Investigation of discriminatory attitude toward people living with HIV in the family context using socio-economic factors and information sources: A nationwide study in Indonesia

Nursalam Nursalam1,*, Tintin Sukartini1, Heri Kuswanto2, Setyowati Setyowati3, Devi Mediarti4, Rosnani Rosnani4, Rifky Octavia Pradipta5, Masunatul Ubudiyah6, Dluha Mafu7, Sirikanok Klankhajhon8 and Hidayat Arifin9,*

1 Department of Advanced Nursing Care, Faculty of Nursing, Universitas Airlangga, Surabaya, East Java, Indonesia
2 Department of Statistics, Institut Teknologi Sepuluh Nopember, Surabaya, East Java, Indonesia
3 Department of Maternity Nursing, Faculty of Nursing, Universitas Indonesia, Depok, West Java, Indonesia
4 Nursing Major, Politeknik Kesehatan Kemenkes Palembang, Palembang, South Sumatera, Indonesia
5 Department of Fundamental Nursing Care, Faculty of Nursing, Universitas Airlangga, Surabaya, East Java, Indonesia
6 Nursing, Universitas Muhammadiyah Lamongan, Lamongan, East Java, Indonesia
7 Department of Basic and Emergency Nursing, Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada, Yogyakarta, Central Java, Indonesia
8 Faculty of Nursing, Naersuan University, Phitsanulok, Thailand
9 Department of Medical and Surgical Nursing, Faculty of Nursing, Universitas Padjadjaran, Bandung, West Java, Indonesia

* These authors contributed equally to this work.

ABSTRACT

Background: The well-being of people living with HIV (PLHIV) remains a concern. In addition to facing discrimination in their communities, many PLHIV have family members who have a discriminatory attitude. This study analyzes the discriminatory attitude toward PLHIV in the family context using socio-economic factors and information sources in Indonesia.

Methods: A cross-sectional study design was adopted using secondary data from the 2017 Indonesian Demographic Health Survey (IDHS). A total sample of 28,879 respondents was selected using two-stage stratified cluster sampling. The study variables are information sources, sex, age, education, residence, earnings, and familial discriminatory attitude. We used the STATA 16.1 software to analyze Chi-square and binary logistics with a 95% confident interval (CI) with a significance of 5% (p-value < 0.05).

Results: In Indonesia, familial discriminatory attitude has a prevalence of 72.10%. In the survey, the respondents with access to some information about HIV (AOR: 0.794; 95% CI [0.722–0.873]), women (AOR: 0.768; 95% CI [0.718–0.820]), and those living in rural areas (AOR: 0.880; 95% CI [0.834–0.929]) were the least likely to have a familial discriminatory attitude. Meanwhile, the respondents aged 15–24 years...
(AOR: 1.329; 95% CI [1.118–1.581]) and those with a secondary level of education (AOR: 1.070; 95% CI [1.004–1.142]) were the most likely to have a familial discriminatory attitude.

**Conclusion.** In the study, we found that, the younger the age and the lower the educational level of the respondent, the more likely they were to have a familial discriminatory attitude. The government may consider these factors when designing policies to tackle familial discrimination faced by PLHIV; in particular, education on HIV and AIDS should be promoted.

**Subjects** HIV, Public Health, Mental Health

**Keywords** People living with HIV, HIV, Discrimination, Family, Attitude, Indonesia

**INTRODUCTION**

Discrimination is an act that violates a person’s human rights, and this is no different for people living with HIV (PLHIV) (UNAIDS, 2017). The Joint United Nations Program on HIV and AIDS (UNAIDS) states that PLHIV have a right to the same access to services and facilities as the rest of the population (Headley et al., 2019). Nonetheless, discrimination is still widely practiced, and the belief that PLHIV are dangerous because they transmit HIV and, therefore, must be avoided is prevalent (Halim, Noor & Thamrin, 2020). Discrimination in the community context (Frye et al., 2017; Iliyasu et al., 2017) makes it harder for PLHIV to get a job (Maulsby et al., 2020) and access health and education services (Asghari et al., 2018; Tafuma et al., 2018). As the people closest to PLHIV are often their family (Fitriyani & Waluyo, 2019; Victoryna, Yona & Waluyo, 2019), the family should be a source of support and comfort. However, many families hold discussions, for example, on the shame they feel for having a HIV-positive family member and how they keep this fact a secret. Stigma and discrimination in the family context is present due to a general lack of understanding and access to information (Fauk et al., 2021).

The number of PLHIV in Indonesia in 2018 was 640,000, and the number of deaths caused by AIDS was 38,000. The latter number is an increase of 60% from 2010 (UNAIDS, 2018). PLHIV in Indonesia still experience a fairly high level of discrimination. As many as 40–50% of PLHIV experience discrimination in their communities, and as many as 67–68% experience discrimination from their families and the people closest to them (Fauk et al., 2021; Neuman & Obermeyer, 2013). Based on data from the 2017 Indonesian Demographic Health Survey (IDHS), in the age range of 15–54 years, the attitude that indicates discrimination by the family is 72.1% and 53.95% by young females (Arifin et al., 2022; DHS, 2017).

In an effort to tackle and minimize discrimination against PLHIV, the Indonesian government issued Law No. 21 in 2013 concerning HIV and AIDS prevention (Kemenkes, 2013). In the act, it is stated that the government’s efforts to combat HIV and AIDS include interventions to eliminate discrimination and stigma toward PLHIV and to provide services, especially health services, that are accessible to and optimized for PLHIV (Ibrahim et al., 2022). As part of these efforts, the government has promoted health using...
mass media to target the wider community and government agencies; this is aimed at empowering PLHIV within their communities and encouraging all community members to not discriminate against PLHIV in health services, education, and employment and in life in general (Kemenkes, 2013; Pranita, 2019; Rakhman, 2019). However, to effectively tackle discrimination, the main target should be the families of PLHIV. Focused interventions to promote education and acceptance among such families should be initiated.

Studies in Indonesia on the factors related to discrimination against PLHIV have been conducted in the general context but not specifically in the family context. Some of the general factors include sexual orientation, gender (Halim, Noor & Thamrin, 2020; Rogers et al., 2018), knowledge (Nursalam et al., 2021), an irrational fear of HIV (Sofia, 2018), religiosity, self-efficacy (Wilandika, 2019), and the bio-psycho-social-spiritual responses of the family (Nursalam et al., 2014). In addition, there are many studies on labeling in social circles (Abbott & Williams, 2015; Woodgate et al., 2017) and the psychological factors related to a discriminatory attitude toward PLHIV (English et al., 2020). In this study, we investigate discriminatory attitude in the family context. Socio-economic demographic factors and information sources, specifically whether Indonesians get their information from the internet, radio, newspaper or magazine, television, health professions, community meetings, seminars or counseling, or school and teachers, have not previously been examined in research in Indonesia. This research is needed to determine the relationship between a discriminatory attitude and the families of PLHIV in Indonesia.

In its description of the discriminatory attitudes encountered by PLHIV in Indonesia, this research aims to provide information about and an understanding of the discriminative attitude among family members of PLHIV. This study adjusts the data based on socio-economic variables and information sources to investigate discriminatory attitude toward PLHIV in the family context in Indonesia.

**MATERIALS AND METHODS**

**Study design**

The cross-sectional design of this study was used to discover the determinants of familial discriminatory attitude toward PLHIV in Indonesia. This study used secondary data from the 2017 IDHS (National Population & Family Planning Board, 2018). To use the data set in this study, the researchers obtained permission from the International Inner-City Fund (ICF).

**Setting**

This study used secondary data collected in December 2017. The data sets used in this study are the IDIR71FL data set for Indonesian Individuals Recode Phase 7 and the IDMR71FL data set for Indonesian Men Recode Phase 7 (Craft, Marshall & Allen, 2018; DHS, 2017). The data sets were combined to obtain data on both men and women. The population in this study totaled 59,636 respondents. The sample in this study consisted of men and women who had been interviewed, who were aged between 15 and 54 years, and who had heard of HIV and AIDS. The total sample of 28,879 respondents
was determined using two-stage stratified cluster sampling. The sample in this study was weighted by the number of provinces in Indonesia with the aim of obtaining the most even distribution of the data possible.

**Variables**

The independent variables in this study are information sources, sex, age, education, residence, and earnings. The information sources variable is a combination of several variables that indicate the sources of information about HIV and AIDS accessed by the respondents. These variables are “internet,” “radio,” “newspaper/magazine,” “television,” “health professionals,” “community meeting,” “seminar/counseling,” and “school/teachers.” The variables were re-coded with “yes” and “no” to standardize the information across the different sources. These variables were then combined to form the variable ‘information sources.’ This variable has three categories: “No information” (if “No” was answered on all of the ‘sources of information’ variables), “Some information” (if “yes” was answered on 1–3 variables), and “More information” (if “yes” was answered on 4–7 variables).

The sex variable in this study is a binary, namely men and women (DHS, 2017). The age variable has four categories based on the standard age classification in Indonesia: 15–24 years, 25–34 years old, 35–49 years old, and 50–54 years old (Kemenkes, 2009). The educational variable has four categories: higher education, secondary education, primary education, and no education. This categorization is based on the regulations in Indonesia in Law Number. 20 of 2003 concerning the National Education System in Indonesia (Kemendikbud, 2003). Based on the population consensus in Indonesia, the residence variable is a binary, namely rural and urban (BPS, 2010). The earnings variable has two main categories: “unpaid” (if the respondent does not receive an income) and “paid,” which has three subcategories depending on what form the respondent receives an income in: cash only, cash and in-kind, and in-kind only (DHS, 2017).

The dependent variable in this study is familial discriminatory attitude. This variable is formed from two variables that indicate the presence of a familial discriminatory attitude. These variables are formed as questions: “Would you want the presence of HIV infection in the family to remain a secret?” and “Would you be ashamed if someone in the family had HIV?” (DHS, 2017; Nursalam et al., 2021). The variables were re-coded with “yes” and “no” to standardize the statements, with statements such as “don’t know/not sure/depend” being excluded from the study. The variables were then combined to form the familial discriminatory attitude variable. This variable has two “yes” categories depending on whether the respondent answered “yes” to one or both of the variables and a “no” category if the respondent answered “no” to both variables.

**Data analysis**

The data in the study was analyzed using the STATA 16.1 software. Bivariate analysis was conducted using Chi-square, and multivariate analysis was conducted using binary logistics. The adjusted odds ratio (AOR) had a 95% confidence interval (CI) with a significance of 5% (p-value < 0.05).
**Ethical consideration**

The ethical consideration was performed and approved in Indonesia. We registered and requested access to the IDHS dataset and received approval to access and download the same. The 2017 IDHS was approved under the Institutional Review Board (IRB) Findings Form ICF IRB FWA00000845. Written informed consent for each individual was performed by the IDHS. The information about ethical review is available at [https://dhsprogram.com/data/Guide-to-DHS-Statistics/Guide_to_DHS_Statistics_DHS-7.htm](https://dhsprogram.com/data/Guide-to-DHS-Statistics/Guide_to_DHS_Statistics_DHS-7.htm) (DHS, 2017).

**RESULTS**

As shown in Table 1, more than 70% of the respondents have a familial discriminatory attitude. More than 80% only access some information about HIV and AIDS. The majority of the respondents were women, with the most common age being between 35 and 45 years. More than 50% of the respondents had attained the secondary education and lived in an urban area. More than 80% earned an income.

As shown in Table 2, the results of the bivariate analysis indicate that all of the variables have a significant relationship with familial discriminatory attitude toward PLHIV in Indonesia.

### Table 1 Socioeconomic and demographic characteristics of the respondents (n = 28,879).

| Characteristics                  | n    | %     |
|----------------------------------|------|-------|
| Familial discriminatory attitude  |      |       |
| No                               | 8,057| 27.90 |
| Yes                              | 20,822| 72.10 |
| Information resources            |      |       |
| No information                   | 2,685| 9.30  |
| Some information                 | 24,439| 84.63 |
| More information                 | 1,755| 6.08  |
| Sex                              |      |       |
| Men                              | 7,424| 25.71 |
| Women                            | 21,455| 74.29 |
| Age                              |      |       |
| 50–54                            | 912  | 3.16  |
| 35–49                            | 13,825| 47.87 |
| 25–34                            | 8,911| 30.86 |
| 15–24                            | 5,231| 18.11 |
| Education                        |      |       |
| Higher education                 | 7,029| 24.34 |
| Secondary education              | 16,281| 56.38 |
| Primary education                | 5,435| 18.82 |
| No education                     | 134  | 0.46  |
| Residence                        |      |       |
| Urban                            | 17,041| 59.01 |
| Rural                            | 11,838| 40.99 |
| Respondents’ earnings            |      |       |
| Unpaid                           | 4,081| 14.13 |
| Paid                             | 24,798| 85.87 |

Nursalam et al. (2022), *PeerJ*, DOI 10.7717/peerj.13841
As shown in Fig. 1, more than 40% of the respondents have a familial discriminatory attitude, while 27.9% do not. A plurality of the respondents (41.57%) access information about HIV and AIDS from one source, while almost 10% have never accessed such information.

As shown in Table 3, the results of the multivariate analysis indicate that the information sources, sex, age, education, and residence variables have a highly significant relationship with familial discriminatory attitude toward PLHIV in Indonesia. The respondents with access to some information about HIV and AIDS were 0.794 times less likely to have a familial discriminatory attitude compared to those with no access to such information (AOR: 0.794, 95% CI [0.722–0.873]). Women were 0.768 times less likely than men to have a familial discriminatory attitude (AOR: 0.768, 95% CI [0.718–0.820]). The respondents aged 15–24 years old were 1.329 times more likely to have a familial discriminatory attitude compared to those who were older (AOR: 1.329, 95% CI [1.118–1.581]). The respondents with a secondary level of education were 1.070 times more likely to have a familial discriminatory attitude compared to those with any other educational level (AOR: 1.070, 95% CI [1.004–1.142]). The respondents living in a rural
Figure 1 Description of family discriminatory attitude and information.

Table 3 Multivariate analysis determinants of familial discriminatory attitude among PLHIV in Indonesia (n = 28,879).

| Variables                  | Familial discriminatory attitude | p-value | AOR   | 95% CI       |
|---------------------------|---------------------------------|---------|-------|--------------|
| Information resource      |                                 |         |       |              |
| No information            |                                 |         | 1.000 |              |
| Some information          |                                 | <0.001 | 0.794 | [0.722–0.873]|
| More information          |                                 | <0.001 | 0.731 | [0.635–0.843]|
| Sex                       |                                 |         |       |              |
| Men                       |                                 |         | 1.000 |              |
| Women                     |                                 | <0.001 | 0.768 | [0.718–0.820]|
| Age                       |                                 |         |       |              |
| 50–54                     |                                 |         | 1.000 |              |
| 35–49                     |                                 | 0.535   | 1.052 | [0.897–1.234]|
| 25–34                     |                                 | 0.073   | 1.162 | [0.986–1.369]|
| 15–24                     |                                 | 0.001   | 1.329 | [1.118–1.581]|
| Education                 |                                 |         |       |              |
| Higher education          |                                 |         | 1.000 |              |
| Secondary education       |                                 | 0.039   | 1.070 | [1.004–1.142]|
| Primary education         |                                 | 0.067   | 1.083 | [0.994–1.179]|
| No education              |                                 | 0.747   | 1.066 | [0.724–1.568]|
| Residence                 |                                 |         |       |              |
| Urban                     |                                 |         | 1.000 |              |
| Rural                     |                                 | <0.001 | 0.880 | [0.834–0.929]|
| Respondents’ earnings     |                                 |         |       |              |
| Unpaid                    |                                 |         | 1.000 |              |
| Paid                      |                                 | 0.359   | 1.036 | [0.960–1.118]|

Nursalam et al. (2022), PeerJ, DOI 10.7717/peerj.13841
area were 0.880 times less likely to have a familial discriminatory attitude compared to those living in an urban area (AOR: 0.880, 95% CI [0.834–0.929]). The respondents’ earnings were not related to their attitude toward family members with HIV.

**DISCUSSION**

The results of this study show a significant relationship between the information sources, sex, age, education, and residence variables and familial discriminatory attitude toward PLHIV in Indonesia.

In the study, it was found that people with more access to information are less likely to have a discriminatory attitude toward PLHIV. On average, the respondents had access to 1–3 sources of information about HIV and AIDS. The information packaged in the form of the internet and informative communication media, it can be a form of therapy for PLHIV who are depressed (van Luenen et al., 2018; Zhang et al., 2018). With proper information and understanding, the likelihood of familial discrimination decreases (Namuleme, 2015; Tran et al., 2019). When accepted by their family and an open pattern of information, PLHIV are more likely to have a good quality of life and to be empowered to improve their life (Edianto, Waluyo & Yona, 2019; Fitriyani & Waluyo, 2019; Suardana, Surasta & Erawati, 2020). Good support and information sources, when made easily accessible to communities and families, can facilitate better understanding of HIV, resulting in reduced discriminatory attitude (Li et al., 2006; Xu et al., 2017). With access to information, families are also able to better understand the medical condition of PLHIV, allowing them to provide support and ensure they undergo therapy and continue their personal development.

It was also found that women are less likely to have a familial discriminatory attitude toward PLHIV. This finding is in line with other studies that show men are more likely to discriminate due to emotional instability and misperceptions of HIV (Edianto, Waluyo & Yona, 2019; Ha et al., 2019; Khan, Bilal & Siddiqui, 2019), while women are less likely to discriminate because they have feelings of love and compassion towards PLHIV (Ha et al., 2019; Colombini et al., 2014; Paudel & Baral, 2015). Peer support coupled with information about HIV is likely to reduce the discriminatory attitude of men towards PLHIV.

Furthermore, it was found that young people (15–24 years old) are more likely to have a familial discriminatory attitude toward PLHIV. This finding is in line with other studies that show younger people are less likely to access the correct information, which may be due to a lack of maturity when receiving information about HIV and AIDS (Emlete et al., 2015; Harper, Lemos & Hosek, 2014). Keeping this in mind, education on HIV should factor in the maturity of the recipient and only gradually become more sophisticated (Andersson et al., 2020; Khan, Bilal & Siddiqui, 2019). In addition, young people stigmatize PLHIV because of the belief that they were infected due to bad behavior such as unsafe sex and drug use and, therefore, should be shunned (Hjerm, Eger & Danell, 2018; WACC, 2014). Families with members who are of a younger age are faced difficulties to process the information properly; young people thus receive the wrong information about HIV and AIDS. Providing correct information is very important because misinformation and
misperceptions can increase discrimination. Families, educators, and related parties play an important role in this.

Moreover, it was found that people with a secondary level of education compared to other educational levels are more likely to have a familial discriminatory attitude toward PLHIV. This finding is consistent with research conducted in India, Tasmania, and Bangladesh, which shows that educational level has a highly significant relationship with discriminatory attitude towards PLHIV (Bhagavathula et al., 2015). In this case, level of education is followed by the level of knowledge about HIV and AIDS (Tsai & Venkataramani, 2015). It is concluded that, with a lower level of education, the likelihood of a discriminatory attitude increases due to a lack of information, knowledge, and understanding related to HIV. HIV education should be provided even at a low level of education to reduce the stigma.

Finally, it was found that people living in rural areas are less likely than those in urban areas to have a familial discriminatory attitude toward PLHIV. A number of other studies have confirmed this. The reasons for this rural/urban difference could be a lack of knowledge or exposure to information about HIV in rural areas, so they do not know whether it is dangerous or not (Khan, Bilal & Siddiqui, 2019), beliefs (Chadwick et al., 2018), and a higher tolerance among rural people, making them more likely to accept PLHIV despite the disease (Barrow & Aggleton, 2013). However, this does not mean that rural areas do not need attention. Due to lower education and limited access to information, rural people are more prone to hoax news, which can lead to increased discrimination. Moreover, public awareness and health services are generally lacking in rural areas compared to urban areas (Rhub, 2020).

**Limitations**

This study provides results that are representative of the Indonesian population. The results have been validated using several samples and internationally recognized measurement tools. However, cross-sectional studies have a number of limitations, including the inability to estimate incidence and draw conclusions about causes. Moreover, the information was gathered retroactively and was based on the respondents’ memories. Confounding factors could, therefore, emerge depending on how well the respondents remember their past. Due to data limitations in IDHS, many factors including culture, religion, and belief were not taken into account.

**CONCLUSIONS**

The results of this study show that having access to information about HIV and AIDS, especially when originating from various sources, makes people less likely to discriminate against PLHIV. In addition, women are less likely than men to discriminate. People of a younger age with a lower educational level, especially when no higher than secondary, are more likely to discriminate compared to people of an older age with a higher educational level. This finding could be related to their level of knowledge and access to information. Finally, families living in rural areas are less likely to discriminate compared to those in urban areas. Based on these research findings, it is recommended that the government
consider demographic characteristics to develop better policies to reduce the discriminatory attitude of communities and families toward PLHIV.

ACKNOWLEDGEMENTS
We acknowledge the IDHS for providing the data.

ADDITIONAL INFORMATION AND DECLARATIONS

Funding
The authors received no funding for this work.

Competing Interests
The authors declare that they have no competing interests.

Author Contributions
- Nursalam Nursalam conceived and designed the experiments, authored or reviewed drafts of the article, and approved the final draft.
- Tintin Sukartini conceived and designed the experiments, authored or reviewed drafts of the article, and approved the final draft.
- Heri Kuswanto conceived and designed the experiments, analyzed the data, authored or reviewed drafts of the article, and approved the final draft.
- Setyowati Setyowati conceived and designed the experiments, performed the experiments, authored or reviewed drafts of the article, and approved the final draft.
- Devi Mediarti conceived and designed the experiments, performed the experiments, prepared figures and/or tables, and approved the final draft.
- Rosnani Rosnani performed the experiments, prepared figures and/or tables, and approved the final draft.
- Rifky Octavia Pradipta performed the experiments, analyzed the data, prepared figures and/or tables, and approved the final draft.
- Masunatul Ubudiyah performed the experiments, prepared figures and/or tables, and approved the final draft.
- Dluha Mafula performed the experiments, prepared figures and/or tables, and approved the final draft.
- Sirikanok Klankhajhon conceived and designed the experiments, authored or reviewed drafts of the article, and approved the final draft.
- Hidayat Arfin conceived and designed the experiments, analyzed the data, prepared figures and/or tables, authored or reviewed drafts of the article, and approved the final draft.

Human Ethics
The following information was supplied relating to ethical approvals (i.e., approving body and any reference numbers):
- The 2017 Indonesia Demographic and Health Survey was approved under the Institutional Review Board (IRB) Findings Form ICF IRB.
Ethics
The following information was supplied relating to ethical approvals (i.e., approving body and any reference numbers):

The 2017 Indonesia Demographic and Health Survey was approved under the Institutional Review Board (IRB) Findings Form ICF IRB (FWA00000845).

Data Availability
The following information was supplied regarding data availability:

Raw data is available as a Supplemental File.

Supplemental Information
Supplemental information for this article can be found online at http://dx.doi.org/10.7717/peerj.13841#supplemental-information.

REFERENCES

Abbott LS, Williams CL. 2015. Influences of social determinants of health on African Americans living with HIV in the rural Southeast: a qualitative meta-synthesis. Journal of the Association of Nurses in AIDS Care 26(4):340–356 DOI 10.1016/j.jana.2015.03.004.

Andersson GZ, Reinius M, Eriksson LE, Svedhem V, Esfahani FM, Deuba K, Rao D, Lyatuu GW, Giovenco D, Ekström AM. 2020. Stigma reduction interventions in people living with HIV to improve health-related quality of life. The Lancet HIV 7(2):e129–e140 DOI 10.1016/S2352-3018(19)30343-1.

Arifin H, Ibrahim K, Rahayuwati I, Herlani YK, Kurniawati Y, Pradipta RO, Sari GM, Ko N-Y, Wiratama BS. 2022. HIV-related knowledge, information, and their contribution to stigmatization attitudes among females aged 15–24 years: regional disparities in Indonesia. BMC Public Health 22(1):637 DOI 10.1186/s12889-022-13046-7.

Asghari S, Hurd J, Marshall Z, Maybank A, Hesselbarth L, Hurley O, Farrell A, Kendall CE, Rourke SB, Becker M, Johnston S, Lundrigan P, Rosenes R, Bibeau C, Liddy C. 2018. Challenges with access to healthcare from the perspective of patients living with HIV: a scoping review & framework synthesis. AIDS Care 30(8):963–972 DOI 10.1080/09540121.2018.1435848.

Barrow C, Aggleton P. 2013. "Good face, bad mind”? HIV stigma and tolerance rhetoric in Barbados. Social and Economic Studies 62:29–52.

Bhagavathula AS, Bandari DK, Elnour AA, Ahmad A, Khan MU, Baraka M, Hamad F, Shehab A. 2015. A cross sectional study: the knowledge, attitude, perception, misconception and views (KAPMV) of adult family members of people living with human immune virus-HIV acquired immune deficiency syndrome-AIDS (PLWHA). SpringerPlus 4(1):769 DOI 10.1186/s40064-015-1541-2.

BPS. 2010. Peraturan kepala badan pusat statistik nomor 37 tahun 2010 tentang klasifikasi perkotaan dan perdesaan di Indonesia. Jakarta: Badan Pusat Statistik.

Chadwick CN, Brinkley-Rubinstein L, McCormack M, Mann AK. 2018. Experiences of HIV stigma in rural Southern religious settings. International Journal of Culture and Mental Health 11(4):731–740 DOI 10.1080/17542863.2018.1556718.

Colombini M, Mutemwa R, Kivunaga J, Stackpool Moore L, Mayhew SH, Integra Initiative. 2014. Experiences of stigma among women living with HIV attending sexual and reproductive health services in Kenya: a qualitative study. BMC Health Services Research 14(1):412 DOI 10.1186/1472-6963-14-412.
Croft TN, Marshall AMJ, Allen CK. 2018. *Guide to DHS Statistics*. Rockville, Maryland, USA: ICF International.

DHS. 2017. Demographic health survey-guide to DHS statistics DHS-7. Available at [https://dhsprogram.com/data/Guide-to-DHS-Statistics/Guide_to_DHS_Statistics_DHS-7.htm](https://dhsprogram.com/data/Guide-to-DHS-Statistics/Guide_to_DHS_Statistics_DHS-7.htm).

Edianto, Waluyo A, Yona S. 2019. Correlation of family acceptance and peer support group toward sexual behavior risk on MSM with HIV/AIDS in Medan, Indonesia. *Enfermeria Clinica* 29:189–193 DOI 10.1016/j.enfcli.2019.04.052.

Emlete CA, Brennan DJ, Brennenstuhl S, Reuda S, Hart TA, Rourke SB. 2015. The impact of HIV-related stigma on older and younger adults living with HIV disease: does age matter? *AIDS Care:Psychological and Socio-Medical Aspects of AIDS/HIV* 27:520–528 DOI 10.1080/09540121.2014.978734.

English D, Carter JA, Bowleg L, Malebranche DJ, Talan AJ, Rendina HJ. 2020. Intersectional social control: the roles of incarceration and police discrimination in psychological and HIV-related outcomes for Black sexual minority men. *Social Science and Medicine* 258:113121 DOI 10.1016/j.socscimed.2020.113121.

Fauk NK, Hawke K, Mwanri L, Ward PR. 2021. Stigma and discrimination towards people living with HIV in the context of families, communities, and healthcare settings: a qualitative study in Indonesia. *International Journal of Environmental Research and Public Health* 18(10):5424 DOI 10.3390/ijerph18105424.

Fitriyani RA, Waluyo A. 2019. Family acceptance, peer support, and HIV serostatus disclosure of MSM-PLWHA in Medan, Indonesia. *Enfermeria Clinica* 29:648–652 DOI 10.1016/j.enfcli.2019.04.099.

Frye V, Paige MQ, Gordon S, Matthews D, Musgrave G, Kornegay M, Greene E, Phelan JC, Koblin BA, Taylor-Akutagawa V. 2017. Developing a community-level anti-HIV/AIDS stigma and homophobia intervention in New York city: the project CHHANGE model. *Evaluation and Program Planning* 63(7):45–53 DOI 10.1016/j.evalprogplan.2017.03.004.

Ha JH, Van Lith LM, Mallalieu EC, Chidassicua J, Pinho MD, Devos P, Wirtz AL. 2019. Gendered relationship between HIV stigma and HIV testing among men and women in Mozambique: a cross-sectional study to inform a stigma reduction and male-targeted HIV testing intervention. *BMJ OPEN* 9:1–10 DOI 10.1136/bmjopen-2019-029748.

Halim DE, Noor NN, Thamrin Y. 2020. Stigma and discrimination with the occurrence of HIV/AIDS in Makassar. *Enfermeria Clinica* 30:278–281 DOI 10.1016/j.enfcli.2019.10.083.

Harper GW, Lemos D, Hosek SG. 2014. Stigma reduction in adolescents and young adults newly diagnosed with HIV: findings from the project ACCEPT intervention. *AIDS Patient Care and STDs* 28(10):543–554 DOI 10.1089/apc.2013.0331.

Headley J, Gustav R, Kavanagh MM, Mworeko L, Russell A, Sharma A, Stegling C. 2019. Leading UNAIDS: a once-in-a-generation challenge? *The Lancet* 394(10196):381–382 DOI 10.1016/S0140-6736(19)31628-9.

Hjerm M, Eger MA, Danell R. 2018. Peer attitudes and the development of prejudice in adolescence. *Socius: Sociological Research for a Dynamic World* 4:1–11 DOI 10.1177/2378023118763187.

Ibrahim K, Arifin H, Fitri SUR, Herliani YK, Harun H, Setiawan A, Lee BO. 2022. The optimization of HIV testing in eastern Indonesia: findings from the 2017 Indonesian demographic and health survey. *Healthcare (Switzerland)* 10(3):533 DOI 10.3390/healthcare10030533.

Iliyasu Z, Galadanci HS, Ibrahim YA, Babashani M, Mijinyawa MS, Simmons M, Aliyu MH. 2017. Should they also have babies? Community attitudes toward sexual and reproductive rights
of people living with HIV/AIDS in Nigeria. *Annals of Global Health* 83(2):320–327 DOI 10.1016/j.aogh.2017.05.001.

Kemendikbud. 2003. *UU no. 20 tahun 2003 tentang sistem pendidikan nasional.* Jakarta: Kementerian Pendidikan dan Kebudayaan, 1–38.

Kemenkes. 2009. *Age classification based on category.* Jakarta, Indonesia: Ditjen Yankes.

Kemenkes. 2013. *Peraturan menteri kesehatan republik Indonesia nomor 21 tahun 2013 tentang penanggulangan HIV dan AIDS.* Bandung City: Kementerian Kesehatan Republik Indonesia, 1–31.

Khan R, Bilal A, Siddiqui SH. 2019. Knowledge about HIV and discriminatory attitudes toward people living with HIV in Pakistan. *Pakistan Journal of Public Health* 9(1):37–41 DOI 10.32413/pjph.v9i1.237.

Li L, Wu S, Wu Z, Sun S, Cui H, Jia M. 2006. Understanding family support for people living with HIV/AIDS in Yunnan, China. *AIDS and Behavior* 10(5):509–517 DOI 10.1007/s10461-006-9071-0.

Maulsby CH, Ratnayake A, Hesson D, Mugavero MJ, Latkin CA. 2020. A scoping review of employment and HIV. *AIDS and Behavior* 24(10):2942–2955 DOI 10.1007/s10461-020-02845-x.

Neuman M, Obermeyer CM, Group MS. 2013. Experiences of stigma, discrimination, care and support among people living with HIV: a four country study. *AIDS and Behavior* 17(5):1796–1808 DOI 10.1007/s10461-013-0432-1.

Nursalam N, Kurniawati ND, Bakar A, Purwaningsih, Asmoro CP. 2014. Bio-psycho-social-spiritual responses of family and relatives of HIV-Infected Indonesian Migrant Workers. *Jurnal NERS* 9(2):209–216 DOI 10.20473/jn.V9i22014.209-216.

Nursalam N, Sukartini T, Arifin H, Pradipta RO, Mafula D, Ubudiyah M. 2021. Determinants of the discriminatory behavior experienced by people living with HIV in Indonesia: a cross-sectional study of the demographic health survey. *The Open AIDS Journal* 15(1):1–9 DOI 10.2174/1874613602115010001.

Paudel V, Baral KP. 2015. Women living with HIV/AIDS (WLHA), battling stigma, discrimination and denial and the role of support groups as a coping strategy: a review of literature. *Reproductive Health* 12(1):1–9 DOI 10.1186/s12978-015-0032-9.

Pranita E. 2019. Stop diskriminasi ODHA di tempat kerja dengan upaya P2HA. *Available at https://sains.kompas.com/read/2019/12/03/133400723/stop-diskriminasi-odha-di-tempat-kerja-dengan-upaya-p2ha?page=all.*

Rakhman MRR. 2019. Peran pemerintah daerah dalam pencegahan dan penanggulangan HIV-AIDS di Kabupaten Merauke. *GOVERNMENT: Jurnal Ilmu Pemerintahan* 10:20–29.

Rhihub. 2020. Barriers to HIV/AIDS care in rural communities. *Available at https://www.ruralhealthinfo.org/toolkits/hiv-aids/1/rural-barriers.*

Rogers AH, Jardin C, Mayorga NA, Bakhshaie J, Leonard A, Lemaire C, Zvolensky MJ. 2018. The relationship of discrimination related to sexual orientation and HIV-relevant risk behaviors among men who have sex with men. *Psychiatry Research* 267(9):102–107 DOI 10.1016/j.psychres.2018.05.081.
Sofia R. 2018. Stigma dan diskriminasi terhadap odha (studi pada tenaga kesehatan di Puskesmas Tanah Pasir Aceh Utara). AVERROUS: Jurnal Kedokteran dan Kesehatan Malikussaleh 2(1):79 DOI 10.29103/averrous.v2i1.423.

Suardana IK, Surasta IW, Erawati NLPS. 2020. The effect of communication family patterns on prevention effort HIV/AIDS transmission. Enfermeria Clinica 30:113–117 DOI 10.1016/j.enfcli.2020.02.003.

Tafuma TA, Mahachi N, Dziwa C, Moga T, Baloyi P, Muyambo G, Muchedzi A, Chimbidzikai T, Ncube G, Murungu J, Nyagura T, Lew K. 2018. Barriers to HIV service utilisation by people living with HIV in two provinces of Zimbabwe: results from 2016 baseline assessment. Southern African Journal of HIV Medicine 19(1):721 DOI 10.4102/sajhivmed.v19i1.721.

Tran BX, Than PQT, Tran TT, Nguyen CT, Latkin CA. 2019. Changing sources of stigma against patients with HIV/AIDS in the rapid expansion of antiretroviral treatment services in Vietnam. BioMed Research International 2019:1–9 DOI 10.1155/2019/4208638.

Tsai AC, Venkataramani AS. 2015. The causal effect of education on HIV stigma in Uganda: evidence from a natural experiment. Social Science & Medicine 142(3):37–46 DOI 10.1016/j.socscimed.2015.08.009.

UNAIDS. 2017. UNAIDS warns that HIV-related stigma and discrimination is preventing people from accessing HIV services | UNAIDS. Available at https://www.unaids.org/en/resources/presscentre/pressreleaseandstatementarchive/2017/october/20171002_confronting-discrimination.

UNAIDS. 2018. Indonesia: UNESCO country strategy, 2018–2021. Jakarta: UNESCO.

van Luenen S, Garnefski N, Spinhoven P, Kraaij V. 2018. Guided internet-based intervention for people with HIV and depressive symptoms: a randomised controlled trial in the Netherlands. The Lancet HIV 5(9):e488–e497 DOI 10.1016/S2352-3018(18)30133-4.

Victoryna F, Yona S, Waluyo A. 2019. The relationship between stigma, family acceptance, peer support and stress level among HIV-positive men who have sex with men (MSM) in Medan, North Sumatera, Indonesia. Enfermeria Clinica 29:219–222 DOI 10.1016/j.enfcli.2019.04.026.

WACC. 2014. Peer education on HIV and AIDS stigma and discrimination and behavior change. Available at https://waccglobal.org/peer-education-on-hiv-and-aids-stigma-and-discrimination-and-behavior-change/.

Wilandika A. 2019. Religiosity and self-efficacy in the prevention of HIV-Risk behaviours among muslim university students. Journal NERS 13(2):138 DOI 10.20473/jn.v13i2.6531.

Woodgate RL, Zurba M, Tennent P, Cochrane C, Payne M, Mignone J. 2017. ”People try and label me as someone I’m not”: the social ecology of Indigenous people living with HIV, stigma, and discrimination in Manitoba, Canada. Social Science & Medicine 194(1):17–24 DOI 10.1016/j.socscimed.2017.10.002.

Xu JF, Ming ZQ, Zhang YQ, Wang PC, Jing J, Cheng F. 2017. Family support, discrimination, and quality of life among ART-treated HIV-infected patients: a two-year study in China. Infectious Diseases of Poverty 6(1):1–10 DOI 10.1186/s40249-017-0364-5.

Zhang Y, Li X, Qiao S, Zhou Y, Shen Z. 2018. Information communication technology (ICT) use among PLHIV in China: a promising but underutilized venue for HIV prevention and care. International Journal of Information Management 38(1):27–33 DOI 10.1016/j.ijinfomgt.2017.09.003.