

## Determinants of sexuality development amongst adolescents in the faculty of nursing sciences, Niger Delta University, Amassoma, Bayelsa state, Nigeria

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### Abstract

Due to the growing number of sexually active adolescents worldwide, adolescent sexual development is critical. The purpose of this study was to look at the factors that influence sexual development in adolescents at Niger Delta University's Faculty of Nursing Sciences in Amassoma, Bayelsa State. Researchers used a descriptive survey design. Two research objectives were established to guide the study's course. The study's sample size was 160 adolescents chosen using a random sampling technique. The study included a self-structured questionnaire. The instrument's face and content validity were assessed. The test-retest approach was employed to determine the reliability of the questionnaire. According to the findings of this survey, adolescents have adequate awareness of sexual development because the majority of the respondents (152%) had heard about it. Friends 68(42.5%), social media 40(25%), school 32(20%), and parents 28(17.5%) were the sources of knowledge about sexuality development. Sex hormones were discovered to impact sexuality development in adolescents 130(81.25%), and estrogens and testosterone were revealed to be responsible for primary and secondary sexual characteristics in adolescents 90(56.25%). Furthermore, peer pressure impacts teenage sexuality development through counseling from peers 110(68.75%), dating relationships 120(75%), drinking and clubbing 116(72.5%), and sexual language usage 100(62.5%). However, psychosocial factor influencing sexuality development in adolescents includes; anxiety/depression 90(56.25%) self-esteem (low/high self-esteem) 83(51.88%), peer pressure 140(87.5%), parental influence 102(63.75%), alcoholism 104(65%), drug addiction 99(61.88%), pornography/masturbation 83(51.88%), religiosity 92(57.5%), culture 100(62.5%), mass media 121(75.63%) and nutrition 82(51.25%). In conclusion, the effects of hormones and psychosocial variables were identified as predictors of sexuality development in adolescents. It is Friends 68(42.5%), social media 40(25%), school 32(20%), and parents 28(17.5%) were the sources of knowledge about sexuality development. Sex hormones were discovered to impact sexuality development in adolescents 130(81.25%), and estrogens and testosterone were revealed to be responsible for primary and secondary sexual characteristics in adolescents 90(56.25%). Furthermore, peer pressure other factors have impacts on sexual development. However, it is recommended that Institutions should employ and retrain counselors through in-service training programs, capacity development seminars, and refresher courses on sexual behavior counseling among adolescents.

**Keywords:** Adolescents; Determinants; Sexuality Development; University

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## 1. Introduction

Given the huge population of sexually active adolescents globally, adolescent sexual development is crucial [1]. According to Bogaert [2], growth and development are ongoing processes that affect an individual at all times. Sexual development begins as early as intrauterine life after conception and continues through infancy, childhood, adolescence, adulthood, and death. Sexuality is defined as a crucial part of being human throughout life by [3] and includes sex, gender identities and roles, sexual orientation, eroticism, pleasure, intimacy, and reproduction.

Adolescent sexual development has risen in society, and as a result, it has become a public health problem [4]. This is due to the increased access to various media by the adolescents, which leads to larger intake of television programs and information, sexuality development in teenagers is important. According to Baams et al. [5], one aspect of life where traditional values are clearly declining is sexuality [6].

Sexuality manifests itself via thoughts, fantasies, wants, beliefs, attitudes, values, behavior, practices, roles, and relationships [7,8]. While sexuality can encompass all of these qualities, they are not necessarily experienced or expressed. The combination of biological, physiological, social, economic, political, cultural, ethical, legal, historical, religious, and spiritual variables influences sexuality [9]. The information conveyed to the youths was as diverse as their gender disparities.

According to Ssewanyana et al., [10], there are roughly 1.2 billion teenagers (10-19 years of age) worldwide. Developing nations are home to about 70% of the world's adolescent (10-19-year-old) population. In recent decades, developing nations have seen fast change as a result of urbanization, migration, education, and cultural mixing, all of which have had a significant influence on teenagers' attitudes regarding sexuality [8]. The median age for sexuality in Nigeria is 18 years, and a considerable number of young people participate in sexual activity during this time. Many variables can impact sexual development, which can alter dramatically from generation to generation. Some of these elements may be biological or psychological in nature, and they may have a favorable or negative influence on the social behavior of teenagers. These include hormonal and endocrine influences, self-esteem, peer pressure, culture, religion, media, and so on. The study's aims are to assess adolescents' knowledge of sexual development in the faculty of nursing sciences Niger Delta University and the determinant factors associated with sexuality developments amongst these adolescents in this setting.

### 1.1. Concept of Sexuality Development

Sexuality is an emotional, social, cultural, and physical experience. One aspect of sexuality is sexual development, which begins considerably earlier in life than puberty [2]. Sexual development encompasses much more than sex; it encompasses our beliefs, attitudes, feelings, relationships, and behaviors. Sexuality is an emotional, social, cultural, and physical experience. One aspect of sexuality is sexual development, which begins considerably earlier in life than puberty [2]. Many variables influence adolescent sexual development, including but not limited to in the current study, biological aspects such as endocrine system function and sex hormones, as well as psychosocial factors such as socioeconomic, psychological, media, family, peers, society, and religion, were investigated. The development of sexuality is connected with a fast increase in gonadal hormone release, which initiates the development of secondary sexual traits such as breast development in females and pubertal hair growth, as well as other physiological changes such as physical growth. Testosterone, oestradiol, and dehydroepiandrosterone (DHEA) are the sex hormones that regulate physical changes [8].

### 1.2. Sexuality Development in Adolescents

Human sexuality is far more complex than the biological mechanisms that trigger sexual development [8,11]. As a result, teenage sexuality development comprises not just physical growth but also cognitive, emotional, social, and moral development. These developmental regions do not progress at the same rate. This is especially significant in the context of adolescent sexuality since bad judgments made owing to a lack of cognitive and/or emotional maturity can have long-term effects [8]. Because of the interdependence of sexual development, cognitive development, and emotional development, early adolescence is a risky stage in adolescents' sexual development [10]. Adolescents at this age lack the cognitive and emotional development required to make intelligent and healthy sexuality decisions, and they are ill-prepared to deal with the repercussions of sexual engagement. This is regrettable, because today's teens are more sexually active than previous generations.

The bio-psycho-social model can better explain these adolescent developmental stages. Biological, psychological, and social variables all have a role in shaping the development of sexuality in adolescents [10]. Biological variables include genetic and neuro-endocrinal elements that impact the biological sex as well as the psychological sex. Gonadal

hormones, cortisol, and many other hormones have a role in the start of puberty throughout adolescence. Because of this neuro-endocrine effect, secondary sexual traits emerge. Axillary hairs develop in both males and females—pubic hairs, with a gender specific growth pattern. In males, genital growth happens, as does the formation of a beard and mustache, and the physique takes on a classic masculine look. In females, breast growth happens; menstruation begins, genitalia mature, and the body alters to a feminine type. Hormones also impact an adolescent's desire for a sexual connection. Hormonal changes during this phase cause the release of mature oocytes from the ovary (first ovulation) and mature spermatozoa from the testicles (first ejaculation), respectively, in women and men [12]. The personality or temperament of an individual is an essential psychological characteristic that influences their attitude toward sexuality. Introvert teens struggle with approaching and reacting sexually. Furthermore, the author said that social/environmental factors play a key influence in adolescent sexuality development [12]. Additionally, television and the internet expose teens to sexually explicit books and films, impacting their perspective of sexuality as well as the attitude of their parents toward sexuality, parenting style, peer relationships, and cultural influences are key social elements that influence teenage sexual attitudes and enhance sexual learning [5]. Aside from biological, psychological, and social elements, many other variables impact sexual development, including political, legal, philosophical, spiritual, ethical, and moral ideals.

### **1.3. Knowledge of Sexuality Development amongst Adolescents**

Sexual and reproductive health is one of the most important aspects of adolescent development [4]. This is why access to credible and plentiful information on sexual and reproductive health is one of the younger generation's fundamental rights, and it plays a significant part in the formation of sexual concepts, tendencies, behavior, and roles [10]. Adolescents' understanding of sexuality grows during their school years. The correctness of their sexual knowledge, on the other hand, is heavily dependent on the teenagers' exposure to accurate information and instructional material [13]. Sexual development is a component of sexuality that occurs far earlier in life than puberty. While some teens may acquire complete and accurate information while some teenagers may obtain accurate and complete information from school, their parents, and other sources, others may receive insufficient information [14]. In the absence of healthy, realistic messages about sexuality, many adolescents turn to their classmates, the internet, and the media for knowledge [13].

Furthermore, the speed of information and social exchange in today's world, as well as rapid changes in society, together with social and economic expansion and the advances that come with the digital age, which all lead to changes in society's perceptions, have placed youth reproductive and sexual health among the top global health concerns [4, 15]. Indeed, identifying the sources of gathering information in this group is one of the most significant and fundamental topics in order to create and implement effective treatments to avoid harmful sexual behaviors in adolescents [13]. However, the sources of sexual and reproductive knowledge may differ between countries and regions. It is worth noting that knowing healthy sexuality can aid in the prevention of sexual assault among adolescents. As a result, the aims of fostering information and skills related to healthy sexuality are to assist young people in making informed decisions, understanding consent, and how to engage appropriately with partners, friends, and peers. So that they can positively impact their classmates.

### **1.4. Determinants of Sexuality Development in Adolescents**

Adolescent sexual development is frequently influenced by a variety of elements, including biological, psychological, and social, sometimes known as psychosocial since they are interconnected.

#### *1.4.1. Biological factors*

The impact of hormones on sexual development in adolescents is most visible during puberty.

Sexuality and sexual desire typically begin to intensify at this era, coinciding with the start of puberty [16]. The development of sexuality is connected with a fast increase in gonadal hormone release, which initiates the development of secondary sexual traits such as breast development in females and pubertal hair growth, as well as other physiological changes such as physical growth. Testosterone, estradiol, and dehydroepiandrosterone are the sex hormones that regulate body changes (DHEA). The hormonal cascade that initiates the release of these hormones from the gonads begins in the brain, and endocrine function is regulated by a feedback mechanism known as the hypothalamic pituitary gonadal (HPG) axis [16]. Pubertal onset is linked to the activation of hypothalamic neurons that release gonadotropin-releasing hormone (GnRH). GnRH then goes to the pituitary gland, where it regulates the synthesis and release of two pituitary gonadotropins: When LH and FSH are released into the bloodstream, they work together to encourage the creation of gonadal steroid hormones, completing the process of egg and sperm formation [16].

Secondary sexual characteristics manifesting in peripheral tissues (for example, breast growth in females and facial hair in males) result in higher levels of estrogen and progesterone [17]. Thus, hormonal changes during adolescence cause a dramatic increase in sexual interest; however, whether this dramatic increase in sexual interest results in sexual behavior is dependent on the individual, because sexual interests vary significantly among adolescents and adults based on individual differences and environmental factors [17]. Adolescence is a stage in which a teenager experiences an increase in sexual emotions caused by hormone releases. Adolescents go through puberty, which is the maturation of a child's sexual and physical traits. This is caused by hormonal changes. These changes occur as a result of gender differences, and they include cognitive, social/emotional, and interpersonal alterations as well as physical changes [13]. However, the precise age at which a kid reaches puberty is determined by a variety of factors such as heredity, diet, and gender. Endocrine glands generate hormones throughout puberty, causing body changes and the development of secondary sex traits [9]. In females, the ovaries begin to produce more estrogens, which causes breast development, pelvic widening, and a rise in the amount of body fat in the hip, thigh, and buttocks. Estrogen also causes uterine development, endometrial proliferation, and the beginning of menstruation. Breast growth is the primary indicator that a female is approaching puberty. Before her first menstrual period, a girl will typically have: increased body hair growth, most notably in the underarm and pubic areas, increased development of high muscle behind the femur, hip widening, height gain, and/or white vaginal discharge and leg hair growth [17]. The testicles in males' boost testosterone production, which increases the size and mass of muscles, vocal cords, and bones, deepening the voice, and altering the contour of the face and skeleton. Enlargement of both testicles is the earliest indication of puberty in boys. According to Ssewanyana et al., [10] boys will typically experience faster growth, particularly in height, growth of body hair, including underarm, abdominal, chest hair, pubic hair, and face (beards), increased shoulder hair, growth of the penis, scrotum (with reddening and folding of the skin), and testes, nocturnal emissions (or wet dreams), voice changes, and acne. In the context of this study, an adolescent is a teenager who is experiencing adolescence and puberty. Furthermore, an adolescent can be considered Furthermore, an adolescent is a youngster who is in the transitional stage between puberty and maturity (13 and 19 years). These stages, however, occur throughout the adolescent period of growth. In a study conducted by Vigil et al. [12] noted that the primary impacts of sex steroids and other hormones on the adolescent brain contribute in the organizational events that structurally form some brain circuits during the transition from puberty to adolescence. As a result of the hormones that are now engaging certain neuronal circuits, this will result in some specific behavior in adults.

The neurological and endocrine systems are the two biological systems most directly engaged in the functioning of psychological processes and the generation of overt sexual behavior [13]. Throughout this context, the ovaries and testicles (female and male sex organs, respectively) emit substances known as sex hormones, which control 35 organs and functions in the body. They produce sex hormones such as estrogen (female sex hormone) and testosterone (male sex hormone), which are important for egg and sperm maturation as well as the development of main and secondary sex characteristics in adolescence [18]. The nervous system is a collection of organs and structures that send and receive information throughout the body while also monitoring and regulating its activity [19]. Although sex hormones are primarily generated in the gonads, control over their production is governed by a number of essential structures inside the brain, a critical component of the central nervous system [18]. For example, the activities of hormones called gonadotropin-releasing hormone (GnRH) (in response to low levels of sex hormones) and inhibin (in response to high levels of sex hormones) produced by the hypothalamus (a part of the brain) and sent through a capillary network to the pituitary gland, another part of the brain, regulate the levels of sex hormones produced. Male and female go through the similar procedure of managing sex hormones. However, there are significant variances in the pattern of hormone production for both genders. As a result, the males have a more consistent average level of testosterone than females [20]. The endocrine system has long been thought to be the primary determinant in determining sex or gender variations in sexual functioning. For example, there is evidence of a link between androgen and sexual function in men. According to Sales et al. [22], androgens are responsible for the ability of adolescent and adult males to have spontaneous erections while sleeping, which is an indicator of proper physiological functioning. According to Charlton et al. [23] males in general create such large quantities of circulating androgens that many may feel a ceiling or maximum of 36 levels of internal sexual drive. In a sample of 301 teenage males, Charlton et al. [23] discovered a positive link between testosterone and risk taking that was independent of age and pubertal development as defined by the Tanner scale. Surprisingly, this impact was partially mediated by peer influence: males with high testosterone levels also had peers who were more active in dangerous activities, influencing their own risk taking. This is because there is strong evidence that individual testosterone levels predict variations in sexual behaviors. According to Sales et al. [22], the new impulses that adolescents confront make them more conscious of their own sexuality, which is a part of sexuality development. He went on to say that one of the most difficult challenges that adolescents confront is finding out how to appropriately control and express their sexual urges, which is greatly impacted by the social and cultural environments in which they live.

Furthermore, the development of sexual interest and the strengthening of sexual desire following the start of puberty, according to Charlton et al. [23], is a significant effect of the rise in sex hormones. Sexual desire increases the probability that a person will participate in sexual action. This, in turn, may alter one's sexual orientation or social behavior.

#### 1.4.2. Psychosocial factors

According to Ssewanyana et al., [10], adolescents deal with psychosocial issues such as establishing an identity, establishing autonomy (becoming an independent and self-governing person within relationships), and progressing from concrete to abstract thought, establishing intimacy, and becoming comfortable with one's sexuality. Adolescents, according to this notion, are at the pinnacle of their growth. The manner in which adolescents are educated and exposed to sexuality will have a big impact on whether or not they establish a healthy sexual identity [24]. This is due to the physical and emotional features of maturity emerging in teens, as well as the social, intellectual, and spiritual beginnings of the early years being sharpened, tested, and sculpted for the future during this time. It also leads to other psychological symptoms like as Other psychological aspects include emotional harm, sadness, and risk behaviors such as suicide, high school dropout, low self-esteem, and criminality [25].

Psychosocial factors are a set of traits that impact an individual's psychological or social well-being. Such elements can define people in connection to their social surroundings and how it affects their physical and mental health. Protective psychosocial resources and psychological risk factors are examples of psychosocial factors. Social network and social support are examples of psychosocial resources in the social environment [26]. Coping capacity or mastery, a sense of coherence, and self-esteem are all important psychological resources. Vital weariness, depression, despair, and aggression are among psychological risk factors [22]. Psychosocial elements such as psychological resources and social support may thus be relevant in understanding health habits. According to research, psychological factors such as self-esteem and self-efficacy may assist to explain why certain teenagers are more likely than others to engage in risky activities [22]. Because adolescence is a period of identity formation, it is possible that valuing oneself more will reduce the execution of dangerous actions. Individuals' understandings of sexual urges develop as a result of social expectations and social and psychological maturation [22]. As a result, adolescents with high self-esteem are less likely to engage in risky activities than their peers because they value their health more. This emotional idea aids in the development of sexual knowledge, identity, and self-evaluation. According to Ojo [27] model sexuality is one of the five key psychological challenges that individuals face when they enter adolescence. Psychosocial elements are significant human characteristics that may be altered by the social environment. According to Ojo [27], sexuality is one of 17 issues experienced by kids that are generally unique to adolescence due to the quick, fast rise in complexity and intensity they experience. Individuals must come to grips with a rapidly changing body, both in terms of look and function, in a very short amount of time relative to their total life span. Also, the author posit that the psychosocial factors that have been hypothesized to influence premarital sexual attitudes at the developmental stage (i.e. adolescence or young adulthood), gender, religiosity (whether extrinsic or intrinsic), institutional environment (whether public or private), and previous sexual experience. Each of these characteristics would likely have an impact on how young adults and adolescents try to settle any difficulties they may be experiencing with their sexuality. Several elements, however, have been discovered to impact, inspire, and predict young people's sexual beliefs and behavior. Among these include socioeconomic, psychological, media, familial, peers, social, and religious issues.

According to Dave and Dave [28], economic considerations are primary element that supports hazardous sexual behavior in females, whereas the desire for sex and curiosity are the major reasons for the males. Ng'ang'a et al. [29] studied the predictors of sexual behavior in selected Nigerian teenagers. His research focused on certain attitudes, such as pubertal changes and reproductive biology.

Oluyemi et al. [14] investigated the relationship between parenting styles and young people's sexual attitudes in Nigeria and discovered that authoritarian and permissive parenting styles predicted liberal, permissive, promiscuous, and loose attitudes toward sexuality issues, whereas authoritative parenting style predicted restraint attitude. Peer pressure, self-esteem, religion, culture, media, and other psychosocial factors are all connected with sexuality development.

Peer pressure, or the influence of one person on another, is thought to play an important part in teenage sexual development [30]. Adolescents become increasingly engaged and sensitive to sexual activities as they mature. Many people are unfamiliar with the pain, discomfort, and inexplicable hormonal changes that occur as they advance through their adolescent years [30]. As a result, individuals are exposed to some morally repugnant actions that are perceived to be the only way out of their predicament [31]. Self-esteem has also been identified as a psychosocial difficulty that these teenagers face. Negative self-esteem is associated with the development of a variety of mental disorders and social problems, including depression, anxiety, violence, high-risk behaviors, and substance use [29,32]. Positive self-esteem is associated with the development of a range of mental disorders and social problems, including depression, anxiety,

violence, high-risk behaviors, and substance use. Self-esteem is crucial in risk-taking behavior; this may also apply to SRB, although the data is currently ambiguous [24]. Several studies have found a relationship between poor self-esteem and sexual risk behavior in adolescence (e.g., early sexual intercourse, inconsistent contraceptive and condom usage), as well as the repercussions of the latter, such as undesired pregnancy and STIs [32,33]. As a result of the findings shown above, it seems likely that high self-esteem is connected with less dangerous sexual behavior.

Furthermore, religiosity, which is connected to the idea of religion, consists of a set of culturally embedded beliefs, practices, conventions, and rituals [7]. It is also tied to a person's relationship to a deity. In its widest definition, religiosity is a sociological word that refers to the many characteristics of religious engagement, devotion, and belief (in religious doctrines). According to Ewing et al. [20], religiosity comprises at least three components, which are as follows: Knowing (cognition); this component is represented through beliefs in supernatural creatures and ranges from the lack of such beliefs to total acceptance of a doctrine's creeds. Feeling (affect); the degree of effects of veneration, devotion, humility, and appreciation towards the divine being is measured in this component. According to studies, religious people engage in fewer sexual activities and have more negative attitudes toward premarital sex, non-procreative sexual activities, and casual sex than non-religious people. This is consistent with the traditional disapproving views that many major religions hold regarding certain types of sexual activity [21]. Furthermore, perceptions of one's religion as disapproving of sexual behavior have been found to be positively connected with conservative sexual attitudes [34]. As a result, religion may act as a moderator of the observed sex differences in preferences for short-term and long-term mating strategies. Among polytechnic students, religion predicted sexual views, with higher levels of religiosity correlated with more conservative sexual attitudes [27]. Pringle et al. [21] also indicated that religion protects against a variety of adolescent health outcomes, including sexuality development. Females with higher religiosity scores were more likely to have higher self-efficacy in communicating with both new and steady partners about sex, refusing an unsafe sexual encounter, and communicating with their partners about sexually transmitted diseases and infections, as well as pregnancy prevention [34]. Spirituality and religion, as opposed to secular coping mechanisms, address human failure and insufficiency [34]. Religion, as a social institution (religious beliefs, rites, and religious activities, as well as a sense of belonging to a religious community), therefore plays a significant part in rebuilding. Nonetheless, culture, defined as social beliefs, behavior, and tradition, has the potential to influence teenage sexuality development. The values and beliefs of the family and the community provide the foundation of the culture in which children are reared [10]. A child's sexual knowledge and conduct are thus formed by the values and ideas held by the child's own family and community [14]. The cultural contexts of adolescents influence their understanding of physical changes, public and private sexual conduct, pregnancy, birth, intimacy, and relationships. The following are some examples of cultural differences: When teaching their children about sex education and relationships, communities may adhere to social or cultural conventions or practices [35]. Discussions about sexual conduct with adolescents may be okay for some people (for example, when grandparents educate their granddaughters) but are frowned upon by others (such as, when uncles talk with their nieces). Some cultures have special activities, rituals, or stories that are used to instruct their teenagers and assist them move into maturity. Social contexts that encourage nudity but not physical privacy are associated with greater rates of normal (nonintrusive) sexual activity in children than social situations that encourage modesty and privacy [34]. Parents are typically the first instructors of a child's sexual identity, teaching them about love, generosity, and humility. Although parents and peers are the most significant providers of sexuality knowledge, they are not the most effective. The function of parents and family composition in defining children's normative behavior is critical. Parents serve as essential role models for their children, who prefer to mimic their actions. Living with at least one parent protects adolescents from engaging in sexual risk behaviors; living with both parents protects adolescents from engaging in sexual risk behaviors, and not living with both parents up to the age of 15 is a factor related with early sexual intercourse [14]. Furthermore, the media has had a significant influence on the sexual development of teens. Adolescents learn about sexuality from a variety of sources. Family, friends, neighbors, and the community provide both obvious and subtle messages regarding sexual activity. Sexuality messages may also be found in a range of media, including television, movies, music videos, song lyrics, video games, magazines, the Internet, and mobile phone contact [10]. Unfortunately, graphic sexual behaviors may be seen on "family time" television programmes as well as on cartoon/channels. children's Exposure to graphic sexual actions via various media sources can have a significant influence on an adolescent's behavior. The socialization of sexual identity entails giving sexual knowledge, attitudes, and values [36].

This is a multifaceted and intricate process that occurs gradually over time using numerous sources. It covers a variety of themes such as reproductive biology, dating ideals and attitudes, sexual interactions, love, emotional and romantic partnerships, and so on. Sexual signals are sent verbally, non-verbally, directly and indirectly, and are frequently nuanced, confusing, and contradictory [29]. The media, particularly television and magazines, are the primary instructional sources of sexual development among teenagers. The influence of media on teenage sexual orientation can be good or harmful, however the former has had a significant impact on adolescents' social behavior.

## 2. Material and methods

This study used a descriptive survey approach to evaluate the determinants of sexuality development amongst adolescents at Niger Delta University Faculty of Nursing Sciences, College of Health Sciences, Amassoma, Bayelsa State, Nigeria. The target population comprises of adolescence nursing students at 200 to 500 levels in the Faculty of Nursing Sciences, with a target population of 267 students in the Faculty of Nursing Sciences. Adolescents from levels 200(60), 300(58), 400(71), and 500(78) were chosen using a simple random sampling procedure. Using Taro Yamen's formula, a sample size of 160 respondents was obtained. The researchers' data gathering tool was a self-developed questionnaire divided into three components. Section A contains information on the respondents' socio-demographic characteristics. Section B was developed to assess adolescent sexuality development knowledge; Section C was designed to assess adolescent sexuality development determinants at the Faculty of Nursing Sciences, Niger Delta University, Amassoma, Bayelsa State. Researchers and specialists in these field obtained the instrument's face and content validity. The test-retest approach was employed to establish instrument reliability, and a coefficient reliability index of 0.78 was achieved using the Pearson Product moment correlation. The researchers distributed the instrument to the subjects, and after completion, the data acquired was recorded. This procedure took two weeks to complete. The respondents were reassured about the information they provided and were handled with utmost confidentiality. The collected data was analyzed using descriptive statistics and the SPSS software package version 23. The results of the analysis were presented in the form of tables, frequency, and percentage.

## 3. Results

**Table 1** Socio-demographic Data of Participants

Variable	Frequency ( <i>f</i> )	Percentage (%)
<b>Age of participants</b>		
13-15	20	12.5
16-19	78	48.75
20-22	62	38.75
<b>Gender</b>		
Male	52	32.5
Female	108	67.5
<b>Religion</b>		
Christainity	158	98.75
Islam	2	1.25
Traditional worshipers	-	-
Other	-	-
<b>Level</b>		
200	52	32.5
300	48	30
400	30	18.75
500	30	18.75
<b>Marital Status</b>		
Single	160	100
Married	-	-
Divorce	-	-
Widow	-	-

Table 1 above shows that the majority of respondents (78.75%) were between the ages of 16 and 19, 62(38.75%) were between the ages of 20 and 22, and 20(12.5%) were between the ages of 13 and 15. 108 (67.5%) of the 160 responders were female, while 52 (32.5%) were male. Also, 158 (98.75%) of the 160 respondents are Christians, whereas 2 (1.25%) are Muslims. The majority of respondents, 52(32.5%), are in the 200 level, 48(30%) are in the 300 level, 30(18.75%) are in the 400 level, and 30(18.75%) are in the 500 level. The majority of the 160 respondents (100%) are single.

**Table 2** Knowledge of Sexuality Development amongst Adolescents

Variable	Frequency (f)	Percentages (%)
<b>Have you heard of sexuality development?</b>		
Yes	152	95
No	8	5
<b>What was your Source of information on sexuality development?</b>		
Parents	28	17.5
Social media	40	25
Friends	68	42.5
Church	-	
School	32	20
<b>Sexuality development means how people grow and change in relation to sexual maturity</b>		
Yes	120	75
No	40	25
<b>Does sexuality development occur during puberty?</b>		
Yes	131	81.88
No	29	18.12
<b>Does sexuality development affect the behaviour of an adolescent?</b>		
Yes	112	70
No	48	30

Result in Table 2, above shows that the majority of respondents (152%) had heard of sexuality development, whereas 8(5%) have not. Friends 68(42.5%), social media 40(25%), school 32(20%), and parents 28(17.5%) were the sources of knowledge about sexuality development. Furthermore, the majority of respondents (120%) agreed that sexuality development refers to how people grow and change in regard to sexual maturity, whereas 40(25%) disagreed. The majority of the 160 respondents (131(81.88%)) believed sexuality development occurs throughout puberty, while 29(18.12%) replied no. The majority of respondents (112) agreed that sexuality development affects adolescent behavior, whereas 48 (30%) said No.

Table 3 below shows that majority of the respondents 130(81.25%) said that sex hormones responsible for sexuality development in adolescents while 30(18.75%) said No. out of the 160 respondents, majority 141(88.13%) said that sexual feeling triggered off by secretions of hormones while 19(11.87%) said No. majority of the respondents 112(70%) said that the release of sex hormones make one become sexually attracted to the opposite sex while 48(30%) said no. Furthermore, the majority of respondents (90.25%) believed that estrogens and testosterone were responsible for main and secondary sexual characteristics in adolescents, whereas the minority of respondents (43.75%) disagreed.

In addition, 90(56.25%) of respondents indicated that anxiety/depression is a psychosocial element impacting sexuality development in teenagers, whereas 70(43.75%) replied No.

Furthermore, the majority of respondents (83(51.88%)) believe that self-esteem (low/high self-esteem) is a psychosocial element impacting sexuality development in adolescents, while 77(48.12%) disagree. The majority of



respondents (140(87.5%)) agreed that peer pressure is a psychosocial component impacting sexuality development in adolescents, whereas 20(12.5%) disagreed. The majority of respondents (102(63.75%)) agreed that parental influence is a psychosocial component impacting sexuality development in adolescents, while 58(36.25%) disagreed. Furthermore, the majority of respondents (104(65%)) said that alcoholism is a psychosocial element impacting sexuality development in teens, whereas 56(35%) did not. The majority of the 160 respondents 99(61.88%) agreed that drug addiction is a psychosocial factor influencing on sexual development of adolescents whereas 61(38.125) disagreed.

The majority of respondents (120(75%)) stated that place of living is not a psychosocial factor influencing sexuality development in adolescents, whereas 40(25%) stated that it is. Furthermore, the majority of the 160 respondents claimed that pornography/masturbation is a psychosocial factor impacting sexuality development in adolescents, with 83 (51.88%) saying yes and 77 (48.12%) saying no. The majority of respondents (92.5%) agreed that religiosity is a psychosocial factor influencing sexuality development in adolescents, while 68.5% disagreed. Out of 160 respondents, 100 (62.5%) believed culture is a psychosocial component influencing sexuality development in adolescents, whereas 60 (37.5%) replied no. Moreover, the majority of respondents (121(75.63%)) indicated that mass media is a psychosocial factor influencing sexuality development in adolescents, whereas 39(24.37%) responded no. Finally, the majority of responders (82.25%) stated that nutrition is an important factor influencing sexuality development in adolescents whereas 78(48.75) disagreed.

**Table 3** Determinant factors of Sexuality Development amongst Adolescents

Variables	Frequency (f)	Percentage (%)
<b>(1) Biological factor</b>		
<b>Are sex hormones responsible for sexuality development in adolescents?</b>		
Yes	130	81.25
No	30	18.75
<b>Is sexual feeling triggered off by secretions of hormones?</b>		
Yes	141	88.13
No	19	11.87
<b>Does the release of sex hormones make one become sexually attracted to the opposite sex?</b>		
Yes	112	70
No	48	30
<b>Are estrogens and testosterone responsible for primary and secondary sexual characteristics in adolescents?</b>		
Yes	90	56.25
No	70	43.75
<b>(2) Psychosocial factors</b>		
<b>Anxiety/depression</b>		
Yes	90	56.25
No	70	43.75
<b>Self-esteem (low/high self-esteem)</b>		
Yes	83	51.88
No	77	48.12
<b>Peer pressure</b>		

Yes	140	87.5
No	20	12.5
<b>Parental influence</b>		
Yes	102	63.75
No	58	36.25
<b>Alcoholism</b>		
Yes	104	65
No	56	35
<b>Drug addiction</b>		
Yes	99	61.88
No	61	38.12
<b>Place of living</b>		
Yes	40	25
No	120	75
<b>Pornography/Masturbation</b>		
Yes	83	51.88
No	77	48.12
<b>Religiosity</b>		
Yes	92	57.5
No	68	42.5
<b>Culture</b>		
Yes	100	62.5
No	60	37.5
<b>Mass media</b>		
Yes	121	75.63
No	39	24.37
<b>Nutrition (Eating Habits)</b>		
Yes	82	51.25
No	78	48.75

#### 4. Discussion

Based on the study's findings, the majority of respondents are aware of sexuality development, and their primary sources of information on sexuality development include friends, social media, school, and parents. Furthermore, the majority of respondents stated that sexual development influences adolescents' behavior. This study supports the findings of Bada and Adewumi [4], who discovered that teenagers' understanding of sexuality influences their morality. Furthermore, this study agrees with the findings of Soltani et al. [13], who found that Iranian teen girls and boys have adequate understanding of sexual and reproductive health. Friends were the most prevalent source of sexual and reproductive knowledge for both male and female adolescents.

Hormones are responsible for the biological development, sexual and reproductive maturation associated with puberty, as well as a succession of emotional, cognitive, and behavioral shifts that characterize the time of early adolescence. According to the findings of this survey, the majority of respondents believe that sex hormones are responsible for sexual development in adolescents and that hormone secretions generate sexual feelings. This study supports the findings of Bada and Adewumi [4], who discovered that fast changes in body proportions thrill adolescents and drive them to engage in pornographic behaviors, which in turn alter their moral reasoning via participating in fantasy.

Furthermore, adolescent relationships with negative peers can lead to negative behaviors such as smoking, drinking, negative dress and speech, using illicit substances, engaging in sexual behaviors, adopting and accepting violence, adopting criminal and anti-social behaviors, and many other areas of the adolescent's life. According to the study's findings, the majority of respondents spend more time with their peer peers and are more comfortable discussing sexual concerns with friends. Furthermore, the majority of responders socialize with their peers and seek sexual health advice. This study agrees with Ng'ang'a et al. [29]; Dave and Dave [28], who found that characteristics substantially connected to adolescent's hazardous sexual activity were peer group with negative conduct, self-efficacy, and parental involvement. This peers influences them both negatively and positively.

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## 5. Conclusion

The current study investigated the factors that influence sexual development in adolescents at Niger Delta University Faculty of Nursing Sciences in Amassoma, Bayelsa State. The findings demonstrated that adolescents have adequate understanding of sexual development. Friends, social media, school, and parents were the sources of knowledge about sexuality development. Sex hormones have been discovered to impact sexual development in adolescents, with estrogens and testosterone being responsible for both primary and secondary sexual characteristics in adolescents. Furthermore, peer pressure impacts adolescent sexual development through friend advice, dating relationships, drinking and partying, and the use of sexual vocabulary. Anxiety/depression, self-esteem (low/high self-esteem), peer pressure, parental influence, alcoholism, drug addiction, pornography/masturbation, religiosity, culture, mass media, and nutrition are all psychosocial factors that impact sexuality development in adolescents. Thus, hormones, and psychosocial factors were the drivers of sexual development in adolescents.

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## Compliance with ethical standards

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### *Disclosure of conflict of interest*

The authors declare no conflict of interest.

### *Statement of ethical approval*

Ethical approval was sought from the Faculty of Nursing Science, Niger Delta University.

### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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## References

- [1] World Health Organization (2012). Expanding Access to Contraceptive Services for Adolescents. WHO, Geneva.
- [2] Bogaert, A. F. (2015). Asexuality: What it is and why it matters. *Journal of sex research*, 52(4), 362-379.
- [3] World Health Organisation (WHO). (2015) Adolescent Development. [http://www.who.int/maternal\\_child\\_adolescent/topics/adolescencedevelopment](http://www.who.int/maternal_child_adolescent/topics/adolescencedevelopment) (accessed on 06/5/16).
- [4] Bada, F. O., & Adewumi, D. M. (2019). Adolescents Knowledge of Sex Education and Moral Sexual Behaviour in Ado-Ekiti, Ekiti State, Nigeria. *European Journal of Education Studies*, 2(1), 13-18

- [5] Baams, L., Dubas, J. S., Overbeek, G., & Van Aken, M. A. (2015). Transitions in body and behavior: A meta-analytic study on the relationship between pubertal development and adolescent sexual behavior. *Journal of Adolescent Health, 56*(6), 586-598.
- [6] Maswikwa, B., Richter, L., Kaufman, J., & Nandi, A. (2015). Minimum marriage age laws and the prevalence of child marriage and adolescent birth: evidence from sub-Saharan Africa. *International perspectives on sexual and reproductive health, 41*(2), 58-68.
- [7] Pringle, J., Mills, K. L., McAteer, J., Jepson, R., Hogg, E., Anand, N., & Blakemore, S. J. (2017). The physiology of adolescent sexual behaviour: A systematic review. *Cogent social sciences, 3*(1), 1368858.
- [8] Kar, S. K., Choudhury, A., & Singh, A. P. (2015). Understanding normal development of adolescent sexuality: A bumpy ride. *Journal of human reproductive sciences, 8*(2), 70-81
- [9] Blakemore, S. J., & Mills, K. L. (2014). Is adolescence a sensitive period for sociocultural processing?. *Annual Review of Psychology, 65*, 187-207.
- [10] Ssewanyana, D., Abubakar, A., Mabrouk, A., Kagonya, V. A., Nasambu, C., Dzombo, J. T., ... & Newton, C. R. (2021). The occurrence of sexual risk behaviors and its association with psychological well-being among Kenyan adolescents. *Frontiers in Reproductive Health, 41*, 123-145
- [11] Merrick, J., Tenenbaum, A., & Omar, H. A. (2013). Human sexuality and adolescence. *Frontiers in Public Health, 1*, 41-67
- [12] Vigil, P., Del Rio, J. P., Carrera, B., Aranguiz, F. C., Rioseco, H., & Cortés, M. E. (2013). Influence of sex steroid hormones on the adolescent brain and behavior: An update. *The Linacre Quarterly, 83*(3), 308-329.
- [13] Soltani, F., Sattari, M., Parsa, P., & Farhadian, M. (2017). Sources of adolescents' information about sexual and reproductive health: gender similarities and differences. *Journal of Pharmaceutical Sciences and Research, 9*(9), 1624.
- [14] Oluyemi, J. A., Yinusa, M. A., Abdullateef, R., Kehinde, K., & Adejoke, J. (2017). Parental influence on adolescent sexual behaviour among secondary school students in Ogbomoso, Nigeria. *African Journal of Social Work, 7*(1), 37-43.
- [15] Rajapaksa-Hewageegana, N., Piercy, H., Salway, S., & Samarage, S. (2015). Sexual and reproductive knowledge, attitudes and behaviours in a school going population of Sri Lankan adolescents. *Sexual & Reproductive Healthcare, 6*(1), 3-8.8.
- [16] Potki, R., Ziaei, T., Faramarzi, M., Moosazadeh, M., & Shahhosseini, Z. (2017). Bio-psycho-social factors affecting sexual self-concept: A systematic review. *Electronic Physician, 9*(9), 51-72.
- [17] Purves-Tyson, T. D., Owens, S. J., Double, K. L., Desai, R., Handelsman, D. J., & Weickert, C. S. (2014). Testosterone induces molecular changes in dopamine signaling pathway molecules in the adolescent male rat nigrostriatal pathway. *PloS one, 9*(3), 911-951
- [18] Laube, C., & Van Den Bos, W. (2016). Hormones and affect in adolescent decision making. In *Recent developments in neuroscience research on human motivation*. Emerald Group Publishing Limited.
- [19] Matthews, M., Bondi, C., Torres, G., & Moghaddam, B. (2013). Reduced presynaptic dopamine activity in adolescent dorsal striatum. *Neuropsychopharmacology, 38*(7), 1344-1351.
- [20] Ewing, S. W. F., Houck, J. M., & Bryan, A. D. (2015). Neural activation during response inhibition is associated with adolescents' frequency of risky sex and substance use. *Addictive behaviors, 44*, 80-87.
- [21] Pringle, J., Mills, K., McAteer, J., Jepson, R., Hogg, E., Anand, N., & Blakemore, S. J. (2016). A systematic review of adolescent physiological development and its relationship with health-related behaviour: a protocol. *Systematic reviews, 5*(1), 1-7.
- [22] Sales, J. M., Smearman, E. L., Brody, G. H., Milhausen, R., Philibert, R. A., & DiClemente, R. J. (2013). Factors associated with sexual arousal, sexual sensation seeking and sexual satisfaction among female African American adolescents. *Sexual health, 10*(6), 512-521.
- [23] Charlton, B. M., Missmer, S. A., DiVasta, A. D., Rosario, M., & Austin, S. B. (2016). Female sexual orientation differences in contraceptive choices and utilization. *Journal of Pediatric and Adolescent Gynecology, 29*(2), 196.
- [24] Stephanou, A. T., & Dias, A. C. G. (2021). Psychological factors associated with adolescent sexual behavior. *Psico, 52*(2), 36084-36184.

- [25] Valeri, L., & VanderWeele, T. J. (2013). Mediation analysis allowing for exposure–mediator interactions and causal interpretation: theoretical assumptions and implementation with SAS and SPSS macros. *Psychological methods*, 18(2), 137.
- [26] Etrawati, F., Martha, E., & Damayanti, R. (2017). Psychosocial Determinants of Risky Sexual Behavior among Senior High School Students in Merauke District. *National Public Health Journal*, 11(3), 127-132.
- [27] Ojo, A. A. (2014). *Psychosocial Factors and Premarital Sexual Attitudes of Adolescents and Young Adults in South-West Nigeria* (Doctoral dissertation).
- [28] Dave, S., & Dave, A. (2014). *Psychosexual development and human sexuality. Comprehensive Textbook of Sexual Medicine*. 2nd ed. New Delhi: Jaypee Publishers, 42-53.
- [29] Ng'ang'a, Z. W., Kamanu, R., & Muttunga, J. (2015). Determinants of Sexual and Reproductive Health among street adolescents in dagorretti district in Nairobi.
- [30] Adegboyega, L. O., Ayoola, V. A., & Muhammed, S. (2019). Influence of Peer Pressure on Sexual Behavior of Undergraduates in Kwara State. *Anatolian Journal of Education*, 4(1), 49-58.
- [31] Eyiah-Bediako, S., Quansah, F., Omotosho, J. A., & Hagan, J. E. (2021). Assessment of Peer Pressure and Sexual Adventurism among Adolescents in Ghana: The Moderating Role of Child-Rearing Practices. *Social Sciences*, 10(11), 418.
- [32] Salehi, M., Azarbajehani, A., Shafiei, K., Ziaei, T., & Shayegh, B. (2015). Self-esteem, general and sexual self-concepts in blind people. *Journal of research in medical sciences: the official journal of Isfahan university of medical sciences*, 20(10), 930-956
- [33] Kalina, O., Geckova, A. M., Klein, D., Jarcuska, P., Orosova, O., van Dijk, J. P., & Reijneveld, S. A. (2011). Psychosocial factors associated with sexual behaviour in early adolescence. *The European Journal of Contraception & Reproductive Health Care*, 16(4), 298-306.
- [34] Barati, M., Soltanian, A., Emdadi, S., Zahiri, B., & Barzeghar, N. (2014). Analyzing sexual health-related beliefs among couples in marriage based on the health belief model. *J Educ Community Health*, 1(1), 36-45.
- [35] Adejumo, A. O., & Umoren, A. M. (2013). Psychological factors as determinants of sexual attitude among youths with disabilities (YWD) in three South-West Nigerian institutions. *International Journal of Human Social Science*, 3(15), 104-114.
- [36] Jonas, K., Crutzen, R., van den Borne, B., Sewpaul, R., & Reddy, P. (2016). Teenage pregnancy rates and associations with other health risk behaviours: a three-wave cross-sectional study among South African school-going adolescents. *Reproductive health*, 13(1), 1-14.