether this preference for native speakers interacts with stranger anxiety to elicit more fearful reactions towards strangers with accents.

² Differences in skin pigmentation would have been exceedingly rare in the ancestral past, if they occurred at all. Encounters with other races today are an artifact of relatively recent technology. The accent data may therefore be more relevant to the conditions in which stranger anxiety evolved, as dialect shifts rapidly over time with group isolation and would have been a more plausibly encountered indicator of out-group status. However, distinctive modes of dress and appearance signaling group orientation may have also been common; racial skin and feature characteristics may be seen as a similar visual cue in this respect.

³ These findings do not necessarily indicate that babies are born afraid of all adults whose skin pigment or accent differs from their own, but only that when paired with a previously aversive factor, such as being a strange adult, novelty produces a more intensely negative reaction. For example, babies raised in families with diverse skin colors and accents would not be predicted to show increased fear of strangers with these characteristics.

In the context of intergroup conflict over disputed resources, killing out-group infants of either gender benefits the attacker by reducing the ability of the rival group to reconstitute or retaliate (Manson & Wrangham, 1991). Simultaneously, killing out-group infants increases the fertility of potential out-group females by ending the post-partum infertility brought on by lactation amenorrhea (Hrdy, 1984). Although killing out-group male infants decreases the numbers of future adult out-group male competitors, who typically play a larger role in retaliation and defense of resources, killing female infants suffers the drawback of squandering a future reproductive resource for out-group males and their kin. There is some evidence to support the notion that out-group males target young boys (including infants) to a greater degree than girls. For example, the Yanamomo of Brazil, renowned for frequent intertribal warfare and female abduction (Chagnon, 1983), have been observed to target boys to reduce the warrior population of opposing tribes (Valero & Biocca, 1970). In other primate species, chimpanzees and langurs have also been observed to target out-group male infants (Hamai, Nishida, Takasaki & Turner, 1992; Sommer, 1994; Watts, Muller, Amsler, Mbabazi & Mitani, 2006).

Thus, the male predisposition toward greater anxiety toward strange males may be a 'logical' selective response to a genuinely greater threat. Indeed, male infants do show more anxiety than female infants when confronted by a male stranger (Greenberg, Hillman & Grice, 1973; Morgan & Ricciuti, 1969; Shaffran & Decarie, 1973; Skarin, 1977). To be sure, females have also had much to fear from strange males, and infant girls display clear stranger anxiety toward strange males. However, if females tended to be abducted and impregnated by strange males rather than killed outright in the evolutionary past, then stranger attack would pose less of a drain on female reproductive fitness. For instance, in the mass grave site from 1325 C.E. mentioned previously, young women were underrepresented among the remains, suggesting they

were taken captive (Willey, 1990). The selective incentive to eliminate out-group male competitors and exploit out-group female fertility continues to hold for out-group children and adults. Indeed, even in adulthood, men display a heightened perception of male out-group members as threats (Neuberg, Kenrick, Maner, & Schaller, 2004; Williams & Mattingley, 2006).

Stranger Anxiety Beyond Infancy

The threats of violence posed by out-group members remained constant over our ancestors' lifecycles. If stranger anxiety reflects an adaptive reply to out-group violence, why should it disappear as infants enter their second year, or ever? Although any full treatment of these questions must consider a confluence of environmental and cognitive factors interacting in a formidably complex dynamic interplay, the basic explanation may be condensed to two fundamental processes: *habituation* and *executive inhibition*. Rather than end with the first year, stranger anxiety may instead express itself in increasingly subtle behaviors over development, as individuals grow increasingly habituated to encounters with strangers and as executive systems develop greater control over overtly negative displays.

In the context of stranger anxiety, *habituation* refers to the ameliorating influence of routinely innocuous encounters with strangers. In most modern, large-scale cultures, children observe strangers in great numbers, and parents typically socialize their children to be friendly with others and reassure them when they seem distressed. These experiences should help to ameliorate infants' natural inclination to withdraw from strangers. By the same logic, individuals exposed to fewer strangers over their lifespan should preserve their native aversion and display it more intensely. Indeed, the children of an isolated, small-scale traditional society

were found to exhibit a relatively extreme fear of strangers until the end of the second year (Konner, 1972), a full year longer than observed in highly populous cultures. Similarly, 3-year olds who had attended preschool, and thus gained more exposure to strangers, showed lower physiological stress responses (as measured by cortisol levels) at the approach of a stranger than children who had not attended preschool (Zimmermann & Stansbury, 2004). Infants' habituation to strangers may couple with their growing executive capacity to inhibit the expression of negative reactions as outwardly visible behaviors.

Executive inhibition refers to cognitive supervisory regulation of otherwise reflexive responses. The earliest forms of executive inhibition normally develop between 10 and 12 months (Diamond, 2006), at the same time that overt infant stranger anxiety reactions tend to dissipate. Executive processes inhibit reactions to difficult or novel situations when prepotent response tendencies are at odds with intended outcomes (Amodio et al., 2004; Botvinick, Cohen & Carter, 2004; Geary, 2005; Greene, Nystrom, Engell, Darley & Cohen, 2004; Miller & Cohen, 2001; Norman & Shallice, 1986). Executive inhibition operates across domains of human cognition involving goals (Bargh, 1997; Bjorklund & Harnishferger, 1995; Geary, 2005; Monsell, 2003), including social contexts related to reputation management and intergroup bias (Adolphs, 1999; Amodio et al., 2004; Devine, 1989; Lieberman, 2007; Wheeler & Fiske, 2005). Directly relating executive control with masking stranger anxiety, Hill-Soderlund and Braungrat-Rieker (2007) found that infants who display stranger anxiety of greater severity and duration later show impoverished executive inhibition as 5-year olds. Executive inhibition may explain the transition from the blatantly observable fear of strangers in infancy to an increasingly clandestine fear of strangers, particularly out-group male strangers, detected in later stages of development (e.g., 'shyness').

If executive inhibition curtails the outwardly fearful behaviors characteristic of stranger anxiety by the end of the child's first year, children should show implicit signs of persisting stranger fear belying their outward calm. Although few studies have investigated covert stranger anxiety reactions beyond infancy, implicit indicators of stranger anxiety have been reported to endure well beyond the first year. In a longitudinal study of children at 10 and 25 months, the amount of fearful behaviors and increased heart rate displayed in 10-month old infants during a stranger's approach were found to predict the degree of stranger shyness subsequently exhibited as toddlers at 25 months (Andersson, Bohlin, & Hagekull, 1999). This finding suggests that stranger shyness at age 2 reflects a muted version of the child's previous infant stranger anxiety. In addition, 3-year olds habituated to strangers through preschool attendance continue to display a significant increase in cortisol, a hormonal measure of stress and negative affect, during a stranger's approach (Zimmermann & Stansbury, 2004). In a comparison of implicit and explicit negative attitudes toward out-group members among 6-year-olds, 10-year-olds and adults, implicit aversion was constant for all three groups, but self-reported aversion decreased with age (Baron & Banaji, 2005). In this fashion, the executive capacity for self-regulation steadily improves as children transition to adulthood (Davidson, Amso, Anderson, & Diamond, 2006).

Aversion to out-group males, first displayed in infant stranger anxiety reactions, persists into adulthood. Adopting a classic prepared fear paradigm previously used to study automatic reactions to stimuli such as snakes and spiders (see Seligman, 1971 for review), Navarrete and colleagues (2009; also see Olsson, Ebert, Banaji, & Phelps, 2005) paired faces of racial in-group versus out-group male and female strangers with mild but unpleasant electric shocks. Participants subsequent implicit fear reactions (measured through skin conductance) endured longer when the paired face belonged to male out-group members. In a related study of fear-

primed participants' tendencies to attribute anger to emotionally neutral out-group faces of both genders, participants attributed more anger to out-group males rather than out-group females, with male participants attributing more anger than female participants (Neuberg et al., 2004). Similarly, Williams and Mattingley (2006) found that although both genders are better at detecting an angry male face than an angry female face in an array of distracting neutral faces, male participants were significantly faster at doing so, suggesting a greater covert vigilance toward male threats. These adult data compliment the previous finding that male infants find male strangers more intensely threatening than female infants, presumably for the same reason: males are more likely than females to fall victim to violence inflicted by strange males, a contemporary trend which probably persisted over the course of our ancestral history (Daly & Wilson, 1988).

In addition to being unfamiliar, strangers from racial out-groups further cue lack of kinship by their novel appearance. Recalling that infants exhibit more acute fear of strangers of differing accent or appearance, adults should be expected to share, but inhibit, this negative reflex. Wheeler and Fiske (2005) manipulated participants' task goals during exposure to out-group images and stereotypically associated words, monitoring amygdala responses with fMRI to gauge the arousal of automatic threat reactions (also see Macrae, Bodenhausen, Milne, Thorn & Castelli, 1997). They found that "controlled efforts to inhibit expression of automatically activated stereotyped [negative] thoughts differentiate observers who display prejudice and discrimination from those who do not" (p. 57; also see Devine, 1989). In another study, Amodio and colleagues (2004) presented White participants with an artifact identification task in which a Black or White male face was followed by an image of a handgun or a hand tool. Preceding tool images with Black faces increased the chance of incorrectly identifying the tools as weapons.

The authors correlated participants' artifact choices with electroencephalogram recordings which monitored activation of executive areas, finding that participants who compensated for their automatic race bias in order to choose correctly displayed an enhanced signal for executive control. Although these findings relate more directly to the inhibition of prejudice rather than fear reactions per se, they demonstrate that executive control inhibits prepotent negative responses to strange members of racial out-groups.

To summarize, humans are born inclined to fear strangers, particularly strange males aligned with out-groups, because this predisposition would have encouraged adaptive responses to the rampant stranger violence of the ancestral past. The evidence linking stranger aversion throughout the lifespan is also compelling, suggesting that children's stranger anxiety and adults' aversion to strangers arise via a shared mechanism. This largely unconscious, reflexive tendency toward fear and suspicion may distort parents' perceptions of the danger posed to their children by strangers today.

Public Perceptions

Humans of all ages appear to possess an inborn aversion to strangers which may have contributed to our ancestors' survival and reproduction. But is it still useful to fear strangers in developed societies, or has this native predisposition fallen out of date? Evolutionary psychologists refer to mismatches between inborn predilections and modern conditions as cases of *disequilibrium*. Consider our innate, universal preference for rich foods. For most of human history, and in many parts of the world today, calories were scarce and feasting was a wholesome activity when possible. In modern developed societies, the exorbitant cravings for fat and sugar

which formerly prompted adaptive eating behaviors contribute to serious health problems. Stranger aversion may similarly represent a case of at least partial disequilibrium.⁴ In what follows, we review current statistics on child abduction, violence and sexual abuse to assess the risks posed by strangers.

In many surveys, parents report kidnapping as the most worrisome stranger threat scenario (Kidscape, 1993; Stickler, Salter, Broughton & Alario, 1991). Children also cite strange intruders (e.g. kidnappers) as their most common nighttime fear (Muris, Merckelbach, Ollendick, King & Bogie, 2001). Concerns regarding stranger abduction are disproportional to the frequency of this type of crime. According to the U.S. Department of Justice (Finkelhor, Hammer & Sedlak, 2002), there were 115 child abductions in 1999 in the United States which met the definition of a “stereotypical kidnapping” in which a stranger (or slight acquaintance) killed, detained overnight, held for ransom, or intended to keep a child permanently. Only 20 of these child abductees were under the age of 5. This means that the odds of a child under 5 being kidnapped by a stranger in 1999 were 1 in 1,157,848. For children between the ages of 6 and 11, the odds of being kidnapped were 1 in 954,348. The odds of stranger kidnapping were slightly less astronomical for older children: 1 in 265,096 for children between the ages of 12 and 14, and 1 in 596,467 for teenagers between 15 and 17.⁵ During the same period, an estimated 58,200 children were abducted by family or adult acquaintances, although these kidnappings were

⁴ These data and interpretations apply only to Western societies such as the United States and the United Kingdom. Stranger aversion may still be warranted for much of the remainder of the world’s population.

⁵ These probabilities were extrapolated from the U.S. Department of Justice (2002) figures by multiplying the total population of children in 1999 by the percentage of children in each age group, then dividing the number of children in each age group by the number of abductees in each age group.

usually less severe, lasting less than a day and not involving homicide or ransom.⁶ Ironically, then, the most prototypical fear held by parents and children today is also among the least likely to occur.

Stranger violence ranks as a major concern for 54% of U.S. parents of children under the age of 4 years (Kantrowitz, 1997). Again, the concern greatly outweighs the risk. According to the U.S. Department of Justice (Durose, Harlow, Langan, Motivans, Rantala & Smith, 2005), only 19% of the victims of stranger violence were under the age of 18, with the large majority of these child victims over the age of 13. Conversely, 76% of stranger violence victims were adults between the ages of 18 and 54. Of the 2,362 victims murdered by strangers in 2002, only 2% were under the age of 13 and only 6% were between the ages of 13 and 17. Although the most frequent type of criminal violence is stranger violence, which accounted for nearly half (46.1%) of all fatal and nonfatal violence between 1998 and 2002, practically all of the victims of these crimes were adults. Strangers today may be dangerously violent, but rarely towards children.

Child sexual abuse presents a somewhat more realistic stranger related hazard than violence or kidnapping. Meta-analyses reveal that roughly 20% of female and 7% of male children in the United States are sexually abused (Bolen & Scannapieco, 1999). Despite these figures, however, strangers are much less likely to sexually abuse children than familiar adults (Finkelhor, 1994). According to a survey of state correctional facilities, one third of the inmates charged with child sexual abuse had molested their own children, while half had a prior relationship with their victim as a friend, acquaintance, or relative; only 1 in 7 inmates had been a stranger to their victim (Greenfeld, 1996). Other studies affirm the general conclusion that

⁶ In 21% of these cases, police recovered the children in less than an hour (Finkelhor, Hammer & Sedlak, 2002).

perpetrators of child sexual abuse are overwhelmingly known by their victims, with 70% to 90% of abuse perpetrated by familiar persons (see Finkelhor, 1994, for a review).

Although strangers are less likely to sexually assault children than familiar adults or peers, sexual abuse is the most prevalent threat strangers pose to children today. In a survey of 2,420 children conducted in the United Kingdom, 41% of reported sexual abuses were attributed to strangers (Gallagher, Bradford & Pease, 2002). This amounts to 9% of the total number of children surveyed reporting one or more incidents of sexual abuse by a stranger. This figure may have been inflated in this study because sexual abuse was broadly defined to include indecent exposure, which comprised 44% of the reports. The remaining children recollected more serious acts, such as strangers attempting to lure the child to accompany them elsewhere (28%), touching the child (18%), attempting to touch the child (14%), attempting to make the child touch them (5%), convincing the child to accompany them elsewhere (3%), and making the child touch them (1%). Of the total children interviewed, only 1.7% reported stranger abuse involving physical contact. In another UK study that employed a narrower definition of sexual abuse, 4% of British children reported being abused in some fashion by a stranger (Cawson, Wattam, Brooker, & Kelly, 2000).

To combat these disturbing crimes against children, we must acknowledge that children are at far greater risk of sexual assault than of violence or abduction, and direct our energies accordingly. We must also recognize that sexual abuse is more likely to be committed by family members, adult acquaintances and peers, without disregarding the fact that stranger sexual abuse, though less common, also occurs.

Strangers no longer warrant the menace with which they are perceived in contemporary industrialized cultures. The remarkable absence of stranger attacks on children may result from

a number of factors, such as severe legal penalties, societal vigilance and contemporary norms. For whatever reasons, modern strangers are culpable for a negligible number of child kidnappings, a tiny fraction of violent assaults on children, and a relatively minor percentage of child sexual abuse. In comparison, everyday accidents pose far greater peril to children. For example, 80% of students reported being either bitten by dogs, struck by cars, or falling off of bicycles, with 36% sustaining injuries severe enough to require medical treatment (Gallagher, Bradford & Pease, 2002). When these statistics are compared with the chances of children being hurt by a stranger, road safety, bicycle and dog wariness classes appear to take precedence over courses in stranger danger. Confining our concerns to dangers posed by fellow humans, the data clearly suggest that harm reduction programs should focus their energies on the risk posed by the people children already know. Policies designed to reduce childhood stranger danger should certainly not be abandoned, but appropriately scaled to reflect the actual risks.

Policy Recommendations

Strangers no longer present the threat they once did, yet our innate biases to avoid them persist unabated. To the extent that they focus attention and energy away from the actual loci of risk to children, stranger danger initiatives can inadvertently misdirect resources better invested in preventing abuse perpetrated by family, friends and acquaintances. In addition, exaggerated stranger danger hysteria can potentially be harmful to children when stranger fear adversely affects child mobility, freedom and independence. For example, in 1970, 80% of British children were allowed to go to school without supervision, but by 1990, this figure had fallen to 9% due primarily to parents' concerns over stranger attacks (Hillman, Adams & Whitelegg, 1990). A

similar decline in children walking to school, partially owing to stranger fear, has been observed in the U.S., falling from more than 50% in 1969 to only 13% in 2004 (Kweon, Naderi, Maghelal, & Shin, 2005). Studies have identified fears of molestation and other stranger crime as chief motivators for parents driving their children to school (Hillman, 1993). Similarly, media attention and traditional stranger danger education programs may be fueling children's experiences of anxiety more than parents appreciate. The majority of parents appear to be unaware of or drastically underestimate their children's level of terror about strangers (Muris et. al., 2001).

Lying awake at night fixating on unwarranted concerns over strangers is distressing to children, but abandoning stranger education programs is certainly not the answer, as strangers do pose a relatively small but real threat. Education initiatives designed to minimize child abuse should therefore incorporate stranger danger techniques into more comprehensive programs which focus on training children to cope with the far more likely, though perhaps more innately counterintuitive, threats of abuse from familiar adults or peers. Fortunately, many contemporary abuse prevention programs endeavor to do just that. Estimates indicate that nearly three quarters of all students participate in some form of abuse prevention program at school (Daro, 1994). In what follows, we will review the efficacy and policy goals of school-based abuse prevention programs.

Stranger danger education remained at the heart of protection programs through the 1980s. Traditional stranger danger abduction prevention programs take many forms, but typically consist of verbal presentations on three main themes: (1) realizing that strangers are dangerous even if they seem nice; (2) learning about common lures used by strangers, and; (3) escaping from abductors. Of the few studies evaluating the effectiveness of programs of this

type, children were not found to have retained the skills and knowledge necessary to avoid abduction (see Blumberg & Johnson, 1997, for a review). According to the National Center for Missing and Exploited Children (2005), the stranger danger message by itself is not effective, as children consider strangers to be “ugly” and “mean”, and often do not consider a person they have seen before or talked to once a stranger. These experts also argue that “don’t talk to strangers” campaigns may actually be deleterious to children’s safety, because the great majority of strangers would provide aid if children were to find themselves in danger. Since the 1980s, however, many programs have broadened from verbally presented stranger danger instruction to include more interactive ways of teaching children how to handle issues such as peer bullying and sexual abuse by familiar adults (Child Assault Prevention Project, 2004).

Behavioral approaches to prevention training, which have been shown to be more effective (Bromberg & Johnson, 1997), combine verbal instruction with modeling, behavioral rehearsal, corrective feedback, and practice until a criterion level of performance is achieved. The nationally implemented Child Assault Prevention Project (CAP), for example, emphasizes a three-pronged focus on training students, parents and teachers to anticipate and resolve interactive abuse scenarios involving other children, familiar adults and strangers (Child Assault Prevention Project, 2004). These topics are tailored to suit the different learning styles of kindergarteners, elementary school students, teenagers, and disabled children. CAP’s most widespread workshop involves elementary school children role-playing a bully confrontation, a stranger attempting to kidnap a child through trickery, and a familiar adult inappropriately kissing a child and then directing the child to keep it secret. Each situation is dramatized in two variations; the child is initially portrayed as a victim, but after a brainstorming session on preventive techniques, the scenario is re-enacted as a “success story.” In a third and final role-

play, the classroom teacher is invited to portray a supportive adult who responds to a child's request for help.

Meta-analyses reveal that abuse prevention programs presented over four or more physically interactive sessions yielded the greatest retention of program materials (Davis & Gidycz, 2000). Ray and Dietzal (1984) evaluated a program that consisted of three one-hour presentations to fifth-grade students and found that although children performed better immediately afterwards on a questionnaire, crucial concepts were lost during a subsequent eight-month period. For example, the students often failed to recall whether molesters were frequently people whom they knew, who was to blame when an adult touches a child in a sexual way, or whether it was acceptable to break promises made to molesters. In another study, after participating in only one instruction session, over half of the children stated that they would comply with an unfamiliar adult's direction to accompany him (Moran, Warden, Macleod, Mayes & Gillies, 1997). Including a review component to prevention programs significantly improves knowledge retention (Plummer, 1984). In addition, one-on-one follow-up sessions held on the same day can reinforce knowledge and simultaneously provide children an opportunity to report abuse. For example, the New Jersey CAP program uncovered 705 cases of abuse requiring outside intervention over a five year period by providing children with additional one-on-one review and discussion time in a safe setting (Riesser & Borys, 2005).

Some evidence indicates that the implementation of abuse prevention programs has decreased the incidence of childhood abuse. One correlational study found that college-aged women who reported participating in a "good-touch, bad-touch" prevention program as children were half as likely to report having been sexually abused than women who did not recall participating in a prevention program (Gibson & Leitenberg, 2000). Research with convicted

sex offenders suggests that children who participate in prevention programs may be less likely to be targeted by offenders, who prefer passivity, lack of confidence and low self-esteem when identifying victims who will accede to their wishes (Budin & Johnson, 1989). To the extent that prevention programs endeavor to reduce shame and increase children's ability to react effectively to abuse, they may help children to project more assertiveness and understanding than child predators are comfortable with. Encouragingly, there has been a massive decline in sexual abuse cases over the last decade, which may in part be due to prevention programs (Finkelhor & Jones, 2004). However, it is impossible to derive causal conclusions from these correlations, and other researchers have failed to uncover evidence that children exposed to prevention programs suffered lower incidences of sexual abuse or physical injury (Bolen, 2003).

Findings that prevention programs do not clearly reduce the incidence of abuse have often been advanced to negate these programs' usefulness (e.g. Catholic Medical Association Task Force, 2006). For example, studies suggest that the strategies taught in abuse prevention programs do not help children escape acts of sexual assault once they are underway. Although children exposed to prevention programs evince more prior awareness of sexual abuse and are more likely to attempt prevention strategies such as yelling, threatening to tell, insisting on being left alone, and actually telling, they appear equally likely to be victimized as children without prevention training after an attack is initiated (Finkelhor, Asdigian & Dziuba-Leatherman, 1995). However, the prevention of abuse should not be the sole barometer of the success of policies intended to reduce child harm.

Prevention programs have been correlated with better outcomes in the aftermath of abuse. Finkelhor and colleagues (1995) found that prevention program participation increased the likelihood that children reported abuse, did not blame themselves, and felt satisfied that they had

successfully tried to protect themselves. By promoting abuse disclosure, prevention programs may help to shorten the durations of abuse and mobilize assistance for victims (Finkelhor, 2007). Though laudable, the goal of outright prevention may unduly overshadow equally valuable achievements in minimizing abuse or marshalling emotional and material support for children who have already been subjected to abuse. These contributions justify the utility of abuse prevention programs even if the actual “prevention of abuse” outcomes turn out to be disappointingly modest.

As the focus shifts from stranger harm to the harm inflicted by familiar persons, effective interventions appear more complicated: it is much easier to run away from a stranger than from your home or church. For example, abused children often rely on their attackers as caregivers; resisting assaults can therefore be severely costly if the child must forsake vital resources as the price of refusal (Taal & Edelaar, 1997). The trauma some children may experience attendant to being separated from their attackers should be taken into account as well. To be truly effective, abuse reduction programs must therefore direct the children of abusive caregivers toward agencies equipped to provide practical options rooted in their specific needs and circumstances.

Some critics have argued that prevention programs unduly burden children with troubling information about potential sexual abuse, violence and abduction (e.g. Catholic Medical Association Task Force, 2006). Although very little research has been done on the potential negative impact of prevention programs, there is some evidence of temporarily adverse effects. Taal and Edelaar (1997) surveyed students between 8 and 12 years of age who had recently completed a sexual abuse prevention program. Immediately after participating, the youngest and oldest children reported feeling less capable of managing a potentially abusive interaction, and the youngest children considered refusing to cooperate with abusers less plausible. Six weeks

later, however, the same groups of children reported increased confidence in prevention strategies, and younger children reported decreased social anxiety. Another study found that some children and parents report increased worry after the training but that these same people also report the most positive feelings about the program and effective use of program skills (Finkelhor & Dziuba-Leatherman, 1995). In addition, studies have shown no correlation between participation in abuse prevention programs and the quality of later sexual satisfaction or intimate relationships (Gibson & Leitenberg, 2000). Therefore, the negative effects of abuse prevention programs appear to be minimal, short-lived, and well worth the benefits.

Although the emphasis must be on recognizing and combating harms perpetrated by friends, family and acquaintances, the stranger danger component of prevention training should of course not be discarded. Based on a national telephone survey, Finkelhor, Hotaling and Asdigian (1995) estimated that over 100,000 failed stranger abduction attempts occur each year. Victims of attempted abduction in this study were most likely to be solicited by a stranger in a passing car and to be between the ages of 4-11 years of age. Although it is important to keep in mind that even at this estimated frequency attempted abductions would still be quite rare relative to population size, the enormous difference between actual and attempted abductions lends credence to arguments that children are capable of resisting stranger abductions. When utilizing interactive instruction, stranger abduction prevention training has also been experimentally confirmed to help children to respond appropriately to confederates who mimic dangerous strangers in naturalistic environments (Flanagan, 1986). Being struck by lightning may not be likely, but the consequences are dire enough to warrant taking the time to equip children with the basic principles of lightning safety. When children are taught about lightning safety, the dangers are stressed, but so are the chances of avoiding being struck if you employ simple precautions.

Stranger danger training programs should similarly inform parents and children about the real risks, and thereby alleviate their fears while imparting stranger abuse prevention skills.

In sum, there is reason to believe that prevention programs that acknowledge the threat posed by familiar adults as well as strangers reduce children's likelihood of being targeted by abusers (Gibson & Leitenberg, 2000), increase disclosures of abuse (Riesser & Borys, 2005), and help children who are abused to achieve better outcomes (Finkelhor, 2007). Pedagogically, abandoning purely verbal instruction in favor of interactive, behavioral approaches to skills training appears to be vital (Bromberg & Johnson, 1997). Follow-up review also appears to be crucial to reinforce children's retention of key concepts (Ray and Dietzal, 1984), and one-to-one review sessions gain the added benefit of simultaneously providing a safe space in which abused children may disclose abuse (Riesser & Borys, 2005). Child abductions by strangers may be infrequent, but their potential seriousness justifies continued efforts to warn and empower children against stranger abuse. We simply advocate seeking ways of doing so that simultaneously minimize fueling children's (and adults') natural fear and paranoia about strangers.

Conclusion

In this chapter, we have presented evidence that humans innately fear strangers, especially males, because male strangers posed a significant threat to both children and adults in the evolutionary past. Stranger aversion is first observed as blatant behavioral displays (e.g., crying, recoiling, etc.) in the second half of the first year, after which mechanisms of habituation and executive inhibition enable emotion regulation. As the capacity for executive inhibition

matures, stranger aversion becomes increasingly covert but the bias remains. Regardless of the massive evidence that strangers no longer pose a serious threat to children, modern adults continue to exhibit an inordinate, perhaps evolutionarily prepared, fear that strangers will harm their children. However, humans have also inherited the executive capacity to override gut reactions when they conflict with our goals. To prevent harm to children, we must endeavor to meet the dangers where they are, rather than where our ancestrally derived minds lead us to expect them.

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