Adolescent Sexual Development: An Overview of Recent Research

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ABSTRACT

An overview of recent research describing adolescent sexual development is presented, including research examining puberty, sexual attitudes and behaviours, and LGBTQ youth and stigma. This overview is placed within the context of the healthy sexual development framework and the four domains of development (physical, social, cognitive, and emotional) incorporated in the Ontario Ministry of Children and Youth Services' youth policy framework. Finally, recommendations are made for future community mental health research and policy.

Keywords: sexual development, adolescent sexual development, LGBTQ youth sexual development

RÉSUMÉ

Un aperçu de la recherche récente décrivant le développement sexuel des adolescents et adolescentes est présenté, y compris la recherche examinant la puberté, les attitudes et les comportements sexuels et les jeunes des minorités sexuelles et la stigmatisation. Cette vue d'ensemble est placé dans le contexte du cadre du développement sexuel sain et les quatre domaines du développement (physique, social, cognitif et émotionnel) incorporé dans le cadre stratégique pour la jeunesse du ministère des Services à l'enfance et à la jeunesse de l'Ontario. Enfin, des recommandations sont présentées pour la recherche et la politique de santé mentale communautaire dans l'avenir.

Mots clés : développement sexuel, développement sexuel des adolescents et adolescentes, développement sexuel des jeunes des minorités sexuelles

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Sexual development is a fundamental component of lifespan development. The most significant sexual development period is adolescence. This article provides an abridged version of the overview of sexual development included in the adolescent sexual development section of an original research synthesis dealing with key aspects of sexual development of children and youth aged 7 to 25 years. The original synthesis was based on peer-reviewed research primarily published from 2000 to 2010. The research summarized in the current article is placed within the context of the multidisciplinary healthy sexual development framework developed by McKee and colleagues (2010), which describes the factors that contribute to an adolescent's successful transition to healthy sexuality in young adult life. In this paper, the framework provides a description of the ultimate goals of this transition. Indeed, successful achievement of the sexual development framework goals will have a positive impact on the overall achievement of the young person's sense of identity. The organization of this article is as follows. First, critical factors that contribute to healthy sexual development are described within the four domains (i.e., physical, cognitive, social, emotional) identified in the Ontario Ministry of Children and Youth Services' youth policy framework (Ontario Ministry of Children and Youth Services, 2012). Second, recent sexual development research examining puberty, sexual attitudes and behaviours, and LGBTQ youth and stigma are discussed. Finally, recommendations for healthy sexual development among youth are provided.

ADOLESCENT DEVELOPMENT AND THE SEXUAL DEVELOPMENT FRAMEWORK

During adolescence, sexual development is one of the critical components of identity formation. It is influenced by a broad range of key factors included in the aforementioned sexual development framework. This framework, developed by McKee et al. (2010), incorporates a multidisciplinary consideration of a wide range of factors associated with healthy sexual development, and these indicators were found to be well-associated with the MCYS domains (i.e., physical, cognitive, social, emotional). The domains are not mutually exclusive; sexual development factors may be associated with multiple domains. Likewise, critical factors in one domain may influence factors in other domains (e.g., brain development during adolescence may influence cognitive, social, and emotional functioning). In what follows, the multiple factors of the McKee et al. (2010) framework are organized under each of the MCYS domains for ease of reference.

Social Domain critical factors include:

- Bi-directional, *open communication* between adults and children. Children can ask questions and receive age-appropriate information about sexual behaviours, values, and attitudes. This aids in developing a healthy attitude towards their bodies and sexuality.
- Understanding of *parental and societal values*, including those associated with sexuality. This understanding helps the youth make informed decisions concerning his/her sexual behaviour and differentiate between his/her values and those of his/her culture and society.
- *Relationship skills*, including communication and assertiveness skills.
- *Awareness of public/private boundaries*, including societal boundaries concerning healthy sex development. The youth is able to direct his/her private and public sexual behaviours and attitudes, and negotiate boundaries between the two.

Emotional Domain critical factors include:

- *Agency*, whereby the youth feels in control of his/her body and has the ability to decide who can engage in sexual pleasure with him/her. The youth is confident enough to resist peer pressure, understands his/her rights, and takes responsibility for his/her decisions.
- Developing *resiliency*, as sexual experience allows the youth to learn more about him/herself and sexuality instead of becoming a source for negative thinking and behaviours.
- Developing *self-acceptance* as the youth is supported in developing a positive attitude toward his/her sexual identity and developing a positive body concept.
- Developing *competence in mediated sexuality* so that the youth can understand, critique, and create representations of sexuality in verbal, visual, and performance media.
- *Awareness and acceptance that sexual behaviors are pleasurable*.

Cognitive Domain critical factors include:

- *Understanding of general requirements of consent and ethical conduct*, with an understanding of the complexity and nature of consent for oneself and others, including that sexuality should not be coercive.
- *Understanding of safety***,** including safe sex practices regarding both physical activity and transmission of sexually transmitted diseases. The youth then feels safe to experiment sexually.
- *Education concerning the biological aspects of sexual activity*, including accurate information about how the body works. Education is intended to stop youth from "invent[ing] their own explanations for biological and sexual processes often in the form of mythologies" (McKee et al., 2010, p. 16). The youth adopts a lifelong learning approach about the body.

Physical Domain critical factors include:

- *Protection from unwanted sexual activity*.
- *An understanding of sexual activity as enjoyable and an important aspect of romantic relationship development.* Sexual activity is not understood as "aggressive, coercive, or joyless" (McKee et al., 2010, p. 17).

Adolescent Sexual Development

The research reviewed in this synthesis covers several major areas, including puberty, experiences affecting sexual attitudes, and LGBTQ youth. Overall, it is noteworthy that while there is some sexual development research that focuses on LGBTQ youth, it is small relative to the sexual development research literature as a whole. Outside of the LGBTQ-specific research, the sexual development research tends to be heterosexist, making little reference to the development of non-heterosexual people. In addition, research dealing with puberty is primarily focused on female participants. One explanation is that the onset and completion of physical development is more evident in females. Commencement of menses is used as an objective indicator that maturation has occurred. In boys, such an easily identified indicator does not exist.

Key sexual development activities occur during adolescence. Most youth enter and complete puberty between 11 and 16 years. Throughout the entire stage, the brain continues to mature, reaching full maturation during the individual's early to mid-20s. Brain development has direct influences on all areas of sexual development (i.e., physical, emotional, cognitive, social). Emotional development also occurs across the entire stage. From approximately ages 14 through 19, most youth experience romantic relationships and develop their sexual identity, including recognizing and accepting their sexual orientation and informing others about their orientation. During adolescence, some key issues may arise that create obstacles to or difficulties with sexual development. For example, during adolescence youths' attitudes toward sexual behaviours are influenced by their experience and learning. Depending on the content of the experience and learning, the individual may face challenges from these attitudes and behaviours (e.g., attitudes towards those who have non-heterosexual orientations). Likewise, throughout adolescence, some youth engage in problem sexual behaviour (e.g., sexually assaultive behaviour). Finally, youth who complete puberty early may face challenges and obstacles that can create issues regarding sexual behaviour and self-image.

Overview of Sexual Development

Development during adolescence acts as a conduit through a complex array of physical, emotional, social, and cognitive changes from childhood to adulthood. Most significant of all changes occurring during this stage is the onset and completion of puberty and its effects on sexual activity. Social attitudes and influences that contribute to shaping youth attitudes and sexual behaviours include such factors as parental attitudes, sex education styles and exposure to pornography and other sex-related media.

Puberty. Physical changes related to puberty are a primary component of sexual development, developing the body from a child's body that is distinguished sexually based on the child's genitals (primary sex characteristics) to an adult's body, in which secondary characteristics (e.g., pubic hair) have developed and are present. The changes result in the individual becoming fertile (Stanhope, 2009). Changes experienced by females during puberty include maturation of ovaries, development of breasts, growth of pubic and axillary hair, a growth spurt, and changing body shape. Menarche occurs late in puberty (Dorn, Dahl, Woodward, & Biro, 2006). For the first year to 2 years following menarche, periods are often irregular and painful (Stanhope, 2009). In males, the first sign of puberty is an increase in testicular volume (Stanhope, 2009). Development includes maturation of the testes in addition to growth of pubic and axillary hair, a growth spurt, changing body shape, genital enlargement, and voice breaking and dropping. Spermarche occurs early in puberty (Dorn et al., 2006). Other pubertal changes experienced by both males and females include acne, mood changes, and the onset of adult body odour.

While some changes associated with puberty are very evident, measuring when puberty begins is somewhat problematic. Dorn et al. (2006) found that many physicians believe that adrenarche reflects the actual onset of puberty, which is contrary to the majority of research which specifies that pubertal onset is related to the onset of menses. During adrenarche, the adrenal glands awaken, and it occurs among girls at ages 6 to 9 years and among boys at ages 7 to 10 years (Dorn et al., 2006). Maturation continues into the early 20s as indicated by increasing levels of androgen.

The second phase of puberty, gonadarche, is associated with maturation of primary and secondary sex characteristics. Throughout gonadarche, androgen levels increase, and sexual development is affected by

brain development. During the fetal stage of development, the hypothalamus-pituitary-gonadal system is created. This system, which initiates puberty, is dormant after birth, but when activated, results in increases in a gonadotropin-releasing hormone (Graber, Nicols, & Brooks, 2010). These secretions influence the timing and rate of onset of puberty and are affected by environment and behaviour (e.g., nutrition, health, physical activity) (Graber et al., 2010). Overall, there are considerable variations in the age of onset and the progress through puberty, including the stages of adrenarche and gonadarche.

The puberty process can be affected by external factors. Some research findings indicate that an adverse physical environment can affect the onset of puberty and physical and sexual health over time. For example, Schell and Gallo (2010) showed that the physical environment of Aboriginal youth living on-reserve in southern Ontario impacted puberty, particularly for females. The youth in this study grew up in an environment of ongoing exposure to PCBs and lead. Higher than normal levels of PCBs and lead found in the adolescents' bodies were related to higher levels of Thyroid Stimulating Hormone and lower levels of free thyroxin. Thyroid hormones regulate the body, affecting most bodily functions (e.g., metabolism, weight gain and loss, bowel movements, energy, mood, hair growth, skin texture, libido, and sexual function such as the ability to reach orgasm). Higher levels of PCBs and lead were also associated with the presence of other chronic health issues, including autoimmune diseases. Schell and Gallo (2010) also found that exposure to PCBs increased the risk of early onset menarche among female participants whereas exposure to lead delayed the onset of menarche.

In addition to external factors affecting the pubertal process, internal factors, such as various hormone levels, may as well. For instance, Peper et al. (2010) measured follicle-stimulating hormone levels among girls. They showed that differing levels of the hormone were associated with differing pituitary volume in the girls studied. Those who had low pituitary volume were more likely to experience normal sexual development while those who had higher levels were more likely to experience mental health issues, including depression, PTSD, and first episode psychosis (Peper et al., 2010). No reasons were identified for the difference in pituitary volume.

Onset of sexual activity. Experiences of first sexual arousal differed between girls and boys. While adolescent girls engaged in masturbation the same amount or less than their male counterparts, adolescent boys tended to begin masturbating between 12 and 15 years of age, and tended to experience their first arousal through masturbation (Hogarth & Ingram, 2010). Girls, however, tended to experience their first arousal through dating, within the context of a relationship.

Sexual attitudes and behaviours. Research shows that there are specific factors that influence adolescents' sexual attitudes, including an individual's sexual health education, sexual activity, and societal attitudes, as well as pornography and media. For example, different approaches taken to sexual health education have an impact on how adolescent girls perceive sex, their sexual experiences, and the likelihood of adolescent pregnancy (Brugman, Caron, & Rademakers, 2010). When sexual health education is focused on the context of relationships, parents reported adolescent sexuality as healthy. Further, adolescent girls tended to be more knowledgeable about sex, have less sexual experience, and experience fewer adolescent pregnancies than those who did not receive sexual health education focused on relationships. In contrast, when sexual health education focused on the body, parents tended to view adolescent sexuality as related to hormones and dramatization, and did not tend to encourage their children's sexual behaviours. Within this context, girls tended

to know less about sex than those taught about sexuality within the context of relationships, and had more sexual experience. This approach was also associated with adolescent pregnancies (Brugman et al., 2010).

Certain attitudes of adolescent girls have been found to lead to girls engaging in sexual activities differently. Research has examined three particular attitudes that girls may have toward sexual relationships (i.e., traditional, egalitarian, and moderate) and how these attitudes influenced their sexual practices (Leech, 2010). Those who held traditional attitudes were more likely to use sexual behaviours to secure a relationship and to derive their sense of self-worth. Those who held egalitarian attitudes tended to take on the characteristics more stereotypically considered to be "male." That is, they tended to have multiple partners and relationships that involved less intimacy, and to use coercion in their relationships. Both those who held traditional attitudes and those who held egalitarian attitudes tended to engage in risky sexual behaviour (e.g., intercourse without protection within the context of a relationship). Those who adopted moderate attitudes tended to engage in safer sex practices and to engage less in casual sex than other females (Leech, 2010).

Some studies address the experience of youth with disabilities. Youth with disabilities face the same challenges with sexual development as other youth, but also face social and physical barriers to their development. Societal attitudes towards people with disabilities played an important role in outcomes for these youth (Harader, Fullwood, & Hawthorne, 2009). Disabled youth were less likely to receive sexual education and were more likely to have their sexual development ignored and to experience social stigma than abled youth. They were also at increased risk for delay in their physical and emotional development and for sexual abuse (Harader et al., 2009).

The effects of exposure to pornography and sexualized media are addressed in some research (McKee, 2010; Smith, 2013). There is general agreement that youth are accessing sexually explicit material more now than at any other time, and that such access is facilitated by internet availability, often in the privacy of the home. Such exposure in itself does not cause negative effects and has resulted in more positive attitudes towards women according to McKee (2010). Pornography has been found to teach adolescents about some areas of sexual development (e.g., sex as pleasurable, self-acceptance of sexuality and body, being relaxed and comfortable about sex, accuracy regarding physical aspects of male pleasure) and to be limited or poor in teaching relationship skills, safety, reproduction, ethical negotiations, and female pleasure (McKee, 2010). Smith (2013) indicates that pornography tends to be used more in the absence of other available resources for sexual health information or for sexually explicit material. Finally, the use of other media can influence sexual attitudes and behaviours. Adolescents who watched sexual activities on television or used other sources such as movies or music that depicted sexual activity were more likely than non-exposed teens to experience early sexual initiative and activity (Hennessy, Bleakley, Fishbein, & Jordan, 2009).

LGBTQ Youth

LGBTQ youth face additional challenges throughout adolescence. As LGBTQ youth self-identify and disclose their orientation, obstacles and difficulties can arise that may affect their ability to accept their orientation, to be accepted by others, and to achieve healthy sexual development. The difficulties tend to arise from a general societal stigma against LGBTQ orientation (Meyer & Stader, 2009; Miller & Lucal, 2009; Ressler & Chase, 2009; Stieglitz, 2010)

Youth identifying as LGBTQ experience either (a) significant support (even when victimized as a result of social stigma), or (b) victimization without significant supports for their disclosed orientation within the LGBTQ spectrum. The more LGBTQ youth have been victimized and have not received significant social supports from family and peers, the more likely they are to experience mental health concerns (Almeida, Johnson, Corliss, Molnar, & Azrael, 2009; Doty, Willoughby, Lindahl, & Malik, 2010; Needham & Austin, 2010; Stieglitz, 2010; Rosario, Schrimshaw, & Hunter, 2009).

The research indicates that LGBTQ youth usually become aware of their sexual orientation between 8 and 11 years of age (DePaul, Walsh, & Dam, 2009). As they develop, LGBTQ youth begin to self-identify and disclose their orientation to others. Some LGBTQ youth received support from parents, their minority friends, and their heterosexual friends (Stieglitz, 2010; Needham & Austin, 2010). Generally, this support enabled personal growth and happiness, and gave a feeling of acceptance by themselves and others (Doty, et al., 2010; Needham & Austin, 2010; Rosario, et al., 2009). As a result, their mental health and well-being increased.

However, youth who experienced victimization because of their orientation tended to attend schools that had heterosexist policies and school climates (Kosciw, Greytak, & Diaz, 2009; Curry & Hayes, 2009). These youth tended to be more prevalent in high-poverty schools. When they were victimized, gay males were less likely to report the victimization than others, potentially making the effects of victimization greater. LGBTQ youth who were victimized tended to feel discriminated against and marginalized within their communities and society. They tended to feel rejected by others and by themselves and were more likely to experience mental health issues related to their experience and feelings (Almeida, et al., 2009). These issues included internalizing distress by adolescent girls, externalizing distress by males, post-traumatic stress disorder, depression, conduct disorder (Mustanski, Garofalo, & Emerson, 2010), suicide and suicidal behaviour, alcohol and other substance abuse, and low self-esteem (Needham & Austin, 2010; Rosario et al., 2009; Stieglitz, 2010). LGBTQ youth who were in the early years of their sexual identity development and who had not yet fully disclosed their sexual orientation tended to be at the highest risk of all for suicide (Eliason, 2011; Zhao, Montoro, Igartua, & Thombs, 2010). They also tended to feel rejected by themselves and others and were at risk for other mental health issues.

RESEARCH AND POLICY RECOMMENDATIONS

Thus, based on the research summarized in this article on sexual development among young people, the following recommendations are offered as considerations for promoting adolescents' sexual well-being in the community:

1. *Addressing the heterosexist bias in the research:* Significant mental health concerns arise for LGBTQ adolescents particularly when supports are not available to them as they seek to or complete disclosure of orientation. While there is some sexual development research that focuses on LGBTQ youth, it is small relative to the majority of sexual development research undertaken. Future research that focuses on sexual development should eliminate the heterosexist bias at all research stages (i.e., design, data collection, analysis, and reporting).

2. *Inclusive research:* Community mental health requires research that considers a full range of adolescent participants including members of disadvantaged groups. Future research should include greater exploration of the experience of boys, of youth with disabilities, and of Aboriginal youth.
3. *Testing of linkages indicated in the research:* Preliminary research demonstrates that many linkages may exist between a range of variables and sexual development, such as mental health, nutrition, family stress, physical environment, and family composition, among others. For example, early completion of puberty may be related to poor nutrition and a variety of family variables. However, all of these may actually be indicators of poverty. In-depth examination of developmental influences on sexual development in future research is needed.
4. *Provision of educational input:* Since research findings indicate the positive influences of relationship-focused sexual health education, policy and programs emphasizing healthy sexual relationships need to be disseminated to parents, youth, and professionals working with youth.
5. *Children's mental health services and sexual development:* The synthesis shows that there are many areas in which youth can face obstacles/difficulties in their sexual development. These obstacles/difficulties may be created by or result in mental health issues. Mental health interventions would benefit from routine inclusion of reviews of those environmental and personal issues that may contribute to early sexual activity, discomfort with sexual orientation, and/or the need for accurate sexual health information.

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