REVIEW PAPER

The relationship of women's empowerment with high-risk sexual behaviors and HIV-preventive measures: a systematic review

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Abstract

Biological and socio-structural factors result in susceptibility of women to human immunodeficiency virus (HIV) infection compared with men. This systematic review aimed to assess the relationship between women's empowerment with high-risk sexual behaviors and HIV preventive measures.

For this systematic review, which followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 checklist, a literature search was conducted in databases, including Scopus, PubMed, and Web of Science, until February 2022. Studies were included if they reported on relationship between women's empowerment with high-risk sexual behaviors and HIV-preventive measures. Two independent authors were involved in studies' selection, data extraction, and quality assessment. A total of eleven observational studies with 126,701 participants were included in this review. Higher education and wealth, living in a society with a high proportion of women with higher education, and a moderate level of poverty were significantly accompanied by multiple sexual partners and engaging in high-risk sexual encounters. By contrast, higher education and wealth level, being employed, having high sexual autonomy, and positive attitudes toward safer sex negotiation, increased the likelihood of HIV testing. The relationship between different empowerment indicators and the use of female and male condoms or the acceptance of their use were contradictory in different studies at individual and national levels.

Although this study shows the relationship between some indicators of women's empowerment with high-risk sexual behaviors and/or HIV-preventive measures, due to the existing contradictions, further studies are recommended to assess other factors contributing to the engagement of women in high-risk behaviors in different cultural contexts.

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Introduction

In 2022, there were about 39 million people living with human immunodeficiency virus (HIV) in the world, of whom 53% were women and girls. It was also reported that about 4,000 young women aged between 15 and 24 years become infected with HIV every week. According to many reports, the women to men ratio of new HIV infections has increased in recent years. In addition, teenagers and young women are diagnosed with this disease on average 5-7 years earlier than males of the same age [1].

Biological and structural factors, such as socio-economic and political issues may exacerbate women's vulnerabilities to HIV infection [2-4]. In some areas, women lack the power to make key decisions about their lives, healthcare, and daily economic needs, which increase their vulnerability to HIV [5]. In other words, gender inequality and women's lack of bargaining power have been addressed as the root of HIV spreading in countries with heterosexual epidemics [6, 7]. Given the existing findings, empowerment of women as an important strategy for reducing gender inequities may play a potential role in epidemics' control [8, 9]. Some research has shown that financially disadvantaged women are more likely to engage in risky sexual behaviors in exchange for gifts or economic support [10, 11]. However, according to other studies, women in developed countries may also engage in high-risk sexual behaviors for a sense of security and luxury goods [12]. According to some research, uneducated women are more prone to engage in high-risk sexual behaviors [13, 14]. The reason is that more than sixty percent of illiterate adults in the world are women [15].

In literature, women's empowerment is related to the promotion of HIV preventive measures. It was concluded that as the level of women's empowerment increases, even among married women, HIV testing also increases [9, 16]. As another empowerment indicator, women's negotiating power is related to condom use, request for safe sex, and husbands' extramarital relationships [17, 18].

In an effort to further clarify the contradictions in the literature, the present systematic review was conducted to better understand the relationship between women's empowerment indicators with sexual high-risk behaviors and HIV preventive measures to provide a clear picture for potential HIV care programs.

Material and methods

This systematic review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines [19].

Data sources and search strategy

A systematic search in PubMed, Scopus, and Web of Science databases was done till December 20, 2022 without time restrictions. Mesh terms of "Empowerment" and "Decision-Making" were combined with search terms of "Sexual*", "Sexuality", "Sexual Behavior", "Sexually Transmitted Diseases", "HIV", "Condom" AND "Women" OR "Female". In addition, a hand search of the references of review papers and the included studies was performed.

Inclusion and exclusion criteria

Inclusion criteria were full-length, peer-reviewed, English-written articles with observational design, containing data on women's empowerment with high-risk sexual behaviors or HIV-preventive measures. In addition, studies that were carried out on healthy women were included in the study. Whereas experimental studies, editorials, expert opinions, reviews, theses, abstracts, qualitative studies, and published protocols, were excluded.

Study selection

Figure 1 shows the PRISMA 2020 flow diagram of the selected studies. Initially, 9,595 potentially relevant publications were identified until January 20, 2022, while following deduplication, 8,109 records were screened for inclusion. Subsequently, 7,955 of articles (9.25%) were deemed irrelevant and excluded after reviewing titles and abstracts due to no empowerment indicators with high-risk sexual behaviors or HIV preventive measures behaviors in the title or abstract, no data-based studies, thesis, and experimental papers. At the full-text review stage, 143 articles were excluded due to three most common reasons: qualitative in nature, performed on a population infected with HIV, focusing solely on examining the relationship between sexual empowerment (instead of general empowerment), and high-risk or preventive behaviors. Finally, a total of 11 articles were included for the current review.

Data extraction

The process of article selection was done independently by two authors (EA and NM). One author extracted data from identified articles, which was then verified by two additional authors. The following data were recorded: first author's name, year of publication, type of study, study location, age group, sample size, empowerment indicators, and dependent variables (preventive behavior or high-risk behavior). Any queries or discrepancies about inclusion, data extraction, and quality assessment were discussed and resolved by second and fourth authors if necessary.

Quality assessment

Quality assessment of included studies was done according to Joanna Briggs Institute (JBI) critical appraisal tool. This tool consists of 8 items, which examine the quality of a study from different aspects. Each item is rated as "Yes", "No", "Unclear", or "Not applicable." Studies were considered low-risk if they fitted to 50% and above of the items on

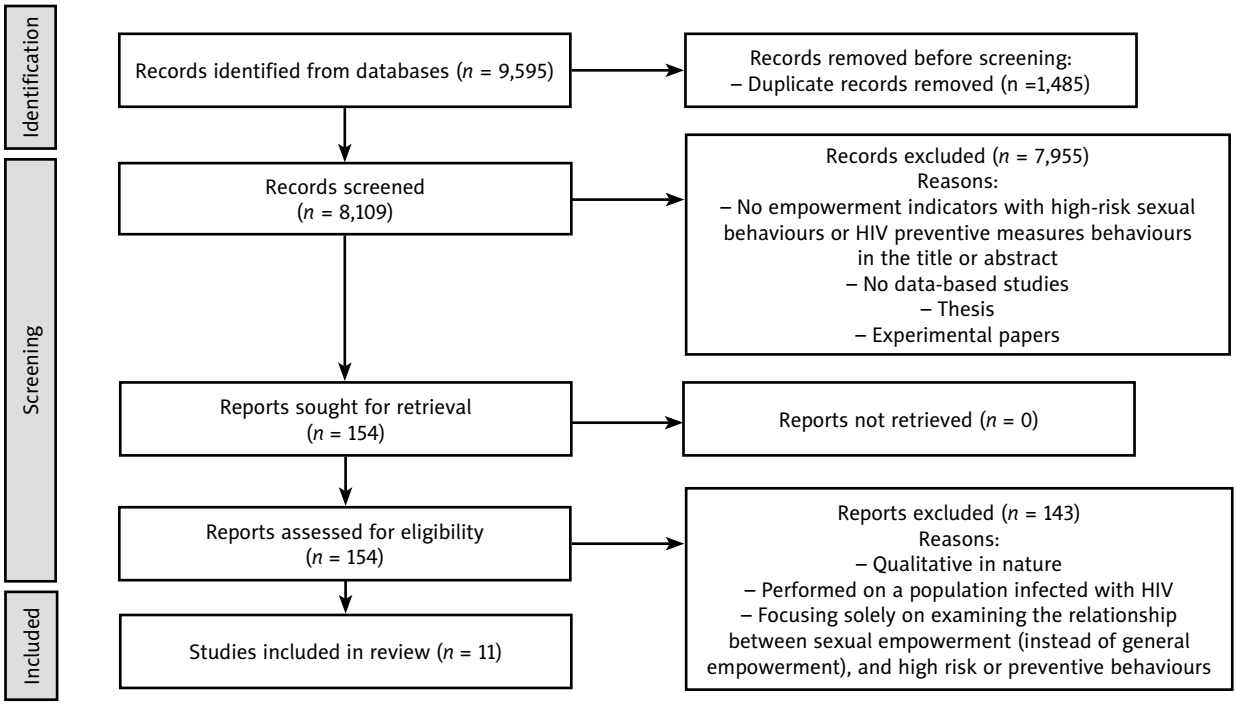

Figure 1. PRISMA 2020 flowchart of the selection of articles

the quality assessment tool. No studies were excluded after quality assessment.

Ethical considerations

Since the present study used published data, it did not need a permission of Ethics Committee. However, ethical considerations, such as accurate data collection, preparation, and avoiding plagiarism were considered by the authors.

Results

Flow and characteristics of the included studies

The main characteristics of the included studies are shown in Table 1. Most of the studies included in this review were conducted in African countries (70.0%), while the remaining studies were done in two Asian (Nepal and Indonesia) and one American (USA) countries. Age of the participants was between 15 and 49 years, and sample size varied from 71 to 28,934. The details of each study are listed in Table 1.

Dimensions of empowerment and high-risk sexual behaviors

- *Sexual encounter with a non-marital/ non-cohabiting partner or multiple sexual partners*

A study by Odimegwu *et al.* [20] on women aged 15 to 49 years from 4 countries of central, western, southeast, and southern Africa, reported that more empowered women (higher education and wealth) had multiple sexual partners and were more likely to engage in sexual encounters with non-marital or non-cohabiting partners at community and individual levels. In particular, living in a society with a large number of highly educated women increased the likelihood of engaging in risky sexual behaviors. Furthermore, community poverty was inversely related to high-risk sexual behaviors. Results from two countries showed that women from communities with a moderate level of poverty compared with women living in communities with a high level of poverty, had a higher chance of being exposed to risky behaviors; although the results of two countries, such as Gabon and Sierra Leone, did not reach a significant level.

Woolfork *et al.* [21] in a study including women from four countries of South and East Africa, demonstrated that high levels of empowerment in women were not associated with the likelihood of male partner having multiple sexual partners across all the countries. In this study, women's empowerment was measured by incorporating the difference between two partners in age and education, women's economic dependence, and their attitudes toward wife-beating and household decision-making.

Dimensions of empowerment and HIV preventive measures

- *HIV testing*

In this regard, a study by Thapa *et al.* [9] showed that higher education and high wealth level increased the probability of HIV testing. Moreover, women with positive attitudes

Table 1. Description of the articles included in the review

First author (year) [Ref.]	Location	Study design	Population status	Mean age (mean range)	Sample size	Aim of study	Empowerment indicators	Dependent variables	Quality assessment
Albarracin (2014) [25]	Illinois, USA	Survey study	Mexican married woman or women in a relationship	36.50 ± 9.50 (≥ 18)	218	If the women's empowerment influence condom use	Economic, socio-cultural, family/inter-personal, and political empowerment	Condom use for main partners	Low-risk
Alemu (2020) [16]	Ethiopia	Survey study	Married women	(15-49)	8,681	The association between women's socio-economic empowerment and HIV testing	Education and wealth level, employment status, women's participation in decision making of their own healthcare	HIV testing	Low-risk
Gerritzen (2016) [13]	Malawi	Cross-sectional	Married women	35.17 ± 10.85	1,200	The impact of women's empowerment on attitudes toward HIV prevention	Personal empowerment: years of schooling, personal income during the last year, and language skills Inter-personal power: woman's awareness of options outside, polygamy and number of co-wives	Spousal communication about HIV Acceptance of condom use within marriage	Low-risk
Greig (2003) [17]	Botswana	Cross-sectional	Single, cohabiting, married, separated, divorced, widowed	29.40 ± 5.8 (15-49)	71	The relationships between women's empowerment and HIV prevention	1. Female enrollment in secondary education; 2. Secondary net enrollment ratio of females to males; 3. Female share of paid employment in industry and services; 4. Women's share of seats in national parliament	The degree to which a woman can discuss sexual history and safe sex with her partner(s) and persuade her partner(s) to use a condom	Low-risk
Mutowo (2014) [22]	Zimbabwe	Descriptive correlational study	Single, married, separated, divorced, widowed	27.00 ± 6.70 (18-46)	80	The relationship between women empowerment and practices of using dual protection	Women empowerment interview schedule	Practices considering the use of dual protection	Low-risk
Odimegwu (2016) [20]	Gabon, Mozambique, Sierra-Leone, Zambia	Cross-sectional	Not mentioned	(15-49)	55,236	The relationship between female economic empowerment and risky sexual behavior	At individual level: education and wealth status At community level: community poverty level, community level of education (the proportion of women with at least post-primary level of education in the community)	Sexual encounter with a non-marital or non-cohabiting partner in the last 12 months Having multiple sexual partners during the preceding year	Low-risk

Table 1. Cont.

First author (year) [Ref.]	Location	Study design	Population status	Mean age (mean range)	Sample size	Aim of study	Empowerment indicators	Dependent variables	Quality assessment
Putra (2020) [23]	Indonesia	Cross-sectional study	Married women	(15–49)	28,934	The association between women empowerment factors and attitude for safer sex negotiation	Empowerment indicators include educational level, labor force participation, child marriage status, attitude towards wife-beating, decision-making participation, and asset ownership	Women's acceptance towards a justification to ask her husband to use a condom if her husband has a sexually transmitted disease	Low-risk
Thapa (2019) [9]	Nepal	Cross-sectional	Married/ cohabitating women	32.32 ± 8.85 (15-49)	6,579	The association of women empowerment and HIV testing	Women empowerment included participation in decision-making, attitudes about safer sex negotiation, and sexual autonomy	HIV testing	Low-risk
Ung (2013) [14]	Cambodia	Cross-sectional	Married women	(15-49)	11,218	The association between empowerment of married women and their ability to negotiate safer sex	Socio-economic status, women's autonomy (involvement in decision-making at the household level)	Women's decision-making on condom use and their ability to negotiate safer sex	Low-risk
Ward-Peterson (2020) [24]	Malawi	Cross-sectional data	Unmarried young women	(15-49)	1,814	Associations between multi-level measures of economic resources and women's empowerment with risky sexual behavior	At community level: community resource score, number of development programs, community women's autonomy score, percentage of girls enrolled in school At individual level: household consumption quintiles, number of shocks experienced by the household in the past 3 years, the number of safety nets used by the household in the past 3 years	Risky sexual behavior was examined using a four distinct outcomes: 1. If the individual had ever had sex; 2. If the individual consistently used condoms; 3. Age of sexual activity; 4. Partner's history	Low-risk
Woolfork (2020) [21]	Malawi, Namibia, Zambia, Zimbabwe	Cross-sectional	Married/ cohabitating women	(15-49)	12,670	Associations between levels of women's empowerment and HIV risk behaviors	Empowerment indicator: incorporating household decision-making, attitudes toward wife-beating, female economic dependence, and age, and educational differences between partners	Multiple sexual partnerships Ability to ask partner to wear a condom given an STI Ability to refuse sex	Low-risk

toward safe sex negotiation and high sexual autonomy were more likely to be tested for HIV. In contrast, women's decision-making power was not significantly related to HIV testing.

Similarly, Alemu *et al.* [16] found that women with higher education and those coming from rich backgrounds were more likely to have ever been tested. However, the intensity of these associations was weaker than shown by Thapa *et al.* [9]. Additionally, the results showed that women who did not work were less likely to be tested for HIV, and women who participated in their own healthcare decision-making were significantly less likely to be tested [16].

- *Female and male condom use*

The relationship between women's empowerment and HIV prevention was explored by Greig and Koopman [17] in a preliminary study in some sub-Saharan African countries. At the national level, condom use in the last sexual encounter was directly related to the secondary net enrollment ratio of females to males and female enrollment in secondary education. However, no significant relationship was found between condom use and women's distribution of seats in a national parliament as well as females' share of paid employment in industries and services.

While the relationship between empowerment and condom use was evaluated in 71 sexually active women at the individual level, the results showed that condom use was strongly associated with women's bargaining power and economic independence, but not with education.

In another study, Mutowo *et al.* [22] found a weak positive significant relationship between women's empowerment and dual protection use in sexual intercourse among Zimbabwean married couples. These authors measured empowerment according to the Women Empowerment Interview Schedule, a scale with 21 questions on different dimensions of empowerment, such as educational level, sexual and reproductive health rights, control of economic resources, and woman's status in the family.

Gerritzen [13] assessed the relationship between personal and inter-personal proxies of empowerment and acceptance of condom use in married women living in rural area of Malawi. In this study, full awareness of outside options, and understanding factors of infidelity and violence as sufficient reasons to leave the spouse, increased the probability of accepting using condoms within marriage. Contrary, years of schooling and women's income did not determine acceptance of condom use in marital relationship.

Another study by Ward-Peterson [24] conducted in a district in Malawi confirmed the odds of continuous increase of condom use with the increase of school girls' enrollment at the community level.

Putra *et al.* [23] study on Indonesian married women demonstrated that women with higher education and those involved in household decision-making were most likely to ask their partner to use a condom if they had a sexually transmitted infection.

Albarracin *et al.* [25] in a survey of 218 Mexican women in Illinois, USA, showed that women who had a cell phone, attended in a public meeting, participated in a political campaign, were allowed to vote in a U.S. election, and left home to meet their friends without getting permission from their husband/ partner, were more likely to use condoms. In contrast, women's economic and inter-personal ability in their romantic relationship did not determine condom use.

According to a study by Ung *et al.* [14] conducted among married women of Cambodia, those with any level of education and wealth index were more likely to ask their partner to use condom compared with uneducated women and those in the poorest wealth quintile. Additionally, women who were fully or partially involved in their healthcare decisions were less likely to be able to ask their partner to use a condom compared with women who were not involved.

- *HIV-related communications*

The results of Gerritzen's study [13] showed that women who generated their own income were more likely to discuss about HIV with their husbands. Other empowerment indicators, such as women's awareness of outside options and having skills of another local language, increased the likelihood of engagement in communication about HIV with their husbands. Furthermore, the results indicated that women's bargaining power increased HIV-related spousal communications.

Woolfolk *et al.* [21] in their study reported that women with financial independence had more negotiation power for safer sex compared with economically dependent women in some countries. Moreover, a negative attitude towards wife-beating, and participating in own or family decision-making, increased the likelihood of safer sex negotiation in Zambian women. The total empowerment score, which consisted of a combination of several indicators, was associated with a higher probability of bargaining for safer sex in Malawi and Zambia.

Discussion

To the best of our knowledge, this is the first review that aimed to assess the relationship between women's empowerment with high-risk sexual behaviors and HIV preventive measures.

In this regard, while it is theoretically expected that women, who are at higher education level and those living in societies with more resources and economic power should be less involved in risky sexual behaviors, the results of this review showed that higher education and wealth, both at the individual and community levels, are accompanied by having multiple sexual partners and having sex with a non-married or non-cohabiting partner [20]. In addition, women in communities with average levels of poverty are more involved in high-risk behaviors compared with women living in societies with a high level of poverty [20]. However another study found no association between these variables [21]. Thus, the idea that woman engaging in high-risk

sexual behaviors due to poverty is questioned. Especially for women with high socio-economic status, strengthening empowerment in other dimensions or seeking other factors, which might correlate with engaging in high-risk sexual behaviors, should be considered.

Various authors have suggested that this relation may be due to more privileged families, which are financially able to use substances, such as drugs, thus more likely to engage in risky behaviors [19]. It seems that specific knowledge about the consequences of high-risk behaviors may be more effective than general knowledge [26].

By contrast, a study by Orfei [18] conducted in West Africa suggested that reduced bargaining power of women increase extramarital affairs of their husbands. As a result, this study confirms the complexity of relationships between factors associated with high-risk sexual behaviors, which may result in HIV infection. Therefore, it is recommended to evaluate factors leading to engaging in risky sexual behaviors by assessing women in a diverse community. On the other hand, there are several strategies to prevent the spread of HIV, and HIV testing is recommended as part of routine healthcare to avoid the consequences of late diagnosis [27]. According to WHO 2009 report, the accessibility of HIV testing is influenced by social and gender factors, especially in women from low-income communities [28].

The result of this review confirms that employed women and those with a higher level of education and wealth, are more likely to participate in HIV testing [9, 16]. In addition, although sexual autonomy was associated with high probability to be tested, a woman's decision-making power was not related to HIV [9]. As it was evident, female participation in healthcare decision-making also increased the likelihood of taking HIV test [16].

Some of the barriers to HIV testing in the literature include poor education and socio-economic status, lack of access to testing services, and high cost of testing [29-31]. Therefore, intervention programs aiming at promoting HIV testing should focus on empowering women, improving education and economic status, and providing access to free or low-cost testing.

Condom is the most effective method of protection against HIV [32]. Along with male condoms, female condom was introduced as a strategy to empower women in protecting themselves against HIV [33]. In majority of the included articles, with mostly higher indicators of women's empowerment, the use of male condom by a partner/ husband and dual protection method by a married couple was more common, and women's attitude towards condom was more positive, with higher condom acceptance even in marital relationships [13, 14, 17, 22-25].

Inconsistently, the findings of Greig and Koopman [17] and Gerritzen [13] indicated that condom use was not associated with women's education and income at the individual level, with women's share of employment in industry and services and women's participation in parliament seats at the community level. Although the interpretation of these contradictory findings seems better in the context of culture, one of the limitations of some included studies is that condom use was not objectively measured.

HIV-related communication among sexual partners was also introduced as an a complementary method of HIV prevention [23]. In this respect, it is more comfortable for a woman to talk with her partner/spouse about the dangers of HIV and preventive behaviors when she has income-generating activities, is economically independent, aware of outside options, and has skills of another local language [21, 23]. In addition, women's involvement in household decision-making and their negative attitudes toward husbands' beating were associated with their negotiating power for safe sex [21].

Based on the current research, policy-makers of each society should consider the indicators of women's empowerment and prioritize women in national strategic plans and development. However, it seems to be more effective to adopt direct policies and programs, such as promoting HIV-related knowledge, facilitating access to HIV testing, preventive devices, i.e., male and female condoms, and promoting communication skills between women and their partners.

One of the strengths of this study is that it is the first study to examine high-risk sexual behaviors and HIV prevention measures in relation to women's empowerment as one of the indicators of countries' development. However, some limitations of the present study should also be considered. This review included articles with a cross-sectional study design, thus it is not clear whether women's empowerment leads to preventive behaviors or vice versa. Further studies are needed to determine the relationship between variables under study. In addition, further in-depth qualitative investigations are recommended to explore other factors associated with high-risk sexual behaviors or preventative measures. It is also suggested that future studies examine the dimensions of empowerment separately to obtain more objective results. Given that all included studies were conducted in less developed or developing countries, it is recommended that similar studies be conducted in developed countries to compare the findings.

Conclusions

In summary, the results demonstrate that higher education and wealth levels, living in a society with a large proportion of highly educated women, and average level of poverty are factors significantly associated with having multiple partners and engaging in high-risk sexual relationships. The results of this review also showed that empowering women to become economically rich and better educated would be the first step to promote HIV testing in the country. Additionally, positive attitudes toward safer sex negotiation and high level of sexual autonomy increase the likelihood of HIV testing. The results on the relationship between different empowerment indicators, and the use of female and male condoms or the acceptance of their use, were contradictory in the investigated research at the individual and national levels. All of the empowerment indicators examined in the in-

cluded studies were positively correlated with the likelihood of HIV-related communication among sexual partners.

Disclosures

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3. Financial support and sponsorship: None.
4. Conflicts of interest: None.

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