

SEXUAL BEHAVIOR AND REPRODUCTIVE HEALTH

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Summary

Reproductive health includes factors that influence the ability of men and women to produce healthy offspring. Just as health may influence sexual behavior and reproduction, sexual behavior may have a reciprocal impact on health. Health limitations on sexual activity include age effects, disease and disability as limitations of sexual activity, behavioral complications, and effects of medical treatment. Effects of sexual behavior on reproductive health include adverse pregnancy outcomes (spontaneous loss, prematurity and low birth weight) as affected by timing of sexual activity, number of sexual partners, and sexually transmitted disease. Other effects include reproductive impairment, either involuntarily as the result of disease or complications of pregnancy and delivery or voluntarily in the case of sterilization, as well as possible disease and death of adults as a result of sexual behavior. Violent sexual behavior has powerful effects on reproductive health, whether it is experienced early in life or in adulthood, and whether it occurs systematically as in wars and other social upheavals or as hidden deviance involving isolated individuals.

A widely-accepted definition of reproductive health emerged from the International Conference on Population and Development, organized in Cairo in 1994 by the United Nations. At the Cairo conference, reproductive health was defined as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes. Reproductive health therefore implies that people are able to have a satisfying and safe sex life and that they have the capability to reproduce and the

freedom to decide if, when and how often to do so. Implicit in this last condition are the right of men and women to be informed and to have access to safe, effective, affordable and acceptable methods of family planning of their choice, as well as other methods of their choice for regulation of fertility which are not against the law, and the right of access to appropriate health-care services that will enable women to go safely through pregnancy and childbirth and provide couples with the best chance of having a healthy infant. In line with the above definition of reproductive health, reproductive health care is defined as the constellation of methods, techniques and services that contribute to reproductive health and well-being by preventing and solving reproductive health problems. It also includes sexual health, the purpose of which is the enhancement of life and personal relations, and not merely counseling and care related to reproduction and sexually transmitted diseases.”

Reproductive health includes factors that influence the ability of men and women to produce healthy offspring. Though all health conditions may influence this ability, here attention centers on economic and social variations in human societies that may influence sexual behavior and reproduction (to the extent that they produce observable demographic consequences in populations) and that may influence variations in the health of mothers and infants during gestation and childbirth. Just as health may influence sexual behavior and reproduction, sexual behavior may have a reciprocal impact on health.

1. Effects of Health on Sexual Behavior

Human physiology imposes constraints on reproductive behavior. For example, humans become capable of reproduction only at puberty, and women do not bear children following menopause. Social and cultural contexts, by affecting health, also can affect the timing of puberty and menopause as physiological limits on reproduction. Health limitations in adulthood, also systematically related to social position, can have further systematic effects on sexual behavior. All of these physiological dimensions of reproductive health are affected by social organization, custom and standards of living, so that health serves as a conduit for transmitting such social variations into consequences for sexual behavior.

1.1. Menarche and Menopause in Societal Context

The physiological onset of menarche marks the beginning of reproductive capacity in women. Both onset of menarche and the parallel but less-studied beginning of reproductive capacity in men are influenced by nutrition, level of physical activity, and other factors which in turn depend on social organization. The age of menarche has declined in many modern populations as nutritional improvements have produced healthier and earlier maturation. Earlier menarche therefore usually is taken as an outcome or indicator of improvements in the health of children and young adults. However, scientists also recognize that health problems such as obesity or exposure to chemicals artificially introduced into the environment may also affect this timing. The earlier age at menarche also has possible negative implications for reproductive health, because until the recent trend toward earlier onset in the most developed countries, menarche usually occurred at ages around 15 to 17 when women were more

physiologically mature. Menarche at an average age of 13, commonly observed in the most advanced urban industrial nations today, raises new issues of reproductive health risks for the earliest conceptions that may occur at such young ages. Physical activity has been demonstrated to affect menarche, and different cultures organize different levels of such activity for women. For example, young girls who engage in strenuous physical activity combined with diet limitation, such as young ballet dancers or gymnasts, can exhibit delayed onset of menarche (Fujii & Demura 2005, Castello-Branco et al 2006). Both intensity of physical activity and dietary restrictions have been documented as independent influences on this delay. Research (Matchock & Sussman 2006) also suggests that timing of menarche may be influenced by factors such as absence of fathers, presence of older sisters, and other household compositional effects that may indicate pheromonal effects, although such interpretations are hotly debated by other researchers (Mendle et al 2006) who suggest selection rather than causal effects.

The ability to conceive a pregnancy declines with age for women and ends at menopause. Menopause occurs, on average, near the end of the fifth decade of life for women in urban industrial nations, and very tentative evidence suggests that this biological boundary also may have shifted slightly in response to better nutrition and health care over the past century or two. Reported ages at menopause do appear to be slightly younger on average (early to mid-40s) for women in developing societies. While few behavioral or social factors have been linked to systematic variations in menopause, it does appear that smoking is linked to slightly earlier menopause than observed among non-smoking women. For men the physiological capacity to reproduce has no clear upper age limit but does decline during late adulthood. Studies also indicate that the sex drive impelling men to fulfill their potential for reproduction also declines with age, in fact beginning in early adulthood and lowering libidinal energies steadily throughout the remainder of life.

In addition to limitations on reproductive ability specifically linked to sexual behavior (explored in Section 2 below) a number of other behavioral and lifestyle factors can alter the ability of men and women to reproduce. Young women who suffer from anorexia nervosa, for example, can experience amenorrhea and related subfecundity. More general social conditions also can exert reproductive health effects similar to such individualized conditions. The best-documented example of such societal-level effects occurred in the Netherlands during the Second World War in the twentieth century, which produced what become known as the Dutch Hunger Winter. Food shortages led to widespread reports by physicians that their female patients experienced famine amenorrhea, a temporary cessation of the menses and the ovulatory cycle as these women's bodies spontaneously gave priority to maintenance of the existing organism over the potential to reproduce. However, comparison of this acute famine episode during wartime to chronic famine conditions in other parts of the world led researchers to conclude that famine amenorrhea appears to be a temporary physiological reaction. Women who live for extended periods of time (decades or even generations) under conditions of chronic malnutrition even approaching famine experience eventual physiological adaptation. Their bodies manage to resume and maintain the ovulatory/menstrual cycle, although perhaps at a reduced level of reproductive efficiency.

1.2. Health Limitations on Sexual Activity

In addition to direct effects on the ability to conceive and reproduce, other aspects of health can influence reproduction by affecting the desire and/or ability of men and women to engage in sexual activity. Adverse health conditions can impair sexual function during the reproductive ages, and can be arranged in several broad categories: age effects, disease and disability as limitations on sexual activity, behavioral complications, and consequences of medical and pharmacological treatment.

1.2.1. Age effects

Age-related variations in sexual activity have long been described, but the extent to which such patterns actually result from physiological processes intrinsically linked to aging of human organisms remains poorly understood. Most proximate features of sexual activity, including erectile dysfunction in men, vaginal dryness in women and many other aspects of sexual functioning, have been shown in a vast research literature to become increasingly serious problems with increasing age. However, as with many other health complications of increasing age, the extent to which each specific problem is actually due to physiological aging must be disentangled from the behavioral and attitudinal shifts that people learn to expect as part of the aging process. For example, declining physical exercise with advancing age is regarded in many if not most cultures as normal, constituting a fine example of what Matilda White Riley meant when she described old age as enforced deviance. Since lack of physical exercise has been strongly linked to many health outcomes (including sexual dysfunction) at least some significant part of what are conventionally measured as “aging” effects on sexual activity and libido may in fact be societally-conditioned by-products of socially-sanctioned age roles. Age-appropriate behavior varies across cultures, and involves diet, patterns of social interaction, and other related factors that have direct bearing on sexual activity, including the appropriateness of sexual activity itself.

1.2.2. Disease and Disability as Limitations of Sexual Activity

Endocrine disorders can affect sexual functioning, and so also reproductive health. In males, diabetes can impair erectile function, and for both males and females is linked to depression and related sexual dysfunction. Since risk factors for diabetes vary within social categories of any population, this and other endocrine disorders provide another possible link through which social structure can affect sexual activity through health. Although declining testosterone production with age in men and variability in the (much lower) testosterone levels in women is sometimes believed to be related to reduced sexual desire and activity, clear medical evidence on this point awaits further research. Estrogen deficiencies in women have clear physiological consequences including vaginal dryness and pain associated with vaginal intercourse. Other endocrine disorders possibly linked to sexual function include adrenal and thyroid function. Neurological disorders have obvious implications for sexual function and reproductive health. Spinal cord injuries and nerve damage such as may result from automobile injuries, accidental falls, athletic and other physical activity (including abuse and violence), and a range of other socially-conditioned events can have profound effects on sexual function. Epilepsy, multiple sclerosis, Parkinson’s disease, and similar neurological diseases can

both affect physiological sexual functioning and disrupt the mental and emotional processes involved in satisfactory sexual relationships. Circulatory disorders are directly implicated in male erectile dysfunction. The existence of conditions such as coronary artery disease also can create fears that sexual activity might lead to myocardial infarction or other circulatory system incidents. While kidney disease is not strictly a circulatory disorder, the anemia often produced by renal problems can result in fatigue, uremia, and disturbance of reproductive hormones, and has been linked to atherosclerosis which can have further effects on libido and sexual functioning. Digestive/genito-urinary disorders often interfere directly with sexual function, as in the case of inflammatory diseases such as Crohn's disease, ulcerative colitis, inflammatory pelvic disease, and other conditions producing pain and disruption of bodily functions including but not limited specifically to sexual activity. These conditions, often aggravated by stressful social contexts and relationships, affect large proportions of both men and women in many contemporary societies and consequently have the potential for widespread impact on sexual health.

Psychological disorders form another vast realm of influences on sexual activity, worthy of entire volumes in their own right. Chief among these effects, however, we may identify depression as a psychological state, sometimes arising out of physiological problems such as those reviewed above and sometimes produced by other features of an individual's social context and interactions and that individual's own organic characteristics. Depression has been identified as both an outcome of and a precursor for some of the physiological disorders outlined above, and is implicated in many of the behavioral problems noted below, including obesity, alcohol consumption, and other activities that can affect sexual function. Anxiety and psychological stress constitute another important psychological pathway by which social and physiological factors can affect health, including sexual health, and since stress and anxiety have been shown to vary strongly across social contexts and groups, these psychological states (like depression) can transmit differences in social position into health outcomes.

1.2.3. Behavioral Complications

Even in the absence of immediate disease or injury, behaviors arising from many of the above conditions as well as from general lifestyle differences in populations can exacerbate sexual dysfunction, as in the case of fear of a heart attack that limits sexual activity for heart disease patients. Smoking offers the most well-documented behavioral effect on sexual health, both directly through its impact on physiological capacities and processes involved in satisfactory intercourse itself, and indirectly through health complications in many of the areas reviewed above. However, over-eating and obesity, other dietary irregularities such as vitamin deficiencies, alcohol abuse, drug dependence, and sedentary lifestyles that neglect physical exercise all have been implicated both directly as impacting sexual function and indirectly as affecting other aspects of health important for a healthy sex life.

1.2.4. Medical and Pharmacological Treatments

Treatments of other health conditions can themselves produce deleterious side effects for sexual functioning. Radiation therapy and chemotherapy for malignant neoplasms

have drastic health side effects, including severe impairment of sexual activity particularly for (but not limited to) cancers of the reproductive system in both women and men. Many medications prescribed for reducing high blood pressure, cholesterol and other risk factors for circulatory diseases have side effects that include reduced libido, erectile dysfunction in men, vaginal dryness for women, and other effects on sexual health. While surgery involving the genito-urinary system and related organs and systems of the body has witnessed rapid progress in recent years toward preserving sexual function after such procedures, direct consequences for sexual function still obviously remain for a substantial number of such patients. Antipsychotic medications traditionally also had severe side effects on sexual functioning, reducing libido and other aspects of sexual function (including sometimes inducing amenorrhea) for one-third to half of all patients, although new classes of such medications have shown promise in reducing these effects.

2. Effects of Sexual Behavior on Reproductive Health

Just as health status, influenced by social context, has important effects on sexual activity, sexual behavior has direct impacts on reproductive health. Variations in sexual behavior, influenced in many cases by societal context, can create or resolve reproductive health problems for both parents and infants. These problems include adverse birth outcomes for newborn infants, impairment of reproductive ability as a result of sexual behavior, and other health consequences of sexual activity for adults, sometimes even including death from sexually transmitted infections or violence.

2.1. Sexual Behavior and Adverse Birth Outcomes

While a wide range of factors can adversely affect the health of newborn infants during their particularly vulnerable period of the lifespan, certain factors relate directly to parental sexual behavior and the reproductive process itself and may be considered integral elements of reproductive health. These center on the social conventions that limit and direct sexual activity, including the timing of first intercourse and conception, the interval between pregnancies, and patterns of sexual partner selection with special emphasis on the risks entailed in interaction with multiple partners.

2.1.1. Age at First Intercourse, Age at Conception and Infant Outcomes

The age at which individuals first engage in sexual intercourse, and in consequence the age at which women first become pregnant and give birth, have been linked to health outcomes for women and for their children. Until the recent rejuvenation of the age of menarche (noted under health effects on sexual activity, above) age at conception generally had a direct correlation with the probability of many types of congenital fetal and birth abnormalities. Research has documented the tendency of congenital chromosomal and other abnormalities in infants to increase exponentially with the increasing age of both mothers and fathers independently. Although the effects of maternal age appear to be greater than the affects of paternal age, both are significant predictors of such adverse outcomes. In traditional societies where reproduction is widely encouraged and begins at an early age for most or all of the population, evidence

suggests that the health of infants, including the incidence of congenital abnormalities, the frequency of pregnancy complications, and more generally the consequent probability of survival and good health in later life, is optimal for births to quite young mothers. Ages seventeen or eighteen have been suggested by some biologists as the probable optimum biological age for reproduction in such populations.

This underlying physiological pattern of early optimum age for reproduction becomes complicated, however, in contemporary developed societies featuring earlier menarche and also experiencing differentially delayed marriage and childbearing for different population strata. The key social complication arises because such delays occur more often for women with more social and economic advantages. More stable parental families, more parental economic resources, longer involvement in formal education, greater opportunities for personal economic advancement, and related advantages all encourage postponement of marriages and childbearing, so that women who have children at the youngest ages in such societies become a negatively-selected subpopulation of disadvantaged mothers. Not only does the younger age at menarche mean that the youngest mothers are more physiologically immature than in the past, but the negative social selection means that these youngest mothers also have poorer health themselves, fewer health resources for their children, and consequent poorer health outcomes for those children. Some scholars have even advanced a hypothesis that disadvantaged women are aware of the steeper declines in health that await them at older ages, and that this awareness actually has the paradoxical effect of reinforcing the tendency of such women toward accelerated reproduction at early ages, perhaps compounding the problem. These social complications of the underlying physiological age gradient in reproductive health are so strong that in many societies they greatly extend and magnify a j-shaped curve of the risk of adverse birth outcomes and actual infant death. Infants of the youngest (negatively-selected) mothers have greater risks of dying and greater risks of lifelong health complications when they survive infancy. After reaching the minimum level of risk around the modal age for reproduction, the underlying physiological pattern of health and survival risks rising with age reappears even in these populations, however, for the remainder of the reproductive ages.

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