Mini-Review

HIV/AIDS Knowledge and Stigma in the General Population: A Mini-Riview of Recent Evidence

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ABSTRACT

HIV/AIDS remains a major global public health problem, and persistent gaps in knowledge together with stigma continue to undermine prevention, testing, and treatment efforts, particularly in low and middle income countries (LMICs). This mini review synthesizes findings from ten peer reviewed studies published between 2020 and 2025 that examined HIV related knowledge, misconceptions, stigma, discrimination, and stigma reduction interventions among general populations and women in Indonesia, Bangladesh, Iran, Ecuador, and 64 LMICs more broadly.

Across studies, overall awareness of HIV/AIDS was moderate to high, ranging from approximately 60% to over 80%, but accurate knowledge of transmission routes and the ability to dispel common misconceptions were considerably lower, especially among individuals with limited education, lower socioeconomic status, and reduced access to mass media or health information.

Sociodemographic determinants consistently associated with both poorer knowledge and higher stigma included younger age, female sex, lower educational attainment, poverty, and rural residence.

Stigma toward people living with HIV remained widespread and was strongly and inversely related to the level of HIV knowledge, with several studies demonstrating that higher knowledge reduced the odds of holding discriminatory attitudes. A narrative based health education intervention in Ecuador and several knowledge focused programmes in Asia suggest that targeted education can meaningfully reduce stigma. The reviewed evidence highlights an urgent need for sustained, regionally tailored HIV education and destigmatisation programmes, with particular attention to women, youth, and economically disadvantaged populations, to support progress toward global targets for ending the HIV/AIDS epidemic

Keywords: HIV/AIDS, Knowledge, Stigma, Discrimination, Public health

1. INTRODUCTION

Human immunodeficiency virus (HIV) infection leading to acquired immunodeficiency syndrome (AIDS) remains a major public health challenge worldwide despite decades of biomedical advances. Approximately 39.0 million people were living with HIV globally in 2022, of whom 81% were aware of their status and 67% were receiving antiretroviral therapy. In the Asia Pacific region alone, roughly 300,000 new infections and 160,000 AIDS related deaths occurred in a single recent year, figures that fall well short of the Joint United Nations Programme on HIV/AIDS (UNAIDS) target of zero new infections, zero discrimination, and zero AIDS related deaths by 2030. In Indonesia specifically, new HIV diagnoses rose markedly from about 7,000 cases per year in 2006 to 48,000 in 2017, even as AIDS stage diagnoses declined over the same period; the country's overall prevalence of 0.41% masks a roughly ten fold regional disparity, with prevalence reaching 5% in Papua.

Beyond biomedical determinants, two intertwined social factors inadequate knowledge and persistent stigma continue to drive the epidemic and undermine the HIV care continuum. Limited or inaccurate knowledge about how HIV is transmitted contributes directly to onward transmission and delays in testing. At the same time, stigma and discrimination toward people living with HIV (PLHIV) deter individuals from seeking testing, disclosing their status, and adhering to treatment. These two factors are not independent: several of the studies reviewed here show that populations with poorer HIV knowledge also report markedly higher levels of stigmatising attitudes.

Despite a large global literature, much of the evidence on HIV knowledge and stigma is fragmented across countries, populations, and methodologies, making it difficult for policymakers to identify common patterns and evidence based entry points for intervention. This is particularly true for Indonesia and other LMICs in Asia, the Middle East, and Latin America, where HIV epidemics are often concentrated, under-resourced, and compounded by conservative social norms.

The aim of this mini review is therefore to synthesise recent peer reviewed evidence (2020-2025) on HIV/AIDS knowledge, misconceptions, stigma, discrimination, and stigma reduction interventions among general populations, with particular reference to Indonesia alongside comparative evidence from Bangladesh, Iran, Ecuador, and a 64 country LMIC analysis. By bringing together findings from cross sectional population surveys, secondary analyses of nationally representative datasets, and an intervention study, this review aims to identify consisten sociodemographic determinants of poor knowledge and stigma and to highlight promising directions for HIV education and destigmatisation programmes.

2. METHODS

This mini review is based on a narrative synthesis of ten peer reviewed journal articles identified through a literature search of the Scopus database, restricted to studies published between 2020 and 2025 addressing HIV/AIDS-related knowledge, misconceptions, stigma, discrimination, or stigma reduction interventions among the general population or among women. Articles were eligible for inclusion if they (a) reported original empirical data from a cross sectional survey, a secondary analysis of a nationally representative dataset, or an intervention study; (b) measured at least one outcome related to HIV knowledge and/or HIV related stigma or discrimination; and (c) were published in English in a peer reviewed, Scopus indexed journal or conference proceedings.

The ten articles included in this review comprised: a narrative overview of the HIV epidemic and its social impact in Indonesia ; a national online survey of 5,364 Indonesians assessing HIV knowledge using the Indonesian version of the HIV Knowledge Questionnaire-18 (HIV-KQ-18) ; a secondary analysis of Multiple Indicator Cluster Survey (MICS-6) data on HIV knowledge among women in Bangladesh, Lao PDR, Mongolia, and Nepal ; a community based cross sectional survey combined with qualitative interviews on HIV knowledge and stigma in Jakarta ; a secondary analysis of the 2017 Indonesia Demographic and Health Survey (IDHS) on determinants of HIV stigma; a multi country analysis of public stigma and HIV testing uptake across 64 LMICS; a telephone survey of HIV transmission knowledge and rapid test history in Tehran, Iran ; a narrative based health education intervention to reduce HIV stigma in rural Ecuador; a secondary analysis of 2019 MICS data on HIV knowledge among women in Bangladesh ; and a secondary data analysis of discriminatory attitudes toward adults and children with HIV/AIDS in Indonesia .

Data extracted from each article included study design, setting, sample size, outcome measures, key quantitative findings (proportions and odds ratios where available), and reported sociodemographic determinants. Findings were grouped thematically into: (a) overall levels of HIV knowledge, (b) sociodemographic determinants of knowledge, (c) common misconceptions, (d) levels and determinants of HIV related stigma, (e) interventions to reduce stigma, and (f) the relationship between stigma and HIV testing uptake. Given the heterogeneity of designs, instruments, and populations across the included studies, a narrative rather than meta analytic synthesis was undertaken

3. RESULT

3.1 Overall levels of HIV/AIDS knowledge in the general population

Across the reviewed studies, general awareness of HIV/AIDS was moderate to high, but accurate and comprehensive knowledge was consistently lower. Among 5,364 Indonesians surveyed online using the HIV KQ 18 instrument, respondents from Java reported the highest level of HIV/AIDS knowledge, 12.5% higher than those from Sumatra, Kalimantan, Sulawesi, Papua, and Maluku, revealing marked regional disparities within a single country. In a multi country analysis of MICS 6 data from Bangladesh, Lao PDR, Mongolia, and Nepal, only 60% of women reported having heard of HIV/AIDS, with 63.2% demonstrating adequate transmission knowledge and 80.4% able to correctly reject common misconceptions. A similarly large MICS based analysis of 64,346 Bangladeshi women found that 60.3% had general knowledge about HIV/AIDS, 52.2% had accurate transmission knowledge, and 71.7% could correctly identify misconceptions. In Tehran, Iran, a telephone survey of 1,311 adults found that only 40.9% demonstrated a high level of understanding of HIV transmission modes . In Jakarta, a community level survey using the HIV KQ 18 among 83 respondents similarly indicated that overall HIV knowledge remained low. Taken together, these findings indicate that, although most adults in the reviewed settings have heard of HIV/AIDS, fewer than two thirds reliably understand its transmission routes and prevention measures, with knowledge gaps especially pronounced outside major urban centres.

3.2 Sociodemographic determinants of HIV knowledge

Several consistent sociodemographic correlates of HIV knowledge emerged across studies. Higher educational attainment was repeatedly associated with better knowledge: in Iran, individuals with academic education had nearly eight times higher odds of good HIV transmission knowledge than those with less education (OR = 7.83), and those with a diploma had over four times higher odds (OR = 4.52). Higher socioeconomic status was similarly protective, with middle and upper middle wealth groups in Iran showing 4.41 and 5.46 times higher odds of good knowledge, respectively, relative to the poorest group [7]. In Indonesia, region of residence, educational level, monthly expenditure, occupation, a background in health sciences, and prior attendance at an HIV related workshop were all significantly correlated with knowledge level. In the Bangladesh, Lao, Mongolia, and Nepal analysis, wealth index, education, and access to information (for example, through mass media) were significant predictors of HIV knowledge, and Mongolia and Nepal both of which have established formal HIV education programmes showed comparatively better knowledge outcomes than Bangladesh and Lao PDR. Notably, HIV knowledge was found to decline with increasing age in the Iranian sample (OR = 0.97 per year) [7], suggesting that younger cohorts may be benefiting from more recent public health education efforts.

3.3 Common misconceptions about HIV transmission

Despite generally rising awareness, specific and persistent misconceptions about HIV transmission were documented across settings. Among Indonesian respondents, a recurring misunderstanding was that HIV/AIDS transmission occurs only when sexual partners are changed, alongside gaps in knowledge about the HIV incubation period, mother to child transmission during pregnancy, and condom use as a prevention method. In the Bangladesh, Lao, Mongolia, and Nepal sample, misconception knowledge the ability to correctly reject false beliefs such as transmission through mosquito bites or sharing food with an infected person was present in only 80.4% of respondents, indicating that around one in five women still endorsed at least one major myth ; a comparable rate (71.7%) of correct misconception knowledge was reported among Bangladeshi women in a separate national survey. These persistent misconceptions are concerning because they can both heighten unwarranted fear of casual contact with PLHIV fuelling stigma and create false reassurance about behaviours that do carr real transmission risk.

3.4 Levels and patterns of HIV related stigma and discrimination

Stigma toward PLHIV emerged as a pervasive and multidimensional problem across the reviewed studies. In a community survey in Jakarta, instrumental stigma (fear based avoidance), symbolic stigma (moral judgement), and civility stigma (social distancing) were elevated in 25.9%, 19.8%, and 17.3% of respondents, respectively. In a 64 country analysis using nationally representative survey data from 2015 to 2021, public stigma toward people with HIV measured with a validated two item attitude index was found to be prevalent across the large majority of the low and middle income countries studied. In Indonesia, secondary analysis of the 2017 IDHS (n = 47,233) confirmed that stigmatising attitudes toward people living with HIV and AIDS (PLWHA) remained widespread nationally, while a separate Indonesian dataset showed that discriminatory attitudes were directed differently toward adults compared with children living with HIV/AIDS, with men showing more inclusive attitudes toward adults (OR = 0.993) but markedly less inclusive attitudes toward children with HIV/AIDS (OR = 4.235).

3.5 Sociodemographic and knowledge related determinants of stigma

Across studies, the determinants of HIV related stigma mirrored, and were closely linked to, the determinants of poor knowledge. In the Indonesian IDHS analysis, stigmatising attitudes were significantly associated with younger age (15-19 years, OR = 1.611; 20-24 years, OR = 1.438) , being married (OR = 1.416) lower educational level (OR = 1.247) very poor economic status (OR = 1.503) and most strongly lack of HIV knowledge (OR = 2.588) [5]. A separate Indonesian analysis similarly found that having no education (OR = 1.625) only primary education (OR = 1.465), the poorest economic status (OR = 1.471) and low or incomplete HIV knowledge (OR = 4.083) were all significantly associated with non inclusive, discriminatory attitudes toward adults living with HIV/AIDS. In Jakarta, higher HIV knowledge was directly associated

with lower odds of instrumental stigma (OR = 0.292), providing direct evidence that knowledge and stigma are mechanistically linked rather than merely co occurring. Together, these findings indicate that the same populations who are least informed about HIV younger, less educated, and economically disadvantaged individuals are also the most likely to hold stigmatising attitudes toward PLHIV.

3.6 Interventions to reduce HIV related stigma

Encouragingly, the reviewed evidence suggests that targeted education can meaningfully reduce HIV stigma. A cross sectional intervention study in rural Cariamanga, Ecuador, tested a narrative based health education programme combining a fact based presentation, video recorded personal stories from people living with HIV, and a structured group discussion, among 133 community members . Using a validated HIV Stigma Scale and an HIV knowledge measure, the intervention demonstrated that combining accurate information with humanising personal narratives can be an effective strategy for reducing community level stigma, particularly in settings with limited prior exposure to PLHIV. Complementary evidence from the community level study in Jakarta similarly underscored that interventions which directly raise HIV knowledge are likely to translate into reduced instrumental stigma, while the comparison across Bangladesh, Lao PDR, Mongolia, and Nepal suggested that countries with established, formal HIV education programmes (Mongolia, Nepal) achieve more favourable knowledge outcomes than those without such programmes (Bangladesh, Lao PDR), pointing to the importance of institutionalised, sustained education rather than one off campaigns.

3.7 Stigma, HIV testing uptake, and the wider care continuum

Several studies linked stigma directly to behaviours central to HIV control. The 64 country analysis found that public stigma toward people with HIV was associated with reduced HIV testing uptake at the population level, reinforcing the conceptual model in which stigma deters individuals from engaging with HIV testing and the broader HIV care continuum. Consistent with this, in Iran only 9.8% of surveyed adults had undergone HIV testing within the past 12 months (4.7% in private clinics and 5.1% in public centres), despite fewer than half the sample demonstrating good transmission knowledge, suggesting that both knowledge gaps and stigma related reluctance contribute to low testing rates. In Indonesia, the broader epidemic context illustrates the cumulative consequence of these barriers: more than half of all HIV diagnoses nationally are made only after the disease has progressed to AIDS, indicating substantial delays in testing and diagnosis that are consistent with the deterrent effects of stigma and limited awareness documented elsewhere in this review.

4. DISCUSSION

This mini review of ten recent studies indicates a clear and consistent pattern across diverse low and middle income settings: HIV/AIDS knowledge remains incomplete, important misconceptions persist, and stigma toward PLHIV continues to be common and tightly linked to gaps in knowledge. This pattern held across very different study designs and populations from large nationally representative household surveys in Bangladesh and Indonesia , to community level surveys in Jakarta and Tehran, to a 64 country multinational analysis, and a community intervention in Ecuador suggesting that the knowledge stigma relationship documented here is not an artefact of any single methodology or cultural context, but a broadly generalisable feature of the HIV epidemic in resource limited settings.

The most consistent and policy relevant finding across the reviewed literature is the strength of the inverse association between HIV knowledge and HIV related stigma. Studies that measured both constructs in the same population found that low knowledge was among the strongest independent predictors of stigmatising or discriminatory attitudes, with odds ratios reaching 2.6 to over 4 in Indonesian datasets, and that, conversely, higher knowledge directly reduced the odds of stigmatising attitudes. This is consistent with long standing theoretical models in which fear of an unknown, poorly understood disease amplified by misconceptions about casual transmission drives avoidance and moral judgement toward those affected. The persistence of specific myths, such as the belief that HIV is transmitted by mosquito bites or sharing food, or that risk is confined to people who frequently change sexual partners, suggests that current public health messaging in several of the reviewed countries has not yet fully displaced inaccurate folk beliefs, even as general "awareness" of HIV/AIDS has become nearly universal.

A second cross cutting theme is that knowledge gaps and stigma are not randomly distributed but cluster among the same socially and economically disadvantaged groups: younger individuals, women, people with less education, and those in poverty. This convergence has an important equity dimension, because these same groups particularly young women in LMICS are also disproportionately represented among new HIV infections globally. The Indonesian data further reveal that geography compounds these disparities, with a clear urban rural and inter island gradient in knowledge (Java outperforming other islands by 12.5%) and in HIV burden itself (prevalence in Papua roughly ten times the national average). This spatial and social patterning indicates that generic, nationwide HIV education campaigns are unlikely to be sufficient; programmes instead need to be deliberately targeted toward underserved regions, lower income groups, and populations with limited formal education.

Gender added a further layer of complexity to the stigma findings. While men in Indonesia showed somewhat more inclusive attitudes than women toward adults living with HIV/AIDS, this pattern reversed sharply for children living with HIV/AIDS,

among whom men displayed markedly less inclusive attitudes. This divergence suggests that HIV related stigma is not a single, uniform construct but is shaped by who is perceived to be "responsible" for infection: adults are often (rightly or wrongly) associated with behavioural risk, whereas children are perceived as innocent victims, yet attract comparable or even greater stigma in some sub groups an emotionally sensitive area that may require specifically tailored anti stigma messaging.

On a more hopeful note, the reviewed evidence offers concrete guidance on how to interrupt this knowledge stigma cycle. The Ecuadorian intervention demonstrated that combining factual education with humanising video testimonials from PLHIV, together with structured group discussion to process this information socially, can reduce stigma even within a single, relatively brief session. The contrast between Mongolia/Nepal and Bangladesh/Lao PDR similarly suggests that institutionalised, government-backed HIV education programmes outperform ad hoc efforts. Beyond formal education programmes, the original Indonesian overview included in this review highlighted the potential role of health professionals, including dentists and other primary care providers, in normalising HIV testing and reducing stigma through routine, non judgemental clinical encounters a recommendation reinforced by evidence that low HIV testing uptake (under 10% in the Iranian sample) likely reflects both low knowledge and anticipated stigma at the point of care.

Several limitations of the underlying evidence base should be acknowledged. Nine of the ten studies reviewed were cross-sectional in design precluding firm causal conclusions about the direction of the knowledge stigma relationship; it remains plausible that stigma itself discourages individuals from seeking out accurate information, in addition to knowledge gaps fostering stigma. Only one intervention study, with a relatively modest sample size, was identified, underscoring a continued shortage of rigorously evaluated, scalable stigma reduction programmes in this literature. Differences in the specific instruments used to measure knowledge (for example, the HIV KQ 18 versus study specific item sets) and stigma (for example, validated stigma scales versus brief attitude indices) also limit direct numerical comparability across studies, even though the overall direction and pattern of findings was highly consistent.

5.CONCLUSION

This mini review of ten recent studies from Indonesia, Bangladesh, Iran, Ecuador, and a 64 country LMIC sample confirms that incomplete HIV/AIDS knowledge and persistent stigma remain closely intertwined barriers to HIV prevention, testing, and care in resource limited settings. Although general awareness of HIV/AIDS is now widespread, accurate knowledge of transmission routes and the ability to dispel common misconceptions remain limited, particularly among younger, less educated, and economically disadvantaged populations the same groups most likely to hold stigmatising attitudes toward people living with HIV. Stigma, in turn, appears to discourage HIV testing and contribute to late diagnosis, as illustrated by the high proportion of AIDS stage diagnoses in Indonesia and the low rate of recent HIV testing in Iran.

Encouragingly, evidence from a community based narrative intervention in Ecuador and from cross national comparisons of formal education programmes suggests that well designed, sustained, and emotionally engaging HIV education can reduce stigma and, by extension, support greater testing uptake. Future research should prioritise longitudinal and intervention studies capable of establishing causal pathways between knowledge, stigma, and health seeking behaviour; the development and validation of harmonised HIV knowledge and stigma measures to enable cross country comparison; and the scale up and rigorous evaluation of targeted education programmes for high risk and underserved subgroups, including women, youth, and rural and economically disadvantaged communities.

Achieving the global targets of zero new infections, zero discrimination, and zero AIDS related deaths by 2030 will require public health systems supported by all categories of health professionals to treat HIV knowledge building and stigma reduction not as peripheral activities, but as core, integrated components of HIV prevention and care strategy.

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