Sexual Learning, Sexual Experience, and Healthy Adolescent Sex

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Abstract

This chapter is organized around the question “How do adolescents learn to have healthy sex?” The chapter assumes that sexual learning derives from a broad range of both informal and formal sources that contribute to learning within the context of neurocognitive brain systems that modulate sexual motivations and self-regulation. The overall objective is to consider how adolescents become sexually functional and healthy and to provide a conceptual basis for expansion of sexual learning to better support healthy sexual functioning. © 2014 Wiley Periodicals, Inc.
The generative question of this chapter is “How do adolescents learn to have healthy sex?” Over a short time span of no more than a few years, children’s relatively imprecise understanding of sex transforms into working knowledge of sexual anatomy, awareness of gendered rules for sexual display and modesty, recognition of sexual desire in self and others, negotiation of sexual boundaries, and understanding of the methods available for prevention of sexually transmitted infections (STIs) and pregnancy. Experiences of sex through sexual attractions, arousal, and pleasure accompany a range of early sexual experiences including masturbation, kissing, fellatio, cunnilingus, and coitus. Experiences of the difficulties of sex—erectile dysfunction, pain, lubrication difficulty, lack of pleasure—are poorly understood elements of early sexual experiences but are unlikely to be rare.

Sexual learning is a critical element of development with relevance to both adolescent health per se and to various life course trajectories including adult sexual health. The focus of this chapter, then, is the development of adolescent sex from the perspective of the interactions of these multiple sources of sexual learning, especially those most relevant in early and middle adolescence. A desired outcome of the chapter is a better understanding of how multiple influences become a body of knowledge and experience that constitutes sexual learning.

A Discursive Definition of Sexual Health and Healthy Sex

“Sexual health” and “healthy sex” are related, but distinct, terms addressing the ways by which individual, interpersonal, and social benefits of sexuality are maximized and risks are minimized. Sexual health reflects an educational and public health philosophy that endorses the importance of sexuality in all lives (Douglas & Fenton, 2013). The term falls among those familiar topics that reflect quotidian experience, but, from a scientific perspective, are difficult to pin to a reliably precise definition (Coleman, 2010). Moreover, definitions of sexual health typically lack a developmental focus and exclude adolescents from discussion. To resolve this conundrum—at least within the narrow space of this chapter—the definition of sexual health follows that proposed in the Consensus Statement of the National Commission on Adolescent Sexual Health: “Sexual health encompasses sexual development and reproductive health, as well as such characteristics as the ability to develop and maintain meaningful interpersonal relationships; appreciate one’s own body; interact with both genders in respectful and appropriate ways; and express affection, love, and intimacy in ways consistent with one’s own values.” The Consensus Statement additionally notes that “responsible adolescent intimate relationships” should be “consensual, non-exploitative, honest, pleasurable, and protected against unintended pregnancies and sexually transmitted diseases, if any type of intercourse occurs” (Haffner, 1995, p. 4).
This definition of sexual health is useful in that it countenances the possibility that adolescent sex could be consensual and pleasurable rather than inherently dangerous. A major limitation of this definition is the notion that the only sex that really matters is “intercourse.” An expanded and more developmentally attuned definition of healthy sex addresses how adolescents come to recognize sex as a complex set of social interactions reinforced through the repetitive sexual experiences of emerging sexual bodies and sexual brains. From this perspective, adolescent sex is built from an accrual of experiences that include but are not limited to intercourse. The interpretations and meanings of these experiences are subject to revision as experience accrues. Influencing sexual learning through informal and formal sex education becomes a fulcrum to leverage better sexual health outcomes for adolescents themselves and for the adults they will become.

**Sexual Learning and Informal/Formal Sex Education**

If healthy adolescent sex is based in sexual learning, a definition of sexual learning relies on the ways in which adolescents' formal and informal sex education interacts with lived sexual experiences. Formal school-based sexuality education is widely implemented (although with great variation in content and emphasis; Lindberg, Santelli, & Singh, 2006; Ott & Santelli, 2007; Santelli, 2008), endorsed in some form by a majority of parents (Lagus, Bernat, Bearinger, Resnick, & Eisenberg, 2011), and generally associated with increases in knowledge and prevention behaviors for pregnancy and STIs (Hall, Moreau, & Trussell, 2012; Lindberg & Maddow-Zimet, 2012; Vivancos, Abubakar, Phillips-Howard, & Hunter, 2013). The content of sex education is often contested around the inclusion of topics such as masturbation, same-sex relationships, and sexual function (Lindberg et al., 2006). Explicit material in formal sex education, in particular descriptions or images of sexual acts, is infrequently used to address the appearance and functioning of the sex organs and mechanics of sexual intercourse (Brewster & Wylie, 2008).

Informal sources of information are ubiquitous in adolescents' daily lives: parents, siblings, peers, religious organizations, and media sources all provide sexual information and sex/gender role models in a process sometimes referred to as “sexual socialization” (Bleakley, Hennessy, Fishbein, & Jordan, 2009; Jones & Biddlecom, 2011; Lagus et al., 2011; Secor-Turner, Sieving, Eisenberg, & Skay, 2011). These sources of sex education occur through conversations with friends, various types of media, and observations of socially accepted public sex such as kissing or hugging.

For the most part, neither formal nor informal sex education sources provide models for adolescents in terms of how sex is actually performed, experienced, and evaluated. In this area, adolescents' own experiences provide the basis for sexual learning. In the past, adolescents were
euphemistically defined as “sexually experienced” based on the occurrence (or not) of a single coital event (Secor-Turner et al., 2011). This terminology—still common in clinical and public health settings—unfortunately coincides with social proscriptions of penile–vaginal intercourse and religious prescriptions of virginity as a desired social status for unmarried people. This may explain the substantial emphasis in sex education on postponement of penile–vaginal intercourse and prevention of its consequences (Bay-Cheng, 2003).

Here, the outmoded phrase “sexual experience” (and related terms such as “virgin” and “nonvirgin”) is replaced by the concept of sexual learning that includes formal and informal sex education as well as the subjective sexual experiences of attraction and desire, self-focused behaviors such as viewing pornography or masturbation, and partnered behaviors such as kissing, genital touching, oral–genital sex, and coitus. Sexual learning through experience reinforces both positive (e.g., sexual desire, arousal, and pleasure) and negative (e.g., regret, guilt, and shame) subjective experiences of sex (Wight et al., 2008). Sexual learning thus accrues from multiple types of experiences into a sexual repertoire reflecting lesser or greater mastery of sexual expression (O’Sullivan, Cheng, Harris, & Brooks-Gunn, 2007; Tolman & McClelland, 2011).

**Sexual Learning and Life Course Sexual Development**

Life course developmental models provide a useful frame for considering adolescence as a critical period for sexual learning, where early sexual experiences influence motivations, expectations, and behaviors associated with sexual reward (Mishra, Cooper, & Kuh, 2010). The sexually critical period of adolescence is defined by age, adrenarche/puberty, and neurocognitive development (Pfaus et al., 2012). Building on elements of sexual orientation that become at least partially settled in childhood, distinctly sexual elements of attractions, behavior, and identity become apparent during early and middle adolescence (although these may remain fluid well into adulthood; Morgan, 2013; Rosario, Schrimshaw, & Hunter, 2011). During early adolescence, many social interactions become more explicitly sexual and associated with genital arousals explicitly associated with sexual cognitions (Fortenberry, 2013b). Early experiences of sexual arousal and reward reinforce features of preferred partners as well as the behaviors associated with sexual reward (Georgiadis & Kringelbach, 2012; Hoffmann, 2012; Kuhn & Gallinat, 2011). For example, relatively regular ovulation (often 12 months or more after menarche) is associated with changes in visual sexual stimuli processing during the periovulatory period, likely leading to differences in the incentive value of the stimulus (Gasbarri, Tavares, Rodrigues, Tomaz, & Pompili, 2012; Rupp et al., 2009). Sexual learning also may depend on development of working memory—the short-term capacity for information maintenance and manipulation. Verbal and
visual-spatial working memory is increasingly lateralized into left and right hemispheres during early and middle adolescence, and is central to a variety of neurocognitive functions including learning (Geier & Luna, 2009; Klingberg, 2006).

**Sexual Learning, Sexual Display, and Sexual Modesty**

Sexual display and modesty are considered within the context of adolescent sexual learning because such displays (e.g., clothing styles, body adornment, or way of walking) are interpreted as sexual cues by others. The physical signs of puberty are rapidly socially sexualized, often with harsh sanctions for violations of socially perceived norms of display (Kreager & Staff, 2009; Sobh, Belk, & Gressel, 2012). Adolescents themselves provide models for sexual display in that schools, sports, religious organizations, and work are age-structured so that younger adolescents typically share space and resources with older adolescents. Peer and friendship networks provide diverse exposure to sexual bodies as well as to a marketplace of potential partners (Dijkstra, Cillessen, & Borch, 2013; Zimmer-Gembeck, Siebenbruner, & Collins, 2004).

Attractiveness is largely based on visual perception of facial characteristics and body morphology. Facial characteristics of attractiveness judged by adolescents include increased symmetry, averageness, and femininity, although masculinity may be particularly endorsed by postpubertal women compared to peripubertal girls (Little et al., 2010; Saxton, DeBruine, Jones, Little, & Roberts, 2011). Developmental changes in attractiveness features occur in that children show relatively little concordance in terms of features viewed as attractive, whereas adolescents are more adult-like in their judgments (Saxton, Caryl, & Roberts, 2006). Same-sex rivalry associated with sexual display becomes more common after puberty, associated with more favorable attractiveness assessments of different-sex persons and less favorable assessments of same sex (Agthe, Spörrle, Frey, Walper, & Maner, 2013).

Even body shapes communicate a remarkable amount of sexual information for adolescents to interpret. Among adults, strong preference is shown for average weight figures, a waist-to-hip ratio of around 0.7 in women (at least in Westernized countries), and a waist-chest ratio of 0.7–0.75 in men (Maisey, Vale, Cornelissen, & Tovee, 1999; Swami et al., 2007). These body features are less clearly preferred by children, and develop in concert with both age and physical changes during adrenarche and puberty (Connolly, Slaughter, & Mealey, 2004). Although not studied in adolescents, awareness of one’s own physical stature during puberty as well as the repetitive “visual diet” of similarly postpubertal peers could influence assessments of attractiveness (Boothroyd, Tovee, & Pollet, 2012; Tovee, Emery, & Cohen-Tovee, 2000).
A hallmark of sexuality development is awareness of sexual interest in others. This developmental milestone represents specific, although emerging functions of neural subsystems that integrate social information and influence behavior. These specific neural subsystems include visual processing areas (especially those related to the face; Saxton et al., 2010), areas associated with emotions and approach and avoidance (including the amygdala, ventral striatum, and hypothalamus), and executive control areas that affect behaviors (Ernst, Romeo, & Andersen, 2009). Sexual interest in others also has origins in endocrine changes of adrenarche and pubarche (Ellis & Essex, 2007; Graber, Nichols, & Brooks-Gunn, 2010; Oberfield & White, 2009). For example, many 10–12-year-olds have “crushes” consisting of fantasies and typically unreciprocated attraction to others (Bowker, Spencer, Thomas, & Gyoerkoe, 2012).

The complementary aspect of desire for others is the “desire to be desired” and the perception that one is desirable and desired. Structural and functional brain changes associated with puberty fundamentally transform the network of brain regions involved in understanding others through perceptions of their underlying mental states (Blakemore, 2012; Forbes & Dahl, 2010). The emergence of a sexually objectified self is associated with constructs such as body satisfaction and body self-esteem (Woertman & van den Brink, 2012). Young men are thought to be particularly anxious about the appearance and size of the penis but this is true of adult men as well (Ghanem, Glina, Assalian, & Buvat, 2013; Lever, Frederick, & Peplau, 2006). Despite wide variation in normal appearance, images of genitals—especially of women—suggest a recent standard of beauty for both women and men is of a hairless vulva with thin, nonprotruding labia (Schick, Rima, & Calabrese, 2011). It remains to be seen if a similar trend holds for assessments of male genitals.

One particular aspect of sexual display—one that often includes culturally prescribed coverings of genitals—is sexual modesty. Sexual modesty is conceptually related to sexual display although typically considered a control for sexual display and behavior in obedience to conventional rules (Weinberg, 1965). The importance of seeing and being seen can be detected in the extent to which sexual displays are policed in school and other settings. For example, school dress codes reflect a social focus on adolescents’ dress as an expression of sexuality and assume that certain modes of dress distract, provoke, or arouse others (Raby, 2005). Dress codes are often explicit in regulation of girls’ clothing and bodily exposure, although dress codes also apply to clothing that might promote substance use, violence, or racism (Raby, 2010). Self-objectification, stigma, and shame—all associated with negative health consequences (especially for girls)—seem to operate through the influence of modesty on sexual communication and behaviors (Bragg, 2012; Grabe, Hyde, & Lindberg, 2007; Johnston-Robledo, Sheffield, Voigt, & Wilcox-Constantine, 2007; Sanchez & Kiefer, 2007).
Other Experiential Sources of Sexual Learning

Adolescents’ performance of sex requires extensive learning to interpret and implement sexual attractions and arousals through physical bodies. Some adolescents had exposure to family nudity during childhood although these exposures do not appear to be significantly sexualized (Okami, Olmstead, Abramson, & Pendleton, 1998). Partnered sexual encounters with same-age (and often same-sex) peers likely represent the first direct association of sexual arousal and genitals or other body parts (Larsson & Svedin, 2002). Sexual scripts developed through conversations with peers or influenced by media may influence the ways these early experiences are conducted, experienced, and interpreted (Carpenter, 2009; Kelly, 2010). Although primarily based in animal studies, these often non-coital sexual experiences may have deep effects in developing neural systems that condition the subsequent sexual motivations, expectations, and behavior characteristic of the adult sexual phenotype (Pfaus et al., 2012; Woodson, 2002).

Although relatively little is known about the experiences of sexual pleasure during early adolescence, it is likely that any sexual experiences (whether positive or negative) are associated with sexual learning (Georgiadis, Kringelbach, & Pfaus, 2012). Adolescents identify pleasure as an important motivation for sex (Rosenberger, Bell, McBride, Fortenberry, & Ott, 2010). Both sexual arousal and orgasm may be efficient activators of sexual learning systems; however, orgasm occurs somewhat later in a trajectory of sexual experiences for many adolescents (especially young women; Georgiadis & Kringelbach, 2012; Praise, 2011). The average age of retrospectively reported first orgasm from either masturbation or partnered sex is 13 years for men and 17 years for women (Reynolds & Herbenick, 2003). Up to half of adolescent women report orgasm with first partnered sex, either through penile–vaginal intercourse or cunnilingus and partner masturbation (Fugl-Meyer, Oberg, Lundberg, Lewin, & Fugl-Meyer, 2006; Raboch & Bartak, 1983). Some adults report first orgasm experiences during early and middle adolescence in completely nonsexual contexts such as vigorous exercise (Herbenick & Fortenberry, 2011).

Relatively little is known about trajectories of sexual learning, especially as sexual experiences accrue along with learned pairing of sexual cues and sexual responses during adolescence (Prause, Janssen, & Hetrick, 2008). Affect regulation—increased positive mood and decreased negative mood—can be seen in adolescents prior to and after coitus (Prause et al., 2005; Shrier et al., 2012). Although these studies did not assess subjective experiences such as orgasm of these coital events, 84% of 16–19-year-old men and 52% of women reported an orgasm at their most recent sexual encounter (Richters, Visser, Rissel, & Smith, 2006). Taken together, maturation, sexual learning, and experience are associated with generally positive changes in sexual health through adolescence into young...
positive and negative outcomes of sexual behaviors

adulthood (Hensel, Fortenberry, O'Sullivan, & Orr, 2011; Higgins, Trussell, Moore, & Davidson, 2010).

This is not to say that adolescents’ experiences of sex are uniformly pleasurable or free from dysfunction. Various types of sexual dysfunction comprise a substantial volume of research about sexual health but almost none of this work refers to adolescents, especially those younger than 18. About 12% of young women and 5% of young men did not enjoy their most recent sexual event (Wight et al., 2008). The context of adolescents’ partnered sexual interactions may be relevant. Younger age is an important correlate of partner pressure and regret at first intercourse (Wight et al., 2008). Lack of privacy and time, lack of familiarity with arousal, or body shame could all influence distraction and diminished sexual interest (Boyer, Pukall, & Chamberlain, 2013; Lykins, Meana, & Minimi, 2011; Schick, Calabrese, Rima, & Zucker, 2010). So little is written about these issues that it would be difficult to have an empirically focused discussion of problems of desire, arousal, and orgasm among adolescent women and men.

More is known about pain: pain is often mentioned (both as an expectation and an experience) in association with first coitus (up to 65%) and remains prevalent (about 33% of women) even with increasing age and experience (Elmerstig, Wijma, & Swahnberg, 2009; Herbenick et al., 2010; Landry & Bergeron, 2011). Many continue partnered sexual interactions despite pain (Elmerstig, Wijma, & Bertero, 2008). Attention to healthy sex during adolescence may give clues to the prevention of sexual pain in the future.

Conclusion

This chapter began with the question “How do adolescents learn to have healthy sex?” Most adolescents clearly do learn to have sex, using formal and informal sources of sex education to inform and help interpret an accruing array of sexual experiences. These experiences may, in turn, promote additional use of educational resources to resolve new questions and develop practice-based skills. Learning how to have sex may be no more complex than learning to ride a bicycle: bike riding is both dangerous and pleasurable, is initially mastered in the context of family rules and teaching, is sometimes associated with injury, and is a not-easily-forgotten skill. Bicycles may serve different functions over the course of our life's experience with them, and the skills required to safely manage a bicycle become increasingly complex in new social and physical contexts (Thomas & Gorzalka, 2013). As with learning to ride a bicycle, the performances of sex require learning associated with practice, where feedback from successes and failures improves performance (Levin, Ward, & Neilson, 2012).
Nonetheless, sex is not a bicycle, and many people struggle throughout their lives with personal and interpersonal consequences of less than optimal sexual health. Understanding the best means to assure the healthy development of sex remains an enormous challenge to young people themselves, and to policy makers, educators, and parents. We’ve learned a lot, however, and I want to emphasize the principal lessons to inform new directions in research, public health policy, and sex education practice.

One lesson reflects a perspective that the sum of formal sources of sex education makes at best a modest contribution to adolescents’ learning to have healthy sex. The minimum set of topics included in National Sexuality Education Standards—anatomy and physiology; puberty and adolescent development; identity; pregnancy and reproduction; STIs and HIV; healthy relationships; and personal safety—gives little attention to the forms and practices of the sex itself (Future of Sex Education Initiative, 2012). This makes sense if the primary goal of formal sex education is to control consequences of sex through the suppression of sex. It makes less sense if healthy sex itself is among the desired outcomes. Thus, addressing healthy adolescent sex as a goal of formal sex education likely requires an individualized curriculum that allows more direct attention to the diversity of adolescents’ sexual experiences and the ways these experiences influence sexual learning.

A corollary to a perspective based in sexual learning and healthy sex is that we as adults should worry less about coitus as the only behavior of relevance to healthy sex and devote less energy to removing coitus from adolescence and shifting it to adulthood (Fahs, 2010; Pearson, Kholodkov, Henson, & Impett, 2012). Such a broad social and policy shift could support better curricular attention to sexual behaviors that are commonplaces of adolescent sexual experience—such as masturbation or kissing (Landry, Darroch, Singh, & Higgins, 2003). Such a shift in curriculum focus could also help correct the heterosexual bias implicit in much of sex education curricula. Helping adolescents recognize desires and attractions—regardless of the gender of the desired person—and choose sexual behaviors to match those attractions would be an important sexual health outcome (Halpern, 2011).

A sexual learning and sexual health perspective also allows revision of the role of parents as sources of informal sex education. The importance of parents’ specific values in terms of adolescents’ choices about relationship context and timing of partnered sexual behaviors is indisputable (Longmore, Eng, Giordano, & Manning, 2009). Not surprisingly, these same qualities apply for sexual minority youth as well (Needham & Austin, 2010). We are also beginning to learn how parents may promote adolescents’ sexual health through influence on the subjective experiences of relationships and the sexual interactions that may occur within them (Parkes, Henderson, Wight, & Nixon, 2011). One specific approach used by some
parents is to allow cosleeping of their adolescent with a relationship partner, although resistance to this approach is strong in the United States (Schalet, 2011).

Inevitably, parents will also continue to be involved with their adolescents’ sexual learning through encouragement and monitoring of socially structured, often gendered sexual interactions associated with schooling, community and religious activities, and work or athletics (Welsh, Haugen, Widman, Darling, & Grello, 2005; Zimmer-Gembeck, Siebenbruner, & Collins, 2001). Sexual learning associated with exposure to sexually explicit media—usually unmonitored by parents—provides adolescents with full details about the practice of almost any sexual act. Acknowledging these exposures, discussing sexually explicit media, and potentially incorporating young people’s experiences with sexual media into sex education may improve literacy with these media (Hald, Kuyper, Adam, & de Wit, 2013). Parents may also address the various types of social media that are excellent platforms for sexual communication and sexual display (Bergdall et al., 2012). Use of these media to facilitate sexual learning represents a challenge we have yet to fully address (Hasinoff, 2013).

The approach to sexual learning and sexual experience in this chapter reflects a cross-disciplinary perspective that healthy adolescent sex evolves over continuous periods of time and considers intra- and interpersonal outcomes beyond regret, pregnancy, and STIs (Tolman & McClelland, 2011). This newer approach is based in a larger sexual health perspective focused on sexual function and relationship capacity building that might additionally support healthy sex and sexual health both in adolescence and in subsequent adulthood (Fortenberry, 2013a). From this perspective, adolescent sex is an essential developmental basis for healthy adult sexuality rather than an inherently dangerous risk to be silenced, shamed, and suppressed.

References


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