Disclosure of HIV seropositivity to sexual partner and psychosocial factors in Ethiopia: Systematic review and meta-analysis

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Abstract

Background: The burden of HIV/AIDS again becomes a public health problem after substantial control of its transmission in Ethiopia. For effective HIV transmission control measures, sero-disclosure to sexual partner is indispensable. Once the infection is established, psychosocial factors would have a great influence on HIV disclosure status to sexual partners which is very important to control viral transmission. This review aimed to estimate the national proportion of HIV disclosure practice to sexual partner and identify associated psychosocial factors.

Methods: We searched PubMed, Scopus, African Journals Online, and Google Scholar databases. The Newcastle Ottawa quality assessment scale was used to assess the quality of studies. To ensure the absence or presence of publication bias, we used a funnel plot and performed Egger's regression test for the subjective and objective assessment, respectively. Variation across studies was assessed using the I^2 statistic. The pooled proportion was estimated by using weighted inverse variance random-effects model meta-analysis. We did subgroup and sensitivity analysis to explore the reason for heterogeneity and the impact of outlier finding on the overall estimation, respectively. Trend analysis was also performed to see the presence of time variation.

Results: The proportion of HIV sero-disclosure practice to sexual partners was 76.03 % (95% Confidence Interval (CI): 68.78, 83.27). Being on ART (AOR=6.19; 95% CI: 2.92, 9.49), cohabiting with partner (AOR=4.48; 95% CI: 1.24, 7.72), getting counseling (AOR=3.94; 95% CI: 2.08, 5.80), had discussion prior to HIV testing (AOR= 4.40; 95% CI: 2.11, 6.69), awareness of partner's HIV status (AOR= 6.08; 95%CI: 3.05, 9.10),smooth relationship with partner (AOR=4.44; 95% CI:1.28, 7.61), and being member of anti-HIV association (AOR=3.70; 95% CI: 2.20, 5.20) facilitates HIV status disclosure.

Conclusions: In Ethiopia, still more than one-fourth of HIV-infected adults did not disclose their HIV positivity status to sexual partners. Psychosocial factors were the contributing factors of HIV-positive status disclosure. Further work is still needed to increase HIV status disclosure so as to decrease the transmission rate of HIV in Ethiopia.

Background

Sustainable development goal aims to minimize the incidence of Acquired Immunodeficiency Virus Syndrome (AIDS) infection from 2015 baseline data (1). Human Immunodeficiency Virus (HIV) is the global burden disease with major occurrences in sub-Sahara African countries. By 2018, globally, nearly 37.9 million people were living with HIV/AIDS. Of these, 25.7 million were in sub-Sahara African nations (2). In Ethiopia, an estimated 722,248 people were living with HIV by the year 2017 (3).

Universal HIV tests, safe sexual intercourse, one-to-one relationship, and initiation of antiretroviral therapy (ART) help to prevent and control the epidemic transmission of HIV (4-6). In addition to screening for HIV infection, HIV status disclosure to their sexual partner is also a central strategy to further control the transmission of HIV to the second or third person (7). Partners disclosed their HIV status were more likely

to adhere to ART, improve retention in care, and viral-load suppression (8, 9). HIV status disclosure is also important to get social and psychological support from their families/partners though negative outcomes sometimes happen following disclosure due to stressful responses towards their status (10).

Psychosocial intervention and all the components therein could influence perception and psychological processes at the individual level. The psychological process influences the disclosure status of HIV infected individuals through direct psychobiological processes or modified behaviors and lifestyles (11). Psychosocial factors are identified as risky behaviors of patients with HIV/AIDS including not disclosing HIV status to sexual partner (12). Thus, the involvement of psychosocial aspects such as being employed, living in the same house with sexual partner, social supports, and counseling could improve self-esteem and confidence, perception to have emotional support, social integration, mental well-being, aspects of the social environment with a positive connotation, and not fearing negative outcomes of disclosure (13). As a result, HIV infected person takes the initiative to disclose their HIV status to their sexual partner. Besides, having ever seen a person who publicly discloses HIV status and getting financial and nutrition aid further avoids the fear of stigma and discrimination, thereby improving HIV disclosure (14-16). On the other hand, fear of resentment from the parent, fear of stigma, lack of employment, social exclusion, perceive that negative public opinion, fear of losing relationships or getting divorce, unaware of spouse/sexual partner's HIV status were some of the negatively associated factors (17).

It is thought that disclosure as an unremitting social and psychological process of sharing critical health and personal information with others (18). However, regardless of many supportive interventions, only 58.7% of HIV seropositive pregnant women disclose to their sexual partners in South Africa (19). Similarly, 50.9% of Nigerian people who were living with HIV disclose HIV status to their sexual partner (20); 50.5% of seropositive adults in HIV support groups in Kenya (21), and 66% of HIV-positive women attending care and treatment clinics in Tanzania (22) were disclosed their HIV status to their sexual partners.

Studies have shown that HIV status disclosure is important in HIV prevention. Although several individual studies have reported the proportion of HIV status disclosure to sexual partners in Ethiopia, to our knowledge, they could not be used as national representative data. Therefore, this systematic review and meta-analysis aimed to estimate the proportion of HIV disclosure practice to sexual partner and identify associated psychosocial factors in Ethiopia.

Methods

Reporting

The protocol’s is registration number in the PROSPERO database is CRD42020149092. This review is reported by using the Preferred Reporting Items for Systematic Review and Meta-analysis guideline (23).

Search

We searched PubMed, Scopus, African Journal Online, and Google Scholar databases. The authors also retrieved gray literature from Addis Ababa University's online research repository. The search terms and phrases were: HIV, Human immunodeficiency virus, AIDS, Acquired immunodeficiency syndrome, HIV/AIDS, HIV infection, HIV positive, HIV disclosure, reveal, expose, factors, predictors, determinant, reasons, Ethiopia. To formulate the search string, we used AND/OR Boolean Operators. Search string applied for Scopus database was HIV OR human AND immunodeficiency AND virus OR AIDS OR acquired AND immunodeficiency AND syndrome AND disclosure OR reveal OR expose AND factors OR determinants OR risk AND factors OR associated AND factors AND of AND psychosocial AND factors OR predictors AND (LIMIT-TO (AFFILCOUNTRY , "Ethiopia")) AND (LIMIT-TO (LANGUAGE , "English")). PubMed search strings was also ((HIV) OR Human immunodeficiency virus[MeSH Terms]) OR AIDS) OR Acquired immunodeficiency syndrome) AND disclosure[MeSH Terms]) OR reveal[MeSH Terms]) OR expose[MeSH Terms]) AND factors) OR associated factors[MeSH Terms]) OR determinants[MeSH Terms]) OR risk factors[MeSH Terms]) OR psychosocial factors[MeSH Terms]) OR Predictors[MeSH Terms]) AND Ethiopia). The search was done from October, 1 to December, 11/2019.

We used Endnote version X7 reference manager software to manage the articles collected through the searching process. After the first screening for duplications, the retrieved titles and abstracts were screened against the inclusion criteria. For studies that did not have the full-text results, we sent email text to the corresponding authors. For one published study with abstract only, we found the full-text unpublished format from Addis Ababa University research repository, Ethiopia.

Inclusion criteria

The articles included in this review were: 1) primary studies that are done through observational approach because no interventional studies were available during the search time, 2) studies conducted among people diagnosed for HIV-positive status, 3) studies done in Ethiopia, and 4) studies conducted and/or published in the English language.

Population, Intervention, Comparison, and Outcome (PICO)

The population considered in this review was all HIV-positive adults who had sexual partners. Each variable included in primary studies was considered as exposure and comparison group. The outcome was HIV-positive disclosure status to their sexual partners. For the aim of this review, HIV disclosure is defined as the willingness of people to disclose seropositive status to their sexual partners.

Quality assessment

The articles were systematically appraised by using the Newcastle Ottawa quality assessment tool (24). We assessed the representativeness of the sample to the target population, adequacy of sample size,

acceptability of response rate, reliability and validity of the tool, handling mechanism of confounding factors, outcome assessment mechanism, and appropriateness of statistical test. The third reviewer was involved to solve when discrepancies between two reviewers occur.

Data extraction

Two of the authors independently extracted data using Microsoft Excel (version, 2010). The first author, year of publication, study setting, study design, study participants, sample size, reported proportion, adjusted odds ratio (AOR), and source of the fund were extracted. Natural logarithm (LN), standard error, and uncertainty interval of proportion and AOR were also calculated by using Microsoft Excel worksheet for further analysis.

Data analysis

Extracted data exported to STATA version 14 for Windows (Stata Corp, 4905 Lake way Drive, College Station, Texas 77845 USA) statistical software for analysis. To ensure the absence of publication bias, we run a funnel plot for subjective and Egger's regression test for objective measurement (25). Variation across the studies was assessed using I^2 statistic when 25%, 50% and 75% representing low, moderate and high heterogeneity, respectively (26). A weighted inverse variance random-effects model meta-analysis was run to estimate the pooled proportion (27). We did subgroup and sensitivity analyses to explore the reason for heterogeneity and the impact of outlier findings on the overall estimation, respectively.

Results

Search findings and study characteristics

The preliminary search retrieved 1,772 studies; from PubMed (n=1,634), Scopus (n=15), African Online journals (n=34), Google Scholar (n=62), Addis Ababa University online research repository (n=20), and by reviewing the reference lists of articles (n=7). Finally, we found 18 studies that fulfilled the eligibility criteria for further quality assessment (Figure 1).

All the included studies were cross-sectional studies. Three studies conducted by the year 2012, the other two in 2016, and four studies in 2018. For the other years, only one study in each was done. The maximum (91%) HIV status disclosure to sexual partner observed by the year 2017 and the minimum (57.4%) during 2015. While majority of studies (n=12) included both men and women study participants (28-39), the rest of the studies (n=6) six studies (40-45) included only women (Table 1).

Table 1: The characteristics of studies

First Author /Year	Study area	Study participant	Sample size	Response Rate (%)	Source of fund
Alemayehu M et al/2014 (40)	Mekelle, Northern Ethiopia	Women	315	100	Sheba University College, Ethiopia
Sendo EG et al/2013 (41)	Addis Ababa, Central Ethiopia	Women	107	95.5	Alkan University college and NUFU/ GEMESO Research Project on HIV/AIDS
Erku TA et al/2012 (28)	Woldia, Northern Ethiopia	Both sex	334	100	University of Gondar, Ethiopia
Deribe K et al/2008 (29)	Jimma, Southwest Ethiopia	Both sex	705	99.9	Netherlands Government Multi-Country Support Program on Social Science Research in the field of HIV/AIDS
Deribe B et al/2018 (42)	Hawassa, Southern Ethiopia	Women	207	100	Not mentioned
Dessalegn NG et al/2019 (30)	Addis Ababa, Central Ethiopia	Both sex	676	100	Australian Department of Foreign Affairs and Trade and Western Sydney Sexual Health Clinic
Gari T et al/2010 (43)	Hawassa, Southern Ethiopia	Women	384	100	EPHA-CDC project
Geremew TD et al/2018 (31)	Bale, Southern Ethiopia	Both sex	411	100	Not mentioned
Genet M et al/2015 (32)	Mekelle, Northen Ethiopia	Both sex	324	100	Not mentioned
Seid M et al/2012 (33)	Kemissie, Northen Ethiopia	Both sex	360	100	Not mentioned

Tesfaye T et al/2018 (34)	Jimma, Southwest Ethiopia	Both sex	351	98.1	Jimma University, Ethiopia
Gadisa T et al/2017 (35)	Six HIV clinic in Central Ethiopia	Both sex	1,180	100	National Institutes of Health and President's Emergency Plan for AIDS Relief
Kassaye KD/2005 (45)	Gore and Mettu, Southern Ethiopia	Women	42	100	Menschen fur Menschen foundation IIRDP
Alema HB et al (36)	Axum, Northen Ethiopia	Both Sex	361	99.7	Bahir Dar University
Kassahun G et al(44)	Jimma, Southwest Ethiopia	Women	337	99.7	Jimma University
Natae et al (37)	West shewa, Central Ethiopia	Both sex	420	99.5	Not mentioned
Reda AA et al (38)	Eastern Ethiopia	Both sex	1537	98.4	Not mentioned
Koyira A (39)	Addis Ababa, Central Ethiopia	Both sex	341	100	Ethiopia Public Health Association-Disease Control and Prevention

Publication bias and quality status

In Egger's regression test, p-value was 0.870. The distribution of original studies on the funnel plot is shown below (Figure 2). We excluded one study (45) due to poor quality status, significantly very low sample size for cross-sectional study design. The quality appraisal result is shown in the supplementary file (Supplementary file).

HIV positive disclosure status

The smallest and largest sample size considered in the analysis was 107 (41) and 1,537 (38), respectively. Seventeen studies with 8,009 individuals were included in the meta-analysis. The proportion

of HIV infected people that disclose their HIV positive status to their sexual partner was 76.03 % (95% CI: 68.78, 83.27) (Figure 3).

Subgroup analysis

Based on the subgroup analysis, 75.70% of women and 76.16% of men who were infected with HIV disclosed their HIV positive status to their sexual partners (Figure 4).

Sensitivity analysis

The sensitivity analysis showed that no study leaves have a significant impact on the overall estimation (Table 2).

Table 2: The proportion (P) with 95% CI of HIV sero-disclosure practice to sexual partner when one study omitted from the analysis a step at a time

Study omitted	Estimate	[95% Conf.	Interval]
Alemayehu M et al	76.789291	69.266319	84.312263
Sendo EG et al	76.212303	68.692101	83.732513
Erku TA et al	75.98317	68.338295	83.628036
Deribe K et al	75.099609	67.615433	82.583786
Derbie B et al	76.220047	68.647545	83.792549
Dessalegn NG et al	75.619568	67.858932	83.380196
Gari T et al	75.420479	67.826332	83.014626
Geremew TD et al	77.492012	70.396034	84.58799
Genet M et al	77.189674	69.826508	84.552849
Seid M et al	74.958412	67.524956	82.391869
Tesfaye T et al	75.239609	67.704475	82.774742
Gadisa T et al	75.086029	67.688049	82.484016
Alema HB et al	78.168549	71.721474	84.615623
Kassahun G et al	75.589554	67.977776	83.201332
Natae et al	75.47023	67.851295	83.089172
Reda AA et al	76.635452	68.866798	84.404099
Koyira A	75.260345	67.720932	82.799759
Combined	76.025496	68.780943	83.27005

Trend analysis

Considering the year of publication, the trend graph was generated. The trend line shows HIV status disclosure through time (Figure 5).

Associated factors

Socio-demographic characteristics

According to a single study report (34), those study participants below the age of 39 years were less likely (AOR=0.014; 95% CI= 0.005, 0.037) to disclose their HIV status to sexual partner than above 39 years old. Another study (35) revealed that being 40-44 years old (AOR=0.52; 95%CI:0.44, 0.61), 45 and above age group (AOR=0.38; 95% CI: 0.22, 0.65) was less likely to disclose the HIV status to their sexual partner compared to the age of 25-29.

Based on one study report, males (AOR=3.039: 95% CI=1.164, 7.935) (34) were more likely to disclose HIV status to their sexual partners. In support of this study, female was less likely (AOR=0.25; 95% CI: 0.14, 0.45) (35) to disclose their HIV status to their sexual partner.

As one study has shown, live in urban (AOR = 1.62; 95% CI=1.0, 2.60) (31) was in support of HIV disclosure practice.

One study (36) revealed positive association between unmarried (AOR=3.71; 95% CI=1.21, 11.39) and disclosure status while another study (37) found negative association (AOR = 0.12; 95% CI= 0.036-0.39). Those who had children (AOR=9.89; 95% CI= 2.68, 36.36) (42) were more likely to disclose their HIV positive status to sexual partners as reported from a single study.

Well-educated study participants (AOR=0.4; 95% CI=0.17-0.92) (28) and secondary education (AOR=0.6: 95% CI= 0.39, 0.92) (35) were less likely to disclose their HIV positive status than non-educated people as evidenced each from one study. Those study participants who took the position of control-over household assets were less likely (AOR=0.21; 95% CI= 0.12, 0.36) to disclose their HIV status compared to counterparts (35).

Medical-related factors

Presence of comorbid medical illness (AOR= 2.5; 95%, CI= 1.5, 4.2) (34), and having any clinical symptoms for HIV (AOR= 2.98; 95% CI=1.72, 5.15) (34) were more likely to disclose once's HIV positive status to sexual partner. Advanced stage HIV disease at enrollment time to care was associated (AOR=3.26; 95 % CI= 1.76–6.04) with non-disclosure status (35). The other study (29) showed that those who were on the WHO clinical stage I and II found less likely (AOR=0.22; 95% CI =0.10-0.55) to disclose their HIV status. However, another single study found being on the WHO stage I and II were more likely (AOR=2.77; 95% CI= 1.32-5.79) to disclose their HIV status (34).

The pooled effect from two studies (28, 44) showed that being on ART was positively associated with HIV status disclosure (Table 3).

Psychosocial-related factors

Having open discussion on safer sex with partner (44), using condom always (AOR= 6.20; 95% CI= 2.52–15.25) (30), having greater social support (AOR=2.98; 95%CI=1.09, 8.14) (30), being the members of

close-knit social groups (AOR=2.78; 95% CI=1.1, 6.7) (35), being peer counselor (44), and low physical domain-related quality of life (AOR=3.83; 95% CI=2.01, 7.32) (34) were more likely to disclose HIV status to their partner. Those who had high social domain-related quality of life (AOR=0.053, 95% CI= 0.022, 0.125) (34) and low negative self-image (AOR=0.03; 95% CI= 0.04, 0.70) (29) were affect negatively their HIV disclosure status as showed each with single study.

Those who had a chance of seeing people with HIV positive who disclose their HIV status to the community (AOR= 2.1, 95% CI: 1.08, 4.01) (40) and knew other people living with HIV (AOR=4.76; 955CI= 2.63, 9.09) (35) were supportive factors to disclose HIV status to sexual partners.

The pooled effects of cohabiting with partner, smooth relationship with the partner, getting counseling, had a prior discussion with a partner about HIV/AIDS and HIV test, knowing partner's HIV status, and being a member of anti-HIV association are illustrated on Table 3.

Table 3: List of variables with their pooled AOR (95% CI) and I-square percentage with its p-value

Variables	AOR (95% CI)	I-squared with p-value
Being on ART (28, 44)	6.19 (2.92, 9.49)	84.5%, 0.011
Cohabiting with partner (29, 30)	4.48 (1.24, 7.72)	0.0%, 0.454
Getting counseling (28, 31, 40, 42)	3.94 (2.08, 5.80)	23.9%, 0.268
Had discussion prior to HIV testing (29, 32, 37, 40, 41)	4.40 (2.11, 6.69)	0.0%, 0.972
Knowing partner's HIV status (28, 30-32, 36, 37, 40)	6.08 (3.05, 9.10)	27.3% 0.220
Smooth relationship with partner (30, 34)	4.44 (1.28, 7.61)	0.0%, 0.616
Being member of anti-HIV association (36, 44)	3.70 (2.20, 5.20)	28.9%, 0.236

Discussion

Disclosing once own HIV seropositive status to sexual partner have a great impact on the HIV prevention mechanisms though disclosing their HIV-positive status could be frustrating (18). Evidence about HIV disclosure status to their sexual partner is crucial to further prevent HIV transmission in culturally diverse community, like Ethiopia. This systematic review scrutinizes HIV status disclosure and psychosocial factors among HIV-infected people in Ethiopia.

The proportion of HIV-positive disclosure to sexual partner in the present meta-analysis was 76.03%. The finding of this study has been found higher compared to studies in Tanzania (66%) (22), Togo (60.9%) (46), Nigeria (50.4%) (47), Uganda (81%) (48), and South Africa (80%) (49). On the other hand, the result of the current meta-analysis is lower than that of a study done in Zimbabwe (89.3%) (50). Even though all these countries including Ethiopia are WHO listed countries and implementing WHO HIV guidelines, sociodemographic difference might have a contribution to this discrepancy.

The disclosure of HIV serostatus to sexual partner in Ethiopia has observed to decrease over time. This might be due to different attributes; public attention to the seriousness of HIV on the health and economic

aspects seem forgotten in Ethiopia. This might be due to Ethiopia is a less developing country and many health-related assets are depending on the support of non-governmental organizations. Recently many HIV-related volunteer organizations are either phasing-out or changing their thematic areas towards the emerging non-communicable chronic diseases because of the paradigm shift of developed countries from communicable disease to non-communicable disease prevention and control. Similarly, in Ethiopia, though infectious diseases including HIV are silently transmitting, the government attention is shifted to non-communicable diseases as developed nations do. Besides, there is no legal concern about HIV disclosure status in Ethiopia. However, in some other developed nations, disclosure of HIV-positive status is regarded as social and legal responsibility for HIV-infected individuals because non-disclosing their positivity status is devastatingly exposed others to HIV infection. Since 1987, when prosecutions were first initiated and HIV-specific criminal statutes enacted in the United States (51), increasing numbers of countries around the world have applied existing criminal laws and/or created HIV-specific criminal statutes to prosecute people living with HIV who have or are believed to have, put others at risk of acquiring HIV (52). In the other view, lack of governmental insurance for once infected with HIV infection for different incentives such as provide government employment, favors in housing, education opportunities, and other benefits for the partner may responsible for decrement or low disclosure rate in Ethiopia.

Based on this review, being on ART were more likely to disclose HIV status to sexual partner. This finding is supported by evidence in Uganda (16). The possible explanation might be ART initiation by itself pass a step in convincing the patient to live with HIV as a healthy individual. Moreover, through the process of taking ART, knowledge, and attitude about HIV prevention and treatment mechanism has increased and they disclose their status to sexual partner easily as a result.

HIV infection affects the physical, psychological, social, and spiritual aspects of HIV-infected people and their parents (53). These lead to psychosocial issues that support disclosure experiences through stabilizing psychological well-being because thinking to disclose once own HIV-positive status has raise psychosocial conflict and psychosocial problems, like HIV-related stigma, anxiety, depression, insomnia, suicidal thoughts, and substance use disorder. Thus, cohabiting with a partner, had a smooth relationship with the partner, getting counseling, had discussion prior to HIV testing with a partner, knowing partner's HIV status, and being a member of ant-HIV association were considered psychosocial related-factors of HIV-positive status disclosure practice. All these variables would help in enhancing problem-solving skills, lifestyle changes, helping the patient to identify choices, evaluate the value and consequences of choices, linking the patient to spiritual and psychological support, and providing a solution-focused counseling approach, support the wellness of the entire family, encourage peer contact and support, discourage use of drugs and alcohols, and increase their meaning in life.

In this meta-analysis we found that individuals cohabiting with a partner were more likely to disclose HIV status to sexual partners. Living together usually involves sexual activities and concerns about the risk of HIV transmission. It also increases a sense of well-being and helps to develop empathy between couples.

Moreover, this might be due to the relationship is more trusting and feel get social support intrinsically (54).

Relationship quality with a partner might act as either a risk or a resilience factor in the HIV status disclosure process (55). Similarly, this review found those who had smooth relationships with partner were more likely to disclose HIV status to sexual partner. This might be due to the fact that the probability of sharing a secret is high among those in good relationship with the partner. Fear of stigma, violence, and separation would be less if the relationship is smooth and thus HIV partner disclosure could be high. This evidence is supported by a study conducted in China, where disclosing HIV status to partners was significantly related to a better quality of relationships with partners and open and effective family communication (56).

Counseling is important to determine the presence of risky behavior, facilitate the expression of their concerns and worries, make the patient understand the risks of non-disclosure, bring change in behavior, and prevent and reduce psychological morbidity (57). Besides, receiving counseling about HIV test to have psychological preparation, relieve stress and anxiety, and forecast the benefit of disclosure. Deal with painful emotional issues, express thoughts, emotions, and behaviors, feel good about themselves, learn to function comfortably, act, change, adapt and/or achieve specified desired results (58). Besides, it improves ability to accept HIV positive results, increased knowledge about the HIV disease process, medication, and reduce fear to expose their HIV status. Having received alternative information from health professionals assists them to develop self-confidence and self-esteem. Even, they could prepare themselves how they solve the challenges following disclosure to the sexual partner. Therefore, those who received counseling could develop positive behavior towards their HIV infection and disclose their status to a partner. Similarly, this review revealed that HIV-infected people had got counseling were more likely to disclosed HIV status to sexual partners. A study from Uganda also found the same attributes (16).

Anti-HIV association is a group of people who share common beliefs and value that supports HIV disclosure practice. The current meta-analysis revealed that those HIV-positive people being part of anti-HIV association were more likely to disclose HIV positive status to sexual partner. Being part of HIV-related association helps to reduce negative myths and misinformation about HIV. It allows getting emotional, aid, structural, and functional support (59). It encourages better relationships between people and building a stronger sense of self and community. Being an anti-HIV association member allows being members of a peer support system that help to mutually give and receive help from one another, building on the key principles of respect, shared responsibility, and mutual agreement of what is helpful, and learn about healthy decision making. The effectiveness of this group comes from understanding another's situation and showing empathy through shared experiences of emotional and psychological pain. Furthermore, it helps HIV-positive people to deal with a wide range of concerns that accompany their HIV diagnosis, and are important allies in the fight against stigma and discrimination so that they can easily disclose their HIV positive status.

According to this review, those HIV infected person who had a prior discussion about HIV and HIV test was more likely to disclose HIV status as compared to their counterpart. This might be due to the fact that prior discussion with partner avoids the fear of negative reactions from parent and the probability of accepting the positive result might be high if they have discussed before HIV testing. Furthermore, knowing partner's HIV status helps to disclose their HIV status to sexual partner. This result was supported by a study done in South Africa (19) where disclosure was high among pregnant women known HIV status of their partner.

To achieve the goal of 90% of people know their HIV status and 90 of those knowing their status getting into care and to achieve the goal of zero new HIV infection by the end of 2035, reaching the partners of people who test HIV positive is crucial. Evidence of this meta-analysis will provide insight to the governmental and non-governmental organizations, which are working on HIV prevention and control in Ethiopia.

Strength And Limitation

To the best of our knowledge, this is the first review done to pool the national experiences and identified comprehensive determinants.

As to the limitation, though all the studies are done in Ethiopia, followed similar study design, similar measurement tool, and subgroup analysis is done, statistical heterogeneity value found to be high. In some instances, I-square is not the absolute measure of heterogeneity; this heterogeneity might be due to the command we used ("Metan" command was applied). Due to the nature of the cross-sectional study, the associated factors might not have a cause-effect relationship as it does in interventional or follow-up study.

Conclusions

In Ethiopia, still more than one-fourth of HIV-infected adults did not disclose their HIV positivity status to sexual partners. Being on ART, cohabiting with a partner, had a smooth relationship with a partner, getting counseling, had a discussion prior to HIV testing, knowing partner's HIV status, being a member of an ant-HIV association, and being on ART were supporting factors of HIV-positive status disclosure. Behavioral change to disclose once seropositivity to sexual partner is highly needed to further decrease the transmission rate of HIV in Ethiopia which would be the focus on health and education sectors in the country.

Declarations

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Figures

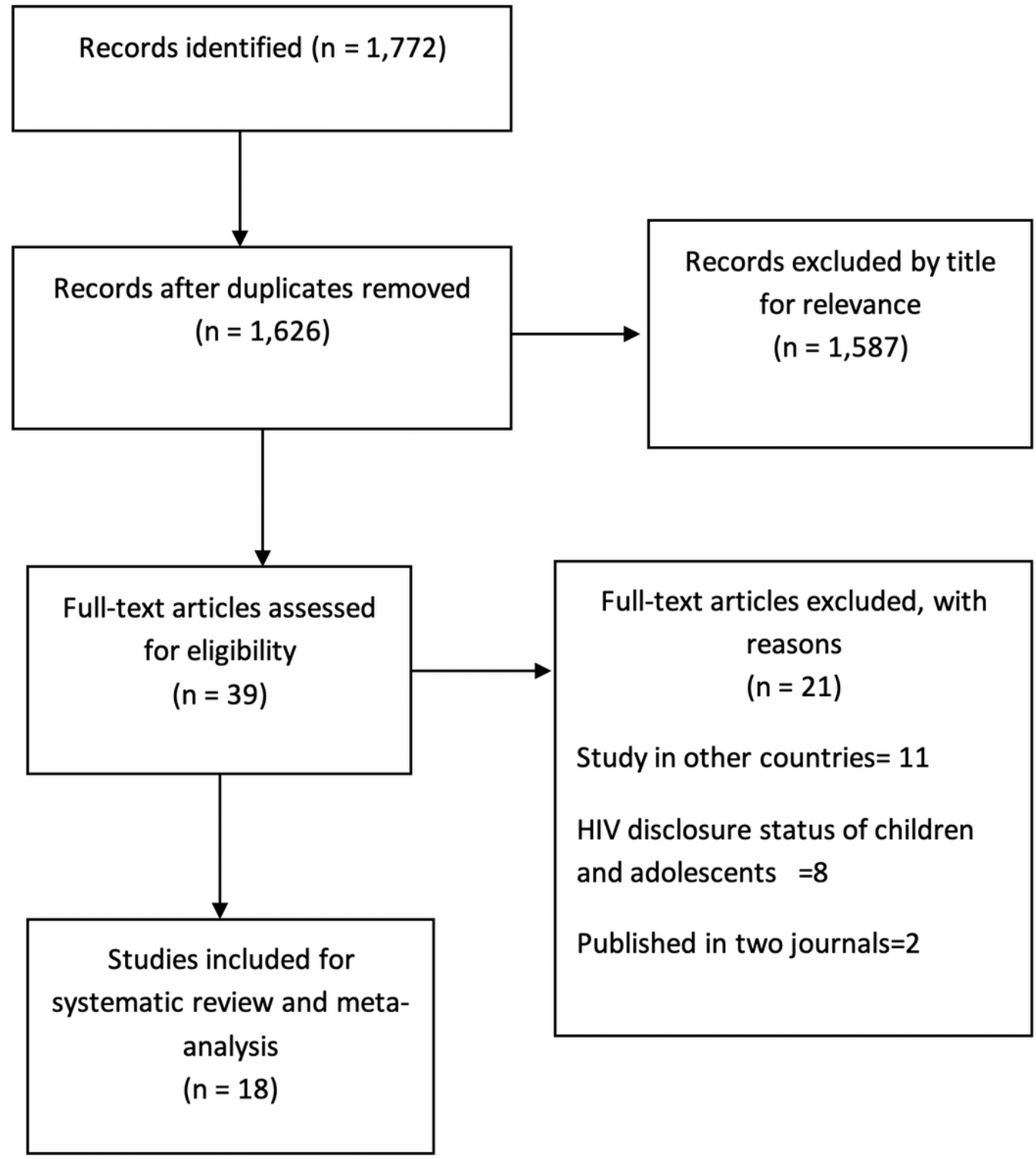

Figure 1

PRISMA flow chart displays the article selection process

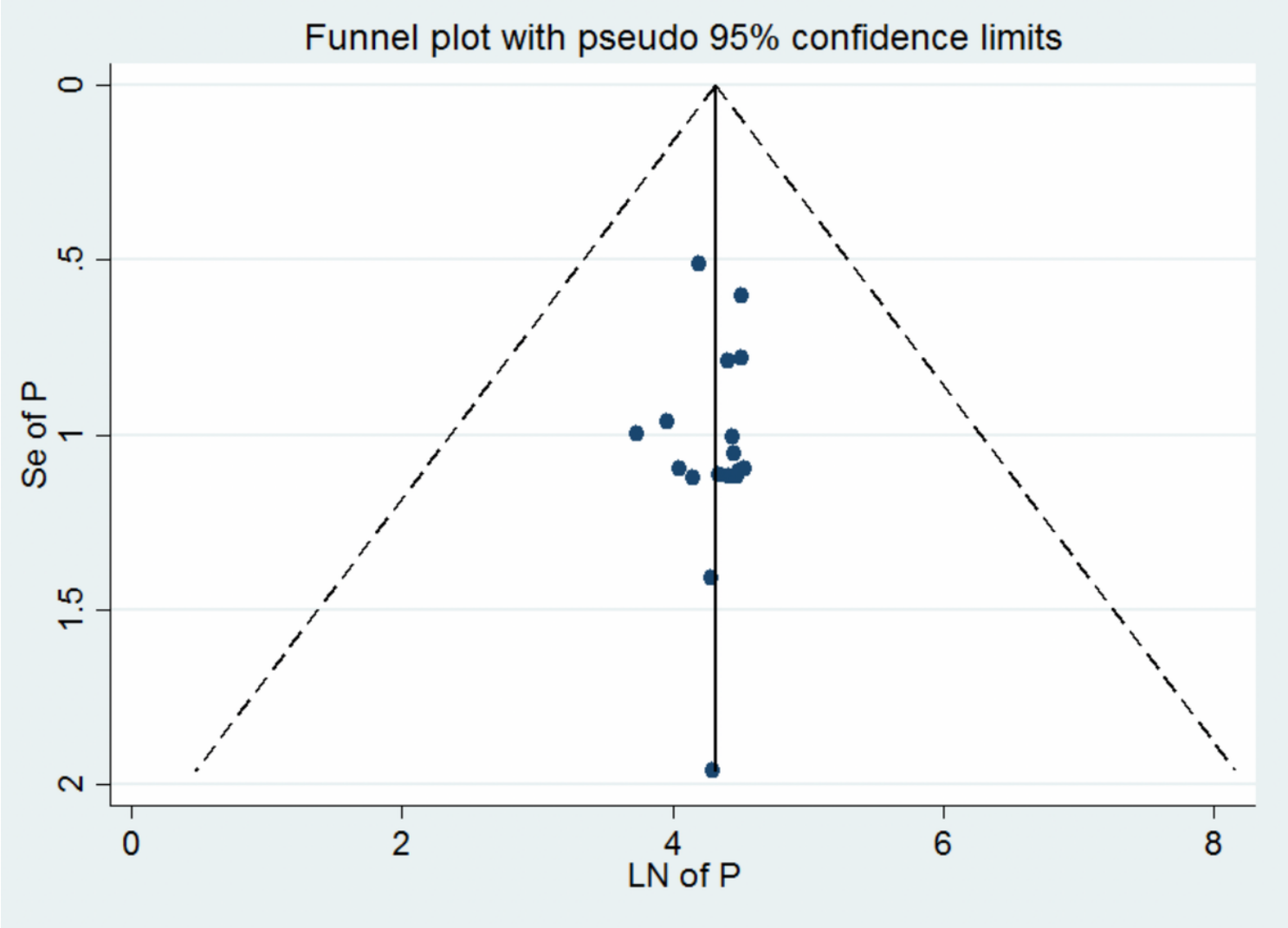

Figure 2

Funnel plot shows the symmetrical distribution of the prevalence of original studies; the x-axis shows the natural logarith4m of prevalence (LN of P) and standard error of prevalence (Se of P) plotted on the Y-axis.

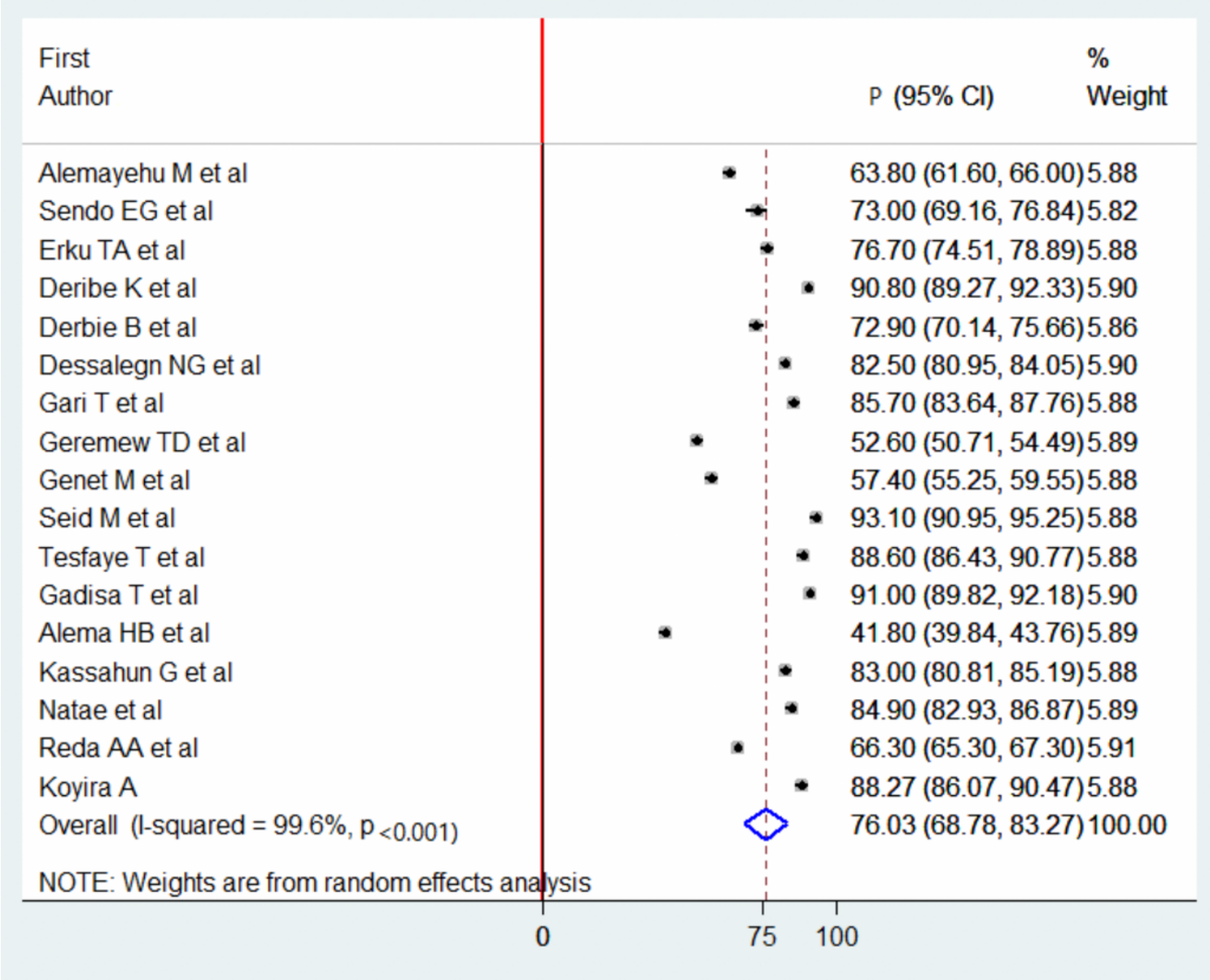

Figure 3

Forest plot of the proportion (P) of HIV positive people who disclosed HIV positive status to their sexual partner and its 95% CI, the midpoint of each line illustrates the prevalence rate estimated in each study. The diamond shows the pooled prevalence.

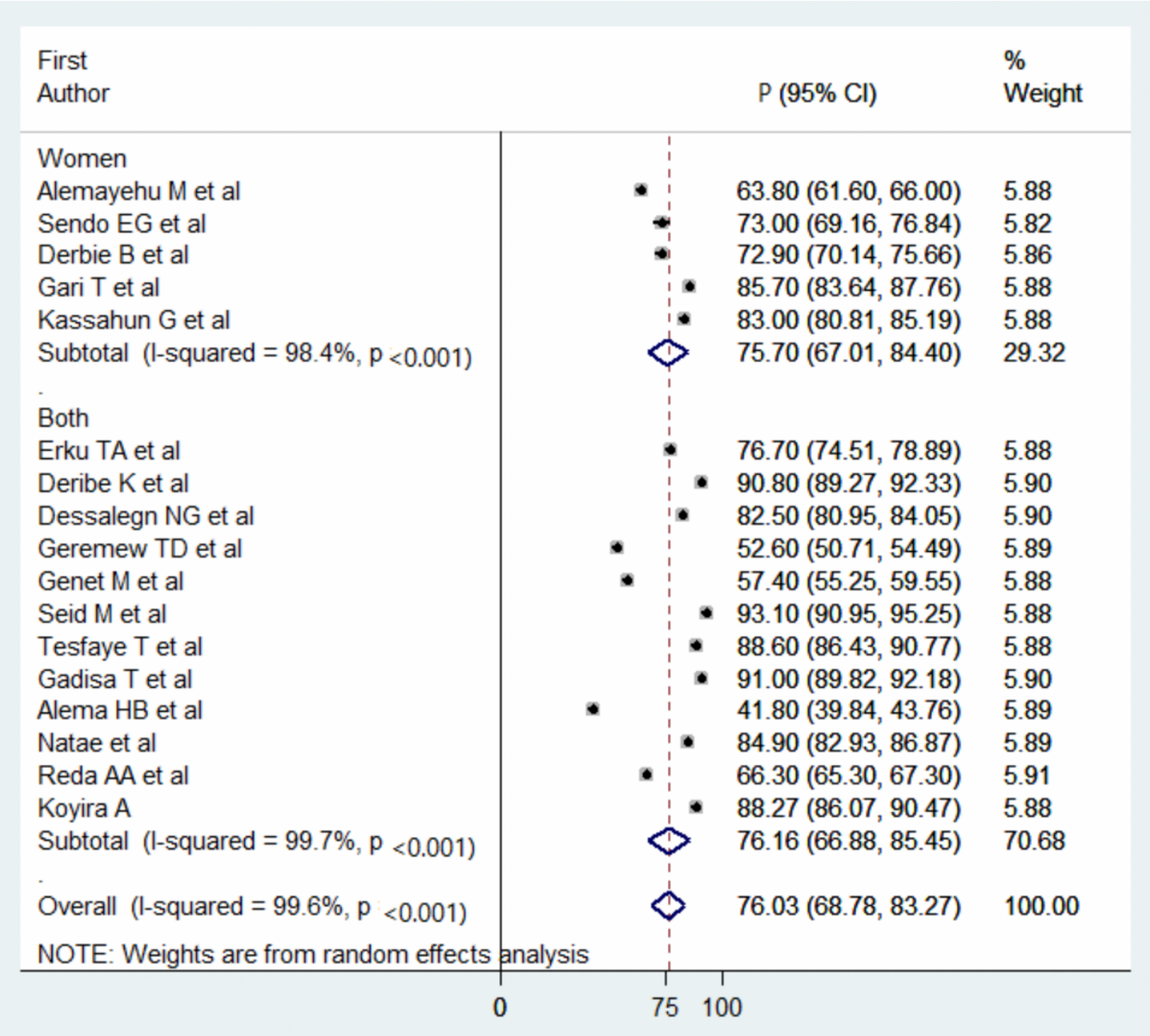

Figure 4

Subgroup analysis based on the study participant included in the original study

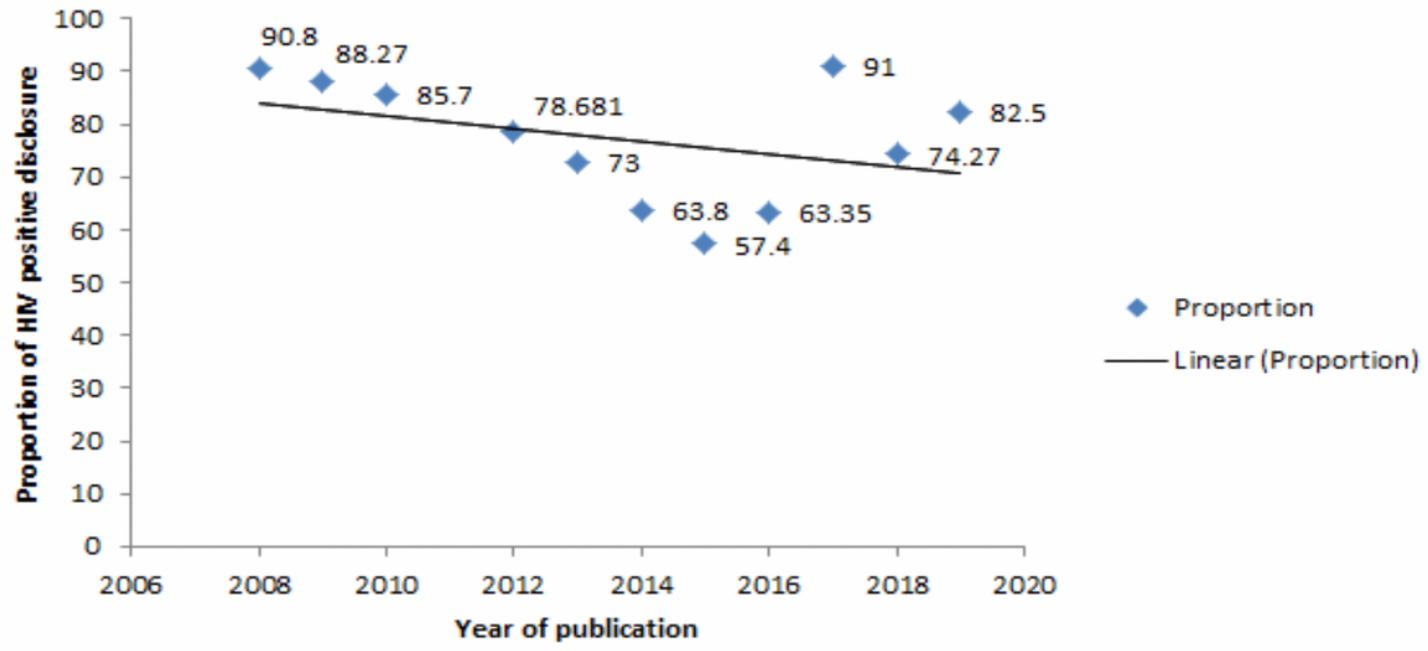

Figure 5

Trend analysis exhibits the proportion of HIV sero-disclosure practice from the year 2008 to 2019 in Ethiopia

Supplementary Files

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