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Sexual Behaviour, Needs and Concerns Regarding Sexual and Reproductive Health among Adults Living with HIV in Sub-Saharan Africa- A Systematic Review

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Author's contribution

The sole author designed, analyzed, interpreted and prepared the manuscript.

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ABSTRACT

Background: The sexual and reproductive health of people living with HIV in sub-Saharan Africa should be of paramount importance and, therefore, given the attention it deserves. The advent of antiretroviral therapy (ART) and subsequent access to it has aided millions of infected people to live a normal life. However, being on ART is not enough as most of these people despite being on the therapy are faced with needs and concerns that have shaped their sexual behaviour.
This review aims to bring to perspective the sexual behaviour, needs, and concerns regarding the sexual and reproductive health of adults living with HIV in sub-Saharan Africa (SSA) with a view to reducing the disease's ultimate burden in the region.
Method: An extensive search of articles was carried out using the reporting systematic review and meta-analysis (PRISMA). The database search was from JSTORE, Scopus, Google Scholar, Medline, Cochrane, Semantic scholar, and Pubmed.
Results: A total of 3,984 results were obtained from the search. The application of the inclusion and exclusion criteria finally gave ten studies which were reviewed. The review revealed, among other things, that a good number of adults living with HIV have multiple sex partners, and some still

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have sex without condoms. Besides, most of them indicated the need for their own biological children, especially after being on ART for a while. Some women living with HIV in SSA do not have a right to decide on their sexual and reproductive health.
Recommendation: It was recommended that there be intense re-orientation and health education for this group of people. Women need to be empowered and taught their rights.

Keywords: HIV; sexual and reproductive health; family planning; sexual behaviour; sub-Saharan Africa.

1. INTRODUCTION

The Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS) is still a public health issue that presently has no vaccine or cure. According to World Health Organization (WHO), by 2018, this disease had claimed over 32 million lives globally since its inception, with an estimated number of 37.9 million persons living with the virus by the end of 2018. Out of this number, 36.2 million were adults, and 1.7 million were children less than 15 years old [1]. Statistics also showed that 5,000,000 individuals lived with HIV in West and Central Africa in the same year, with Nigeria alone contributing 1,900,000 persons to that number [2]. There has been a global burden from the HIV/AIDS pandemic, but its devastating effects seem to be more on sub-Saharan African countries [3]. Sub-Saharan Africa has been termed the HIV/AIDS pandemic's epicenter, with almost two-thirds of people living with the infection located in this region [4].

The use of antiretroviral drugs (ARVs), which control the virus's proliferation, had helped avert headlong transmission to other individuals, including mother to child [5]. This was a massive relief as several infected patients had the chance to live an everyday life again [6]. Over time, increased access to Highly Active Antiretroviral Therapy (HAART) meant life could be extended for these individuals with reduced morbidity and mortality [7]. However, despite these regimens, men and women living with HIV still find it challenging to make decisions relating to reproduction and sexuality. [8]. Studies have shown in both developed and developing countries that the use of HAART promotes fertility intents among young women living with HIV. As its availability and accessibility, increase so do more of these women express their desire to have their biological children [4]. This desire is even more intense with the men. In a study conducted in South Africa amongst men living with HIV, many of them indicated that you were not regarded as a man if you did not have your own child. Besides, they needed someone to continue their linage in case of their demise [9].

2. SEXUAL BEHAVIOUR OF PLWHA

Risky sexual behaviours have always been a significant public health concern because they can lead to terrible consequences such as contracting STIs, unintended pregnancies, and septic abortions. Risky sexual behaviours among HIV negative people include a sexual debut at a very young age, having multiple and/or casual partners, non-use or inappropriate use of contraceptives, drug, and alcohol use before sex [10], and sexual violence [11]. For People Living with HIV/AIDS (PLWHA), risky sexual behaviour comprises having sex with multiple partners, inconsistent use of condoms, sharing needles and syringes to inject drugs, keeping status from partners [12]. Sexual risk behaviours among PLWHA can place their partners at threat of contracting HIV or other Sexual Transmitted Infections (STIs). Such behaviours may also cause co-infection for individuals who are already HIV positive [13].

Studies have also shown that therapeutic mediations with ARTs may impact the sexual behaviours of PLWHA [14]. One such study was conducted on HIV-positive individuals in Mozambique. The outcome showed a substantial surge in the sexual activities of these individuals a year after treatment was first introduced [15].

3. NEEDS OF PLWHA

People Living with HIV/AIDS (PLWHA) have challenges and needs, especially in developing countries, as seen in SSA [16]. The needs of PLWHA include the desire to be parents for those who want to and have their need for family planning met [17-19]. More than 80% of PLHWA are within the reproductive age range of 15-49 years. Many of them still crave their biological

children despite their status [20]. Other needs are support, care, and understanding from family members, friends, and health care professionals [21].

Decisions regarding pregnancy and child-bearing can be very complex and tasking for individuals (or couples). It is even more so when the individuals in question are HIV infected [22]. Various concerns such as the risks that may be associated with unprotected sex to conceive, disapproval from health workers in some cases, and fear of the possibility of passing the virus to the unborn child come into play [23]. It has been reported that women of child-bearing age make up 61% of the total number of individuals living with HIV in sub-Saharan Africa [24]. Many of these women desire to have their babies notwithstanding their HIV status [25]. This same desire is also found in HIV-positive men who expressed the desire to have their family lines continued [19]. For HIV-infected couples (discordant or concordant), family planning is essential as this helps them in not just the spacing of their children but also in the prevention of unplanned pregnancies and reducing the likelihood of having infected children [26]. This is one of WHO's strategies for preventing Mother To Child Transmission of HIV (PMTCT) [27].

Family planning has been defined by WHO as "the ability of individuals and couples to anticipate and attain their desired number of children and the spacing and timing of their births [28]." There are various modern family planning methods available for uptake. They include basal body temperature method, male and female condoms, Intrauterine devices (IUD), Injectables, Oral hormonal pills, Implants (including Norplant), Vaginal barrier methods, Emergency contraception, Standard days method (calendar based method), Two‐day method with the use of cervical secretion, Lactational amenorrhea method (LAM), and Symto‐thermal method [29]. Despite the availability of various family planning methods, there is still a reported prevalence of unmet family planning needs.

Unmet family planning needs in women refer to those who indicate that they do not want another child or express the desire to postpone the next birth for at least two years, yet they are not using any means of contraception [30]. These unmet needs indicate a gap between a woman's desires to avoid pregnancy and contraceptive uptake [31]. In 2019, there were 1.9 billion women of reproductive age (15-49 years) globally, an estimated 1.1 billion of this number required family planning [32]. Again, an estimated number of 160,000 new infections were recorded among children aged 0 to 14 years globally. Of this number, 58,000 occurred in West and Central Africa, with Nigeria accounting for 24,000 (41.4%) of the number [2]. There have been data to suggest that there are unmet family planning needs amongst individuals living with HIV in sub-Saharan Africa [33]. It is known that family planning offers every woman numerous benefits that are extended to her family and community. However, despite these benefits, family planning to achieve PMTCT is not being given deserved attention [34].

4. CONCERNS OF PLWHA

With the introduction of ARVs, individuals living with HIV have the prospects of living longer but not without the consciousness of knowing that life has suddenly been overturned for them because of their status. This state of mind brings all sorts of questions and uncertainties about the future to bear. The fear of the unknown, being rejected or stigmatized, losing relationships, and having to readjust to new ways of doing things fill up these individuals' minds. This often leads them to self-isolate and self-stigmatize themselves, causing severe psychological issues [35]. In this state, depression may set in and cause anhedonia, lack of concentration, hopelessness, guilt, loss of appetite, and general loss of interest in anything relating to them, family members, or friends [36].

The foremost concerns of PLWHA, as outlined by Bravo et al. [37], are: (i) the indecision to disclose their status to others, (ii) treatment adherence, and (iii) sexual activity, and (iv) parenthood desires. Other concerns are fear of abandonment by partner, domestic violence, and other forms of abuse, especially among women [21].

For those who may desire their own children, the concern that the children may become infected and die torments them. Some also express concern over the state of their own health if they were to get pregnant. The fear that the pregnancy may cause a down turn in their health poses great concern for a number of them.

5. SEXUAL AND REPRODUCTIVE HEALTH OF PLWHA

Good sexual and reproductive health is a "state of complete physical, mental and social well-being in all matters relating to the reproductive system." This means that individuals ought to have a satisfying and safe sex life, the ability to reproduce, and the liberty to choose if, when, and how often to do so [38]. Sexual health is of vital importance in every individual but even more so with the HIV infected. The sexual and reproductive health needs, desires, and goals of HIV-infected adults are not different from their counterparts who are negative. However, it is essential to note that vital biological and social differences require specific attention [39]. For the HIV-infected woman of reproductive age, her sexual health should be planned and given priority [40]. Unfortunately, the sexual and reproductive desires of PLWHA are currently not been given high priority as they should be [41]. It is of immense importance that this group of people's sexual and reproductive health is looked into in-depth to design comprehensive programs that would enhance safe reproduction with minimal HIV transmission [20].

Since it is every person's right to make choices about their sexual and reproductive health, it is of essence that individuals should have access to correct information on how to achieve sexual and reproductive health. This information should include Safe, effective, affordable, and acceptable contraception methods available to choose from; Understanding how to protect themselves from Sexually Transmitted Infections (STIs); and the best times to have a baby. Also, the women should have access to services that can help them have a suitable pregnancy, safe delivery, and eventually a healthy baby [38]. Consequently, adults living with HIV/AIDS are expected to enjoy better sexual life due to Antiretroviral Therapies' improvement (ARTs). However, caution is still advised in exploring the reproductive rights available to them [42].

The perspectives and attitudes of the service providers are of paramount importance here. To achieve effective sexual and reproductive health for their clients, they have to approach them from the human rights perspective and understand that though HIV positive, these individuals have rights to their sexuality [43]. This is assured by the comprehensive training and retraining of health care workers for capacity building to meet expectations from their clients [44]. However, these health care providers should also be adequately motivated and supported by the system they work for, if the best is to be got from them [45].

This systematic review is intended to bring into perception the sexual behavior exhibited by people living with HIV, their needs, and concerns regarding their sexual and reproductive health.

6. CONCEPTUAL FRAMEWORK

Fig. 1 shows a schema of the conceptual framework illustrating how sexual behaviour, needs, and concerns of PLHWA affect their sexual and reproductive health. Sexual behaviour in this context refers to acts such as unprotected sex, the practice of abstinence, disclosure of status, irregular visits to the HIV clinics, and having multiple sexual partners. At the same time, concerns include fear of rejection by family members, health care workers, or family members: abuse which may be verbal, mental, physical, and/or sexual: fear of increased disease progression if pregnant. Finally, their needs include love, parenting, support, and care.

7. METHODOLOGY

7.1 Inclusion and Exclusion Criteria

Studies met the inclusion criteria if they: (i) Were literature from 2010 to 2021; (ii) published in peer-reviewed journals; (iii) Were articles with HIV positive male and female adult respondents who had attended HIV clinic more than once; (iv) Facility-based study; (v) Addressed sexual behaviour, concerns, sexual and reproductive health, and/or needs in adults living with HIV; (vi) Were conducted in SSA; (vii) Female participants had to be of reproductive age.

Works of literature were excluded if they were focused on: (a) Only LGBT individuals living with HIV; (b) Youth including students and/or Adolescent's sexual and reproductive health issues; (c) older adults living with HIV; (d) Only family planning or contraceptive use; (e) Adults living with HIV but having other health challenges aside from those related to sexual and reproductive health needs; (f) Articles not in English.

In this review, adults were regarded as individuals who are fully developed physically as well as mentally and can be legally held responsible for their actions.

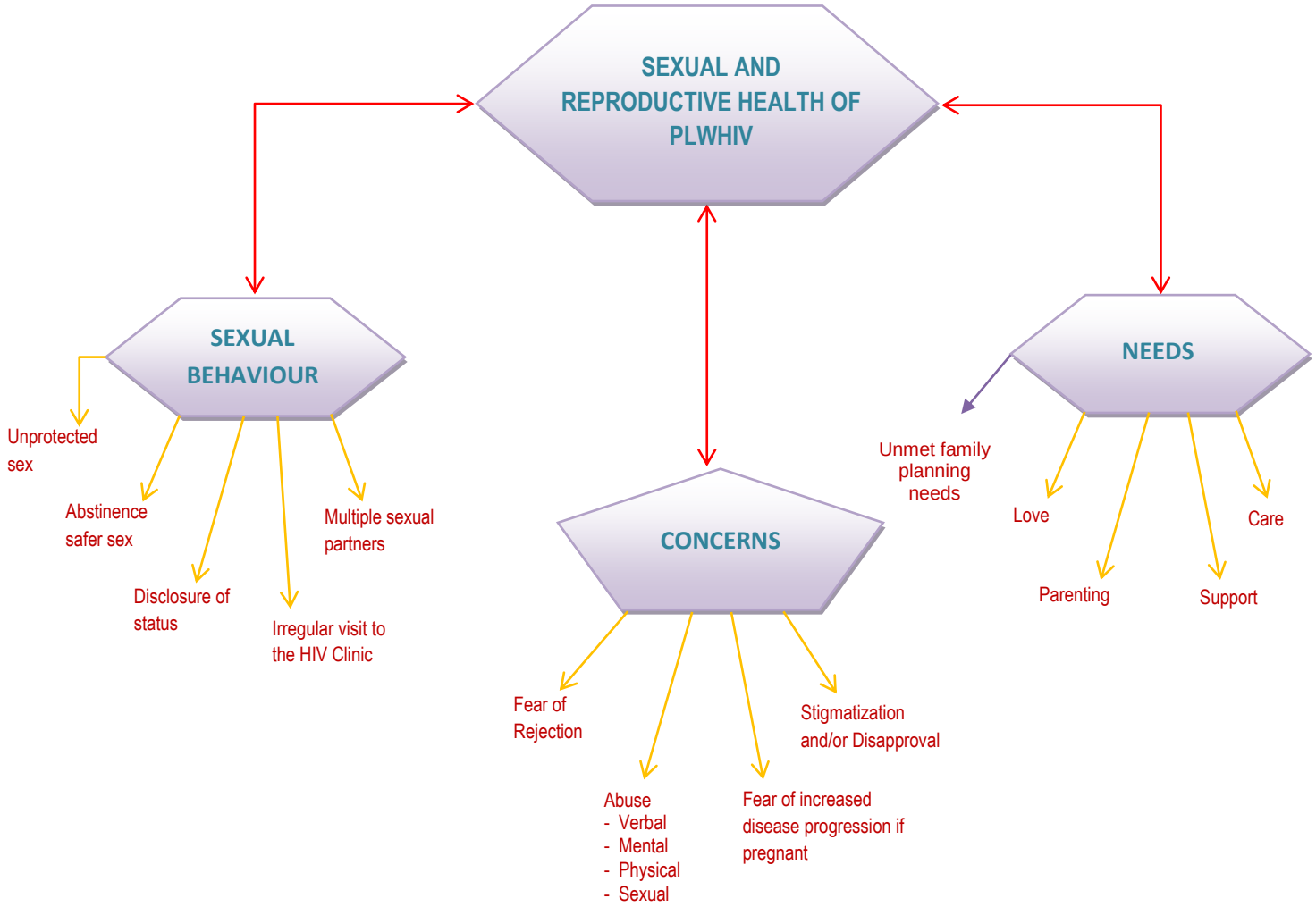

Fig. 1. Conceptual framework showing how sexual behaviour, needs, and concerns of PLWHA affect their sexual and reproductive health, and vice versa

7.2 Data Search Strategy

The following databases were searched JSTORE, Scopus, Google Scholar, Medline, Cochrane, Semantic Scholar, and PubMed for publications from 2010 till 2021. The recognized articles' references were also used to get other articles that the database search had missed. Keywords and synonyms were applied, which gave rise to the following key terms: Sexual behaviour OR Sexual behavior OR Sexual life OR Sexual activity OR Sexual relationships OR Sex life OR Sexual health OR Risky sexual behaviour OR Risky sexual activities OR Sexual practices. Needs OR Desires OR Wants OR Requirements. Concerns OR Worries OR Anxieties OR Uncertainties OR fears. Sexual and reproductive health OR human sexual OR sexual and reproductive health issues OR Sexual and reproductive practices. Adults or Grown-ups OR Adults of reproductive age. Living with HIV OR HIV positive OR HIV infected OR HIV1 OR HIV 2. Sub-Saharan Africa OR South Africa OR Central Africa OR West Africa OR Eastern Africa OR South Africa OR Central Africa OR West Africa OR East Africa.

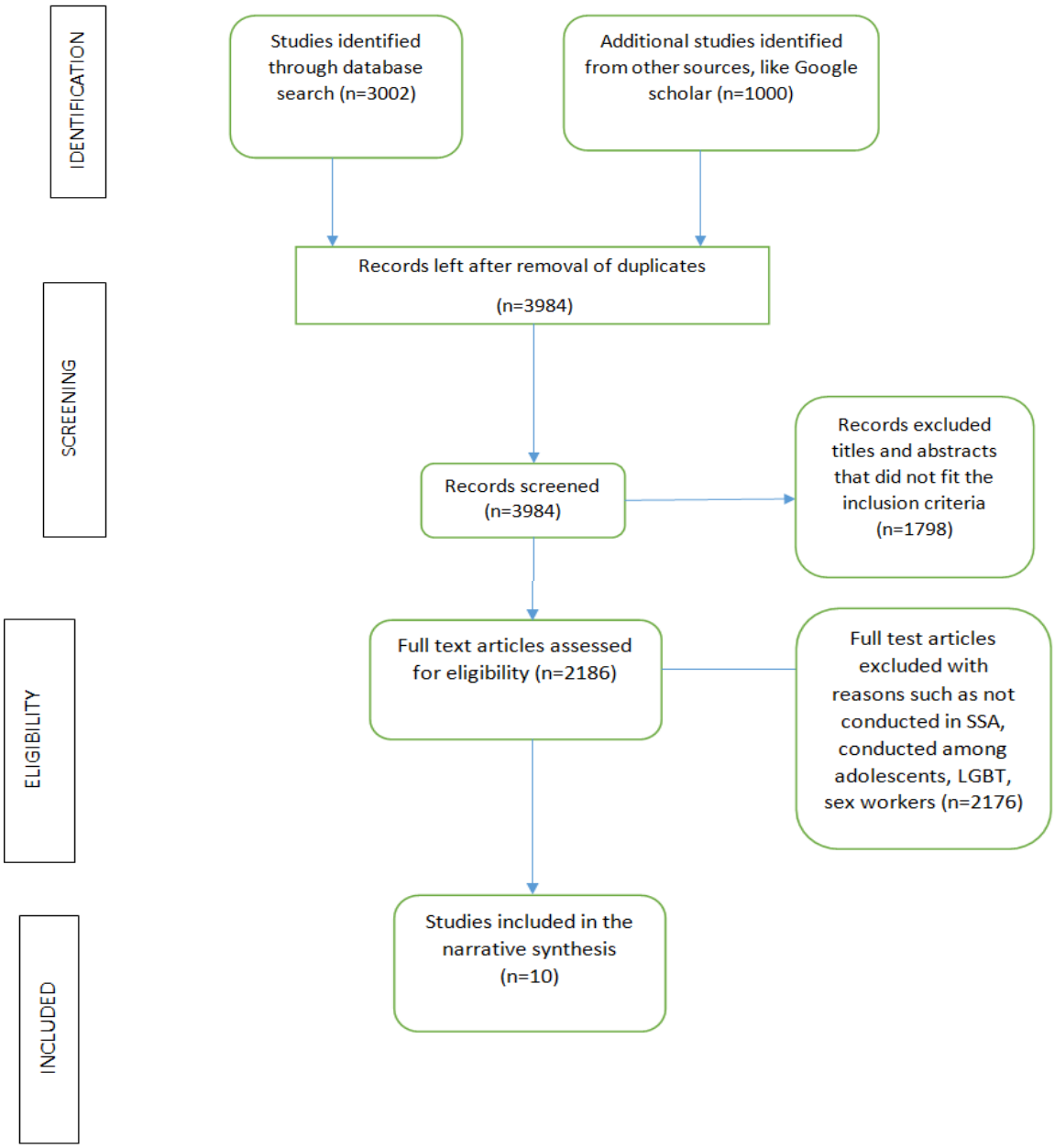

Fig. 2. Flow chart of how the research articles were searched

Table 1. List of different findings

Region OF study	Title of the work	Study design	Sample size	Findings			Reference
				Sexual behaviour	Needs	Concerns	
Joint Clinical Research Centre (JCRC), Kampala, Uganda.	Sexual behaviour among persons living with HIV/AIDS in Kampala, Uganda.	A facility-based cross-sectional study design.	Three hundred eighty participants were split into two groups of 190 individuals, each comprising those who had initiated ART (ART experienced) and those who had not (ART naïve). A total of 127 of 380 were males, giving 34% & 33% of ART experienced and naïve.	227 (60%) participants sexually active in the previous 12 months. 134 (35%) of this number involved in high-risk sexual behaviour, with 3 of the females (7%) already with an unplanned pregnancy and 22 (17%) of the males having impregnated someone. 42 (19.5%) never used condoms, 92 (40.5%) did but inconsistently. 89 (23%) of the total 380 participants previously had a symptom of an STI. Alcohol drinking was a predictor of high-risk sexual behaviour (AOR 1.89, 95% CI 1.08-3.34). Other predictors were age factor- those aged 31 and 50 years (AOR 2.21,95% CI 1.12-4.14), being married (AOR 3.91, 95% CI 2.33-6.56), and	115 (30%) of the participants desired biological children. 21 (10%) of them were already pregnant. This desire was a strong predictor for high-risk sexual practices (Adjusted Odds Ratio 2.44, 95% CI 1.35-4.42).	Those aged between 31 and 50 years had increased concerns over not having babies yet at their ages.	[46]

Region OF study	Title of the work	Study design	Sample size	Findings			Reference
				Sexual behaviour	Needs	Concerns	
				having the impression that condoms decreased sexual pleasure (AOR 2.29, 95% CI 1.30-4.05). The ART-naive respondents (79 out of 190) were more likely to engage in high-risk sexual behaviour than ART-experienced respondents (55 out of 190).			
University of Uyo Teaching Hospital in Uyo, Akwa Ibom, Nigeria.	Attitudes and sexual behaviours of unmarried people with HIV/AIDS living in the Niger Delta region of Nigeria	Facility-based study	365 persons consisting of 142 unmarried men and 223 unmarried women living with HIV.	4.9% of men and 10.3% women had sex daily, weekly for 16.2% of men and 15.7% of women, and occasionally for 44.4% of men and 44.4% of women, and monthly for 35.5% of men and 29.6% of the women. 7.7% of the men and 6.7% of the women had preference for same-sex relationships. 77 men (53.5%) and 92 women (41.3%) had multiple sex partners (P= 0.001). 7.7% of men and 8.5% of women reported they			Abasiubong et al. [49]

Region OF study	Title of the work	Study design	Sample size	Findings			Reference
				Sexual behaviour	Needs	Concerns	
				had anal sex always, while 43 men (30.0%) and 29 women (13.0%) did occasionally.45.8% of men and 51.1% of women refused condom use during sex. After their partners tested HIV+, there was no change in attitude towards sex in 29.0% of men and 27.8% of women but 58.4% of men and 34.7% of women started using condoms.			
ARV Treatment unit, Hosanna, Ethiopia.	Fertility desire and contraceptive utilization among people living with HIV/AIDS on ART in Hosanna Town, Southern Ethiopia.	Facility-based cross-sectional study design.	321 comprising 226 (70.4%) females and 95 (29.6%) males.	119 respondents had sex in the past 6 months. 86 of them (72.27%) used condoms: 76 out of 86 (88.37%) always used condoms. A total of 49 out of 321 (15.26%) had multiple partners. 53 of 321 (16.51%) had an STI in the past. Also, 66 (20.56%) of 119 sexually active ones had a history of abortion by them or their partner.	117 of 321 (36.45%) desired to have their biological children. 193 of 321 (60.12%) were noted to have unmet contraceptive needs.	71 out of 204 (34.8%) had a fear of transmitting the infection to their babies. 18 (8.8%) had the fear that child-bearing may further compromise their health.	Abebe et al. [41]

Region OF study	Title of the work	Study design	Sample size	Findings			Reference
				Sexual behaviour	Needs	Concerns	
Chris Hani Baragwanath Hospital, Soweto, Johannesburg metropolitan area, South Africa.	Sexual Risk Behaviors Among HIV-Infected South African Men and Women with Their Partners in a Primary Care Program: Implications for Couples-Based Prevention.	Facility-based cross-sectional study design.	1163 sexually active HIV-infected South African men (21.1%) and women (78.9%) in the program	16% of the respondents were on ART. Nearly 775 of the total participants reported an HIV-discordant relationship, either with an HIV-negative partner (20.9%) or with an unknown status partner (39.8%). About 1% indicated having a history of same-sex partners. 98.0% had disclosed their HIV status to a family member or friend. 17.5% of respondents had reported sexual acts >2 within 2 weeks, 16.4% and 3.7% reported having unprotected sex and having >1 sexual partner, respectively with last 6 months. 260 respondents were involved in risky sexual behaviours.			Venkatesh et al. [52]
Ngabu Health Center, Chikhwawa and Ndunde Health	Reproductive decisions of couples living with HIV in	In-depth interviews	20 HIV positive couples	Most of the couples indicated not using condoms during sex because of the desire	Most of the respondents reported that they needed more	Judgemental attitudes from health workers were of great	Gombachika et al. [53]

Region OF study	Title of the work	Study design	Sample size	Findings			Reference
				Sexual behaviour	Needs	Concerns	
Center, Chiradzulu, Southern Malawi	Malawi: What can we learn for future policy and research studies?			to have children.	support, communication, and understanding from the health workers. The need for more comprehensive information regarding their sexual and reproductive health.	concern to the respondents. were expecting babies. Feeling of embarrassment, whenever they visit the family planning unit.	
Four clinics in Kampala, Nagalama, Mukono, and Mityana in Uganda.	Fertility Desires and Intentions and the Relationship to Consistent Condom Use and Provider Communication Regarding Childbearing Among HIV Clients in Uganda.	Facility-based cross sectional design	767 clients comprising Kampala site (n=338), Mityana (n=220), Nagalama (n=117), and Mukono (n=92)	386 participants had primary sexual partners. Out of these, 50.4% had partners also HIV-positive, 18.7% had an HIV-negative partners, while 30.9% did not know their partner's HIV status. 85.6% had disclosed their HIV status to their partners. For the past six months, 28.1% never used condoms during sex, and 44.0% always used condoms, while 27.9% rarely did, sometimes, or often.	A desire for children was expressed by 30.9% of the respondents. 24.1% of the singles and 17.8% of those who had no regular sex partner also expressed the desire for children.	53.6% of the 386 participants with primary partners, discussed family planning use with health providers. 32.1% expressed concern over been told by a health provider not to bother conceiving children because of their HIV status.	Wagner and Wanyenze [47]

Region OF study	Title of the work	Study design	Sample size	Findings			Reference
				Sexual behaviour	Needs	Concerns	
				Regular condom use was higher among those with no fertility desires (48.2%) than those who did (37.0%). The same applied to those without fertility intentions (36.6%) than those who had (29.8%).			
Mbingo Baptist Hospital (MBH) and Nkwen Baptist Health Center, North West Region, Cameroon.	Sexual risk behaviours among people living with HIV and implications for control in the northwest region of Cameroon	Case-control descriptive study	350 PLWHA [207 (73.4%) females & 93 (26.6%) males] and 350 HIV-negative [247 (70%) females & 105 (30%) males] to act as control. In the PLHWA, the HIV strains they had were type 1 (275, 78%), type 1 & 2 (48, 14%), and type 2 (27, 8%).	Polygamy was reported more in the PLHWA (15.27% vs. 12.47%, OR = 1.51, 95% CI: 0.92 - 2.47, P = 0.11) compared to those in the HIV-negative group. PLHWA were significantly more sexually active and had more multiple sex partners than the control group (P = 0.001). A history of STDs was reported by 225 (64.29%) of the total 350 PLHWA in comparison with the control group which had 171 (48.86%) of the 350 (OR = 1.88, 95% CI: 1.39 - 2.55, P < 0.001). After being			Kwenti et al. [54]

Region OF study	Title of the work	Study design	Sample size	Findings			Reference
				Sexual behaviour	Needs	Concerns	
				diagnosed, 280 respondents (80%, 95% CI: 75.79 - 84.21) of the 350 PLHWA had sex. Out of this number, 127 (45.36%, 95% CI: 39.49 - 51.22) used condoms. 148 of 280 (52.86%, 95% CI: 46.97 - 58.74) disclosed their status to their partners. 132 of the respondents (47.14%, 95% CI: 41.18 - 53.17) did not disclose their status to their partners.			
Public health hospital, Tshwane, South Africa	Reproductive desires of men and women living with HIV: implications for family planning counseling	Qualitative research design involving individual interviews and focus-group discussions	The sample size of 45 comprising 12 pregnant women, 12 HIV counselors (10 females and two males), ten men, and 11 non-pregnant women	Most of the women expressed not having the right to choose in their relationships when to have sex, use condoms, or even get pregnant. They reported male dominance in the decision-making.	There were unmet family planning needs among respondents. The need to integrate the HIV clinic and sexual and reproductive health counseling at the primary health care level. Reproductive desires were expressed by couples.	Concern over marginalization and worthlessness in their families and society if they had no children. Concern over lineage continuation by the males. Fear of stigmatization and condemnation	[19]

Region OF study	Title of the work	Study design	Sample size	Findings			Reference
				Sexual behaviour	Needs	Concerns	
					Training and retraining needs of HIV counsellors.	from the community if the females got pregnant.	
Aminu Kano Teaching Hospital, Kano State, Nigeria.	Correlates of Fertility Intentions among HIV/AIDS Patients in Northern Nigeria	Descriptive cross-sectional study design.	340 PLWHA comprising 85 (25.0%) males with a mean age of 32.9 (±7.7) years and 255 females (75.0%) with a mean age of 31.6(±8.1) years. Marital status was- Married 214 (62.9%), widowed (54 (15.9%), single 45 (13.2%), Divorced 21 (6.2%)	143 (66.9%) married individuals had disclosed their status to their spouses. Of this, 137 (64.1%) got tested giving 67 (49.1%) as concordant and 21 (15.0%) as discordant. 60 (70.6%) males and 177 (69.4%) females were sexually active in the preceding 6 months with sexual partners as: spouses (86.8%), boyfriends/girlfriends (8.5%), casual partners (3.8%), and commercial sex workers (0.9%). 292 (85.9%) of respondents were already on HAART, while 48 (14.1%) were not.	219 (64.4%) desired to have children. The Muslim respondents were twice more likely to desire additional children than the Christians (OR = 1.8, 95% CI: 1.69 – 6.01). Those diagnosed for a longer period were more likely to desire children than those diagnosed within the proceeding year (OR = 0.42, 95% CI: 0.21 – 0.86).		Abubakar et al. [50]

7.3 Study Selection

Articles were retrieved from the databases and imported into Endnote X9 reference manager. Duplicated articles were removed. The remaining articles were then assessed from their titles and abstracts based on the inclusion criteria.

7.4 Data Extraction

The preferred reporting items for systematic reviews and meta-analysis (PRISMA) guidelines were followed, as shown in Fig. 2.

8. SEARCH RESULTS

8.1 Search Outcomes

A total of 4,002 articles were identified from the data search. There were nine duplicates noticed. Their removal left 3,984 articles that were screened using their titles and abstracts. Out of this number, 1,798 articles that did not meet the stated inclusion criteria were removed, leaving 2,186 articles. Using the full texts, these were assessed further for eligibility. Two thousand, one hundred and seventy-six full test articles were excluded for reasons such as some were not conducted in SSA, some were articles with adolescents as participants, some studies were on LGBTQ, and some were on sex workers. Ten articles only were left for the narrative synthesis. The ten articles were conducted between 2010 and 2018. They were all facility-based studies. Three were conducted in Uganda [46,47,48] two in Nigeria [49,50], one in Ethiopia [51], two in South Africa [19,52] one in Malawi [53], and one in Cameroon [54].

9. DISCUSSION

This systematic review exposes the various sexual behaviour exhibited by PLWHA. In addition, their needs and concerns have been shown to vary from one individual to another. These variabilities are seen in the reports of the various studies which were reviewed. For example, in the study by Tumukunde et al. [46] to investigate the sexual behaviour among persons living with HIV/AIDS in Kampala, Uganda., it was shown that the sexual behaviour displayed by the participants ranged from having unprotected sex (without condoms), taking alcohol before sexual activities, and not being on ART. The study reported 227 of the 380 (60%) participants as sexually active, of which 19.5% never used a condom and 40.5% did inconsistently. Likewise, Abasiubong et al. [49] reported 45.8% of men and 51.1% of women who had refused condom use during sex in their study on attitudes and sexual behaviours of unmarried people with HIV/AIDS living in the Niger Delta region of Nigeria. Abebe et al. (2012b) also recorded similar responses from 33 participants out of the 119 sexually active ones who admitted to never using a condom during sex. As expected with unprotected sex, Tumukunde et al. (2010) noted that 7% of the women reported being pregnant at the time of the study, and 17% of the men had impregnated women. These pregnancies were unplanned.

Another problematic sexual behaviour noted from the review was the practice of keeping multiple sexual partners. As stated by Abasiubong et al. [49], a total of 77 men (53.5%) and 92 women (41.3%) had reported having multiple sex partners. Abebe et al. [41] had equally indicated that 49 of the total 321 respondents had multiple sexual partners. This was also collaborated by Kwenti et al. (2014), who noted in their study, sexual risk behaviours among people living with HIV and implications for control in the Northwest region of Cameroon, that the practice of polygamy was reported more in the PLWHA compared to those who were HIV negative. Predictors of risky sexual behaviour may include age factors, married status, indulging in drinking of alcohol and/or substance abuse, and being ART naïve. Those within the age group of 31-50 years were under pressure to become parents, thus promoting unprotected sex. Those married were obligated to have children as expected by family members and the society. Indulgence in alcohol and substance use would likely impair judgment causing caution to be thrown to the winds thus making them more likely to be involved in risky sexual behaviours. Individuals who were ART naïve- those who were not on ART regimen were found to be even more risk-taking in their behaviour [46]. Other predictors of risky sexual behaviour as outlined by [55] are duration of ART and level of formal education. Risky sexual behaviour increased with duration of ART over time [15]. Although some other studies have shown the contrary. An example of this is seen in the article by [56] where it was noted that those on prolonged ART regimen were likely to practice safer sex due to the incessant counselling given to them. Level of formal education played a role in the likelihood of engaging in risky sexual practices. Education generally aids in behavioural change. Therefore,

as expected those who had a higher level of formal education were less likely to be involved in risky sexual acts [57]. Locality of the individual is also a key player in determining the practice of safer sex. Those in the rural areas are likely to be involved in high risky behaviour compared to their urban counterparts due to availability of limited information on practice of safer sex [58]. Having an increased CD4 cell count was also a predictive factor in the exhibition of risky sexual behaviours. Those who had a value count ≥500cells/mm3 were more likely to get involved in risky sexual behaviors [59].

It is important to point out that even where the female folks may want to be cautious and do the right thing, most African societies' male dominance would not permit them to. This is seen in the study on reproductive desires of men and women living with HIV: implications for family planning counselling by Van Zyl and Visser (2015), where most of the women reported male dominance in the decision-making relating to their sexual and reproductive issues. They stated that they had no right to choose in their relationships when to have sex, use condoms, or even get pregnant. This places them at a greater risk for either getting superinfected or having an unplanned pregnancy.

Non-disclosure of status was also a standard feature found amongst the participants in the studies reviewed. In the study of Wanyenze et al. (2015), it was reported that 35.6% of the participants did not know the status of their partners. Likewise, in the study of [50], non-disclosure of status was reported as out of the 214 married participants, only 143 had disclosed their status to their partners.

From the review, the needs of PLWHA majorly border around childbirth and the stigma that goes with not having one, especially if married. This was expressed by 219 (64.4%) respondents who desired to have children out of the total 340 respondents in the study carried out by Abubakar et al. [50]. The need for parenting was expressed by 30% of the participants, with 10% already being pregnant [48]. The noted desire for children in the reviewed articles was likely attributable to improved accessibility to ART and PMTCT services [60]. On the flip side, a high unmet family planning need of 38% was reported by Wanyenze et al. [48] in their study, Fertility desires and unmet need for family planning among HIV infected individuals in two HIV clinics with differing models of family planning service delivery.

In Van Zyl and Visser [19], the authors noted this group of individuals' concerns as bordering around how they would be disregarded or demeaned by their family members and society if they had no children. The male participants stated the need to have their lineage continued. On the other hand, some expressed fear of being ridiculed if they were discovered pregnant by the health workers because of their status. Participants conveyed this in the study by [53]. Some of the female participants expressed concern over transmitting the virus to their babies if they got pregnant while some others had concern that child-bearing may compromise their health further. Also the fear of dying and leaving the children orphans and having low economic status were also deterrents to getting pregnant [41].

Only one of the articles reviewed employed a case-control study design, two others used qualitative design, and the remaining were cross-sectional study design.

Other studies have shown that a number of other factors intertwine to produce the sexual behaviour, concerns, and needs exhibited by PLWHA. These factors include cultural/ethnic, psychosocial, socio-demographic, and individual differences. The influence of these factors vary from one locality to another. For example, in the need for having children, males in sub-Saharan Africa and some parts of Asia have dominance in decision-making compared to the western countries where the males may play little or no role [18].

10. CONCLUSION

Intense re-orientation and health educating of the individuals infected with HIV should be of paramount importance for public health practitioners.

Youth-friendly centers should be set up by the government in tertiary institutions for the young people to get relevant sexual and reproductive health information.

Health workers have to be re-trained as often as possible to show empathy towards this group of people.

To meet the contraceptive needs of PLWHA, it is suggested that a family planning unit could be set up in the HIV clinics of health facilities to cater for PLWHA who already attend clinics there.

More needs to be done in enlightening women in sub-Saharan Africa regarding their rights on sexual and reproductive health matters. Women need to be educated, empowered, and taught that they have a say in their sexual and reproductive health.

11. PUBLIC HEALTH INTERVENTIONS

Some of the public health interventions provided were that appropriate information, education, communication (IEC) materials had to be provided for PLWHA. A client-centred approach was suggested for adoption during reproductive-related counselling.

12. SUGGESTIONS ON FUTURE RESEARCH

Future research is suggested to understand the correlation between psychosocial stressors and involvement of PLWHA in risky sexual practices. Locality is an important factor which needs to be borne in mind while conducting such a research.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

All the articles reviewed sought for ethical clearance from the appropriate institutions before the studies were carried out.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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