

Ellyvina S. Dhini¹ / Antonius Adji P. Setiadi² / Yosi I. Wibowo³

Profile of sociodemographics, sources of infection, antiretrovirals and CD4 counts on HIV/AIDS outpatients in Turen Primary Health Centre, Indonesia

¹ Master of Pharmacy Programme, Faculty of Pharmacy, Universitas Surabaya, Surabaya, Indonesia

² Centre for Medicines Information and Pharmaceutical Care (CMIPC), Faculty of Pharmacy, Universitas Surabaya, Surabaya, Indonesia, Phone: +622981170, E-mail: adji_ps@staff.ubaya.ac.id

³ Centre for Medicines Information and Pharmaceutical Care (CMIPC), Faculty of Pharmacy, Universitas Surabaya, Surabaya, Indonesia

Abstract:

Background: The profile of patients with HIV/AIDS is required to develop appropriate HIV/AIDS prevention and treatment programs in Indonesia. Turen is one of the four sub-districts with the highest number of patients with HIV/AIDS in Malang District, Indonesia. The purpose of this study is to determine the sociodemographic profile, sources of infection, use of antiretrovirals and CD4 counts on HIV/AIDS outpatients in Turen Primary Health Centre (PHC).

Methods: The sociodemographic data, antiretroviral use, and CD4 counts were obtained from medical records on HIV/AIDS outpatients in Turen PHC. A qualitative approach using in-depth interviews was used to explore the source of infection. Descriptive analysis was used to summarise the quantitative data, while thematic analysis was used to analyse the qualitative data derived from interviews.

Results: A total of 45 HIV/AIDS outpatient medical records were reviewed. Of those, the majority were females (57.8%), ages 26–35 years (51.1%), married (55.6%) and having income less than 2 million rupiah (73.3%). All of them used a combination of antiretroviral therapy from two classes of antiretrovirals, i.e. nucleotide analog reverse transcriptase inhibitor and non-nucleotide analog reverse transcriptase inhibitor; the majority were treated with fixed-dose combination of tenofovir-lamifudin-efavirenz. The CD4 counts data were obtained from 31 patients with an average number of 282 cells/mm³. The qualitative data from interviews with 15 patients revealed that the source of infection was from husband, unsafe/unprotected sex and blood donor.

Conclusions: The high prevalence of HIV/AIDS among young married women and poor control of the disease in Indonesia warrants further considerations. The government should work together with all related stakeholders in raising awareness of HIV/AIDS, particularly among women, as well as improving treatment and support for people living with HIV/AIDS.

Keywords: antiretroviral, HIV/AIDS, Indonesia

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Introduction

Human immunodeficiency virus (HIV) can cause a decrease in host immunity. The incubation period of HIV is long enough (clinical latency) to cause signs and symptoms of acquired immune deficiency syndrome (AIDS). AIDS is a collection of fatal syndromes due to progressive damage to the immune system making humans very vulnerable to contracting diseases [1]. The impact of HIV/AIDS infection causes high morbidity and mortality rates at a productive age so that it has an economic and social impact [2]. Although antiretrovirals cannot cure HIV, they can suppress HIV replication and enhance the immune response [3]. Reducing viral load (VL) and increasing cluster of differentiation 4 (CD4) has been evidenced to improve the quality of life of HIV/AIDS patients. The World Health Organization (WHO) recommends CD4 counts and clinical outcomes in monitoring the effectiveness of antiretroviral use when VL data are not available [4].

Antonius Adji P. Setiadi is the corresponding author.

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Identifying sociodemographics and social behaviour as well as exploring barriers for healthy living and medication (antiretroviral) compliance is the key strategy to prevent death and to improve quality of life among people living with HIV/AIDS [5]. Buzon et al. [6] reported an increase on the use of antiretrovirals among patients with HIV/AIDS in the low to middle income countries; it was 300,000 in 2002 and has increased to 10 million at the end of 2012. This trend was followed by an increase in the number of medication errors, the need to use second-line medications which are more expensive and an increase in the treatment resistance cases [6]. In Indonesia, the HIV/AIDS treatment guideline has recommended the use of a combination of three antiretrovirals, i.e. two agents from NRTI (nucleotide analog reverse transcriptase inhibitor) class plus one agent from NNRTI (non-nucleoside reverse transcriptase inhibitors) class. The use of antiretrovirals should be based on five aspects: effectiveness, side effect/safety, drug interaction, compliance and cost [7].

There is an increase in the number of HIV/AIDS cases from year to year since it was first reported in 1987. In Indonesia, the number of HIV patients was 242,699 while AIDS cases were 87,453 from 2005 to March 2017 [8]. The number of HIV patients in East Java ranks second in Indonesia, and it was reported that there were 1460 people living with HIV/AIDS during 1991–2015 across 33 sub-districts in Malang [9]. Turen is one of the four sub-districts with the highest number of people living with HIV/AIDS in Malang District. The Malang District Government has taken steps to overcome issues related to HIV/AIDS but has not yet obtained optimal results [10]. For this reason, there is a need to assess the profiles of people living with HIV/AIDS to develop and implement appropriate programs for the prevention and treatment of HIV/AIDS in Malang. The purpose of this study is to determine the profile of sociodemographics, source of infection, antiretrovirals and CD4 counts on HIV/AIDS outpatients in Turen Primary Health Centre (PHC), Malang, Indonesia.

Materials and methods

This study has received ethics approval from the Institutional Ethical Committee of the University of Surabaya (number 041/KE/X/2018) and obtained permission from the Malang District Health Office (number 072/3385/35.07.103/2018) in which respondents' confidentiality was guaranteed on any published data. This research was conducted in Turen, which is one of the four sub-districts with the highest number of people living with HIV/AIDS in Malang District, East Java, Indonesia [10]. Turen PHC is a primary health centre that has a Voluntary and Counseling Test clinic facility and can conduct HIV tests [10].

Data collection

Medical record review

The sociodemographic data, antiretroviral use and CD4 counts were obtained from medical records of all HIV/AIDS outpatients who visited Turen PHC in the period of June–December 2018. The data were recorded in a patient form for each patient.

In-depth interviews

In-depth interviews were conducted with purposively selected 15 HIV/AIDS outpatients in Turen PHC. The principal researcher explained the objectives and nature of the study, and informed consent was obtained. The interviews were either conducted at Turen PHC or the subject's residence if the researcher could not meet them at PHC. Interviews at the subjects' residence were conducted in a closed room in order not to attract the attention of neighbours or the local community: this was done at the request of the subject to protect their identity as people living with HIV/AIDS. The interviews were conducted in Indonesian language (or the local language, i.e. Javanese language, when necessary) and assisted with an interview guide to explore the source of HIV/AIDS infection. The interview lasted about 45 min and was audio-recorded.

Data analysis

The sociodemographic data, antiretroviral use, and CD4 counts from patient medical records were analysed using descriptive statistics (frequencies and percentages were calculated). Audio-recorded data from the interviews were transcribed and thematically analysed by the principal investigator; the extracted themes then

were discussed and confirmed with the other researchers for consistency. The data were analysed and collected manually by cutting and pasting between documents. Analysis of data was conducted in Indonesian and the illustrative verbal quotes and theme labels were translated into English.

Results

A total of 45 HIV/AIDS outpatient medical records were reviewed. The sociodemographic data of the 45 patients were summarised in Table 1. It was shown that the percentage of females was higher than males (57.8% and 42.2%, respectively); and more than 50% of them were married. The majority of patients were aged 26–35 years (51.1%) and were junior high school graduates (40.0%). More than two thirds of the patients had an income in the range of 2 million rupiah or less per month, and only 13.3% either had no income or had an income of 2–3 million. In terms of occupation, most of the respondents reported “other” (73.3%), including housewives, vegetable sellers, mechanics, drivers, bird-cage makers, rice/salad sellers, labourers, beauty salon workers, ludruk players, herbal plant seekers, farmers and unemployed.

Table 1: Sociodemographics of HIV/AIDS outpatients in Turen PHC (n = 45).

Characteristics	n (%)
Gender	
Men	19 (42.2)
Women	26 (57.8)
Age, years	
17–25	2 (4.4)
26–35	23 (51.1)
36–45	13 (28.9)
46–55	5 (11.1)
56–65	2 (4.4)
Marital status	
Married	25 (55.6)
Never married	12 (26.7)
Divorced	8 (17.8)
Level of education	
Elementary school	11 (24.4)
Junior high school	18 (40.0)
Senior high school	16 (35.6)
University graduates	0 (0.0)
Income per month (Rupiah)	
No income	6 (13.3)
<2 million	33 (73.3)
2–3 million	6 (13.3)
>3 million	0 (0.0)
Occupation	
Private employees	4 (8.9)
Entrepreneur	8 (17.8)
Other	33 (73.3)

All of the 45 patients were treated with a combination antiretroviral therapy from two classes of antiretrovirals, i.e. nucleotides analog reverse transcriptase inhibitor (NRTI) and non-nucleotides analogue reverse transcriptase inhibitors (NNRTIs). The details of the combination antiretroviral therapy can be seen in Table 2. The majority of the patients used fixed-dose combination (FDC), which is a combination of three antiretrovirals (tenofovir-lamifudin-efavirenz) in a single pill (57.8%), and the least used was combivir plus efavirenz, which is only used by one patient (2.2%).

Table 2: Combination antiretroviral therapy used for HIV/AIDS outpatients in Turen PHC (n = 45).

Combination antiretroviral therapy	n (%)
FDC	26 (57.8)
AZT+ 3TC + NVP	3 (6.7)
AZT+ 3TC + EFV	5 (11.1)

TNF + 3TC + NVP	4 (8.9)
Duvi + NVP	3 (6.7)
3TC + NVP	3 (6.7)
Duvi + EFV	1 (2.2)

FDC, fixed-dosage combination (tenofovir + lamifudin + efavirenz); AZT, zidovudin; 3TC, lamivudin; NVP, nevirapin; EFV, efaviren; Duvi, duviral.

Of 45 medical records reviewed, only 31 (68.9%) were provided with laboratory data on CD4 counts. The details of data on CD4 counts can be seen in Table 3. The highest CD4 counts was 550 cells/mm³, and the lowest was 158 cells/mm³ with an average of 281.97cells/mm³.

Table 3: CD4 counts of HIV/AIDS outpatients in Turen PHC (n = 31).

CD4 counts, cells/mm ³	n (%)
≥350	4 (12.9)
158–349	27 (87.1)

CD4, cluster of differentiation 4.

In-depth interviews were conducted with 15 out of 45 patients – whose medical records were reviewed – to explore the sources of infection. There are three themes generated from the interviews with regards to the sources of infection: 1) husband, 2) blood donor and 3) unsafe/unprotected sex. The themes and illustrative quotations can be seen in Table 4.

Table 4: Themes on the source of HIV/AIDS infection.

Source of infection (Themes)	Example of quotation
Husband	“I got the disease from my husband, he’s a driver well mam....” (NNG)
Blood donor	“I was told a child was looking for me from KPJ hospital, the child (blood donor) told me that the donated blood caused HIV infection (to me) and the baby died...I gave birth to BK hospital. But the blood was bought from KPJ hospital.” (SW)
Unsafe/unprotected sex	“... once I didn’t realise that the customer might not use a condom, probably it was originally from there.” (LY)

AIDS, acquired immune deficiency syndrome.

Discussion

This study provides profiles of HIV/AIDS outpatients in Turen, Indonesia, as a basis to improve treatment and to support people living with HIV/AIDS in Indonesia. This study reported that the majority of HIV/AIDS patients in Turen are mostly females. On the contrary, the report on the development of HIV/AIDS and sexually transmitted diseases (March 2017) stated that there were generally more males than females living with HIV/AIDS in Indonesia by a ratio of 2:1 [8]. This might indicate that although the number of males living with HIV/AIDS is higher than women in Indonesia in general, this might not be the case in some areas. In addition to the present study, a research conducted by Hutapea et al. [12] in Papua, Indonesia, also reported more females (73.1%) than males living with HIV/AIDS. In terms of age, most people living with HIV/AIDS in this study are in the 26–35 year age group (51.1%) which is followed by the 36–45 year age group (28.9%). This indicates that most people living with HIV/AIDS are of productive age and might even be the backbone of the family, and thus this might affect the family income and economic states; this situation might be represented by the low income of the majority of the patients, i.e. 73.3% had an income about or less than 2 million rupiah/month. This is in line with a study conducted by Shukla et al. (2015) at a tertiary care hospital in India; it was found that most HIV patients are at the age of 20–45 years (81.45%) and have low income (58.7%) [11].

The majority of HIV/AIDS patients in this study were married (55.6%); one of the patients even had just given birth with a husband who was not an HIV/AIDS patient (serodiscordant). This might indicate that people living with HIV/AIDS have begun to be accepted by certain groups of people. Hidayati et al. [14] also reported that in Cirebon, Indonesia, most people living with HIV/AIDS are married (69.7%). In addition, this present

study found that approximately one third of the HIV/AIDS patients are single; this might include transgender, homosexual and heterosexual persons. The literature suggested that transgenders and homosexuals are the high-risk group/key population infected with HIV/AIDS [7]. A small number of patients in this study were widows (17.8%); from informal interviews, most of them became widows because their husbands died from AIDS. Data in India also showed that 56.45% of people with HIV/AIDS are widows whose husbands died from AIDS [11]. As HIV/AIDS patients in Turen are mostly young married women, the Indonesian Government could work together with local women communities and health offices to raise awareness among women and housewives as well as to develop effective HIV prevention and treatment/support programs.

Related to antiretroviral use in this study, most patients used three antiretrovirals (mainly FDC of tenofovir-lamifudin-efavirenz). This is in compliance with the Indonesian Government's guideline for HIV/AIDS treatment. The guideline stated that antiretroviral treatment should consist of three types of drugs, all of which must be absorbed and be in therapeutic doses in the blood; this is known as highly active antiretroviral therapy [3]. While seven patients in this study only got two antiretrovirals, this warrants further considerations. The Ministry of Health, Republic of Indonesia, Regulation Number 8 Year 2014 about Antiretroviral Treatment Guidelines stated that antiretroviral treatment should be based on five aspects: effectiveness, side effects/toxicity, drug interaction, compliance and cost [7]. In addition to the effectiveness, the selection of an antiretroviral should also consider the ability of subjects to cope with its side effects. It was suggested that side effects of antiretrovirals – such as nausea, vomiting, headaches and nightmares – could be troublesome for patients, especially when they have to experience them every day for years [15]. A study conducted by Chesney et al. [16] reported that 24% of 51 patients refused to take antiretrovirals as they wanted to avoid the side effects. In line with this, WHO reports stated that HIV/AIDS patients often refused to take antiretrovirals because of unacceptable side effects; this is also the case among patients in Sub-Saharan Africa and Nepal [13], [14], [16]. Hence, antiretroviral side effects should be closely monitored, and when necessary, a substitution can be made [7]. The most important issue for the patients is to continue to use antiretroviral therapy.

The effectiveness of antiretroviral treatment could be seen from the CD4 counts (>500 cells/ mm^3), VL (<500 copies/mL) and clinical conditions (i.e. the clinical stages established by WHO) [1], [3], [4], [19], [20], [21], [22], [23], [24]. In terms of CD4 counts, the WHO classified CD4 counts of 350–499 cells/ mm^3 as mild immunodeficiency, 200–349 cells/ mm^3 as moderate immunodeficiency and <200 cells/ mm^3 or $<15\%$ as severe immunodeficiency [1]. Using these categorisations, 27 out of 31 patients who have CD4 counts data in this study (87.1%) can be categorised as having moderate and severe immunodeficiency. Not all of the patients in this study have CD4 data because of the costs incurred to get the test done. This is in line with the data in Jakarta; Rosamond et al. [25] reported that 44% HIV/AIDS patients did not provide their annual CD4 counts data. As CD4 counts are the key indicator of the effectiveness of antiretroviral treatment, the low monitoring of CD4 counts in this study might result in the difficulty to provide evidences on the effectiveness of antiretroviral treatment used as well as to determine the immunodeficiency status of the patients.

One of the sources of HIV/AIDS infection identified in this study is husbands as experienced by housewives and widows whose husbands died from AIDS. This is in line with research conducted by Yuniar et al. [26] in Bandung and Cimahi in which there was a change in the way of HIV/AIDS transmission from syringe users to heterosexuals, in particular, both husband and wife who use syringes as well as couples whose husbands use the services of sex workers with HIV/AIDS. According to Roselinda et al. (2015), this is due to gender inequality in which women are not able to control the behaviour of their partners [27]. Likewise, the research conducted by Sabin et al. (2008) in China reported that 12 women were infected from their partners, while 19 male and 2 female patients were infected with HIV from syringes [28]. Apart from husbands, the source of infection in this study can be blood donors. Parallel with this, Khan and Shasi (2012) reported the presence of HIV/AIDS patients infected with HIV from blood donors in India [29]. In addition, the behaviour of sex without condoms or sex with casual partners are acknowledged as one source of HIV infection in this study. While the use of condoms consistently and correctly are highly effective in preventing HIV transmission, barriers on the use of condoms have been reported, such as negative perceptions, an unsupportive environment and inequality in a relationship (husband/spouse refuses to use condoms) [5].

Conclusions

Most HIV/AIDS patients in Turen PHC, Indonesia, are young married women (housewives), and the sources of infection include their husbands. While the antiretroviral therapy used is generally in compliance with the Indonesian Governments' guideline, the CD4 counts are still low, which might indicate poor disease control. Further research should be conducted to focus on exploring barriers and facilitators to optimise the use of antiretroviral therapy in Indonesia. The Government should work together with all related stakeholders in

raising awareness as well as developing appropriate HIV prevention, treatment and care programs with regard to the Indonesian context.

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Ed. by Michal Horowitz



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The Journal of Basic and Clinical Physiology and Pharmacology (JBCPP) is a peer-reviewed bi-monthly published journal in experimental medicine. JBCPP publishes novel research in the physiological and pharmacological sciences, including brain research; cardiovascular-pulmonary interactions; exercise; thermal control; haematology; immune response; inflammation; metabolism; oxidative stress; and phytotherapy. As the borders between physiology, pharmacology and biochemistry become increasingly blurred, we also welcome papers using cutting-edge techniques in cellular and/or molecular biology to link descriptive or behavioral studies with cellular and molecular mechanisms underlying the integrative processes.

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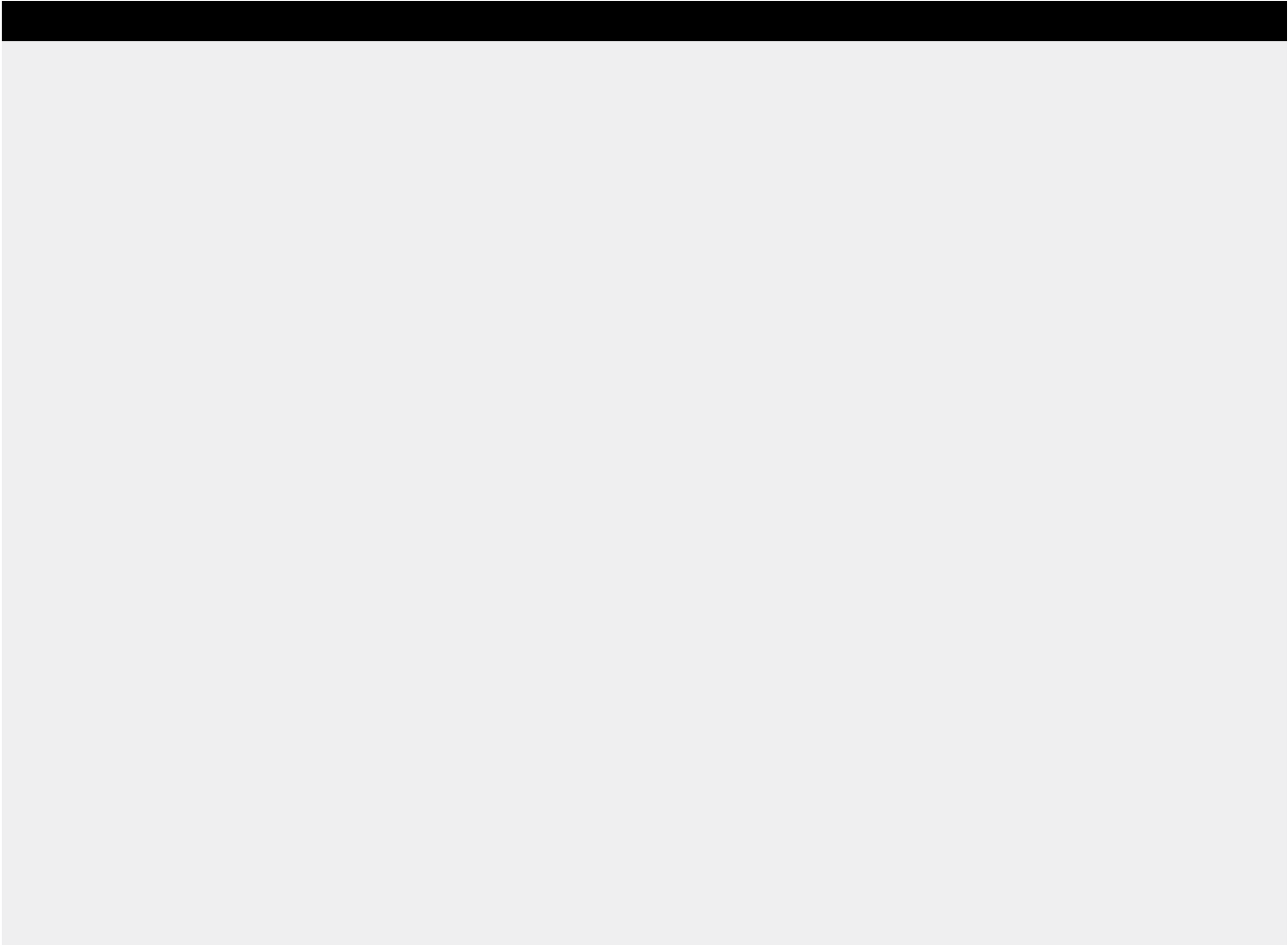
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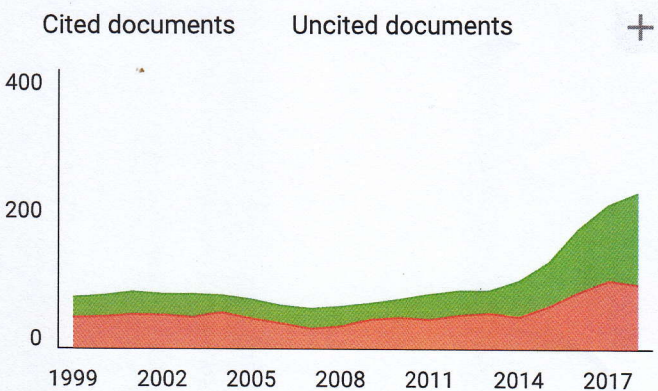
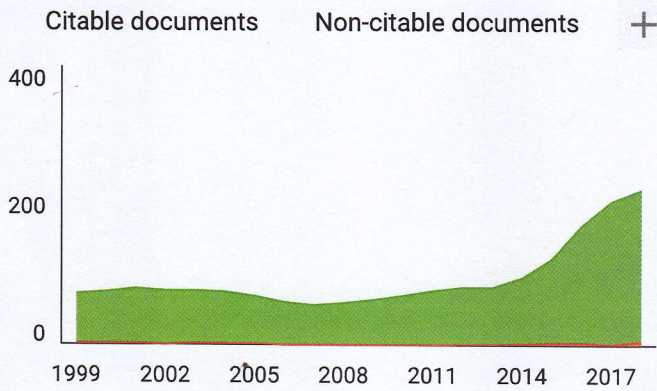
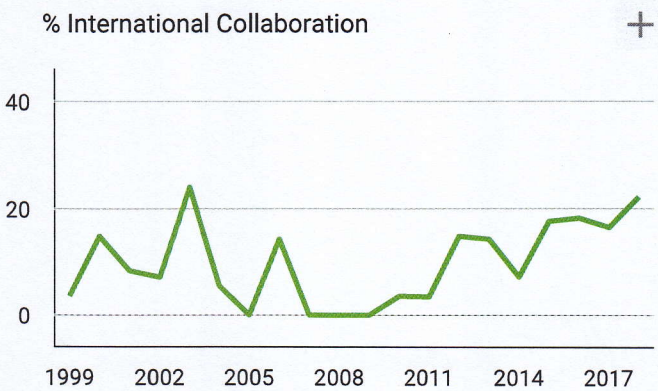
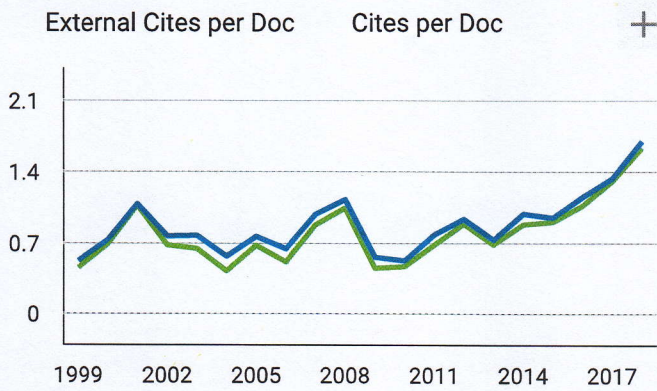
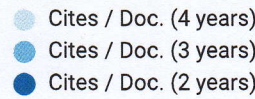
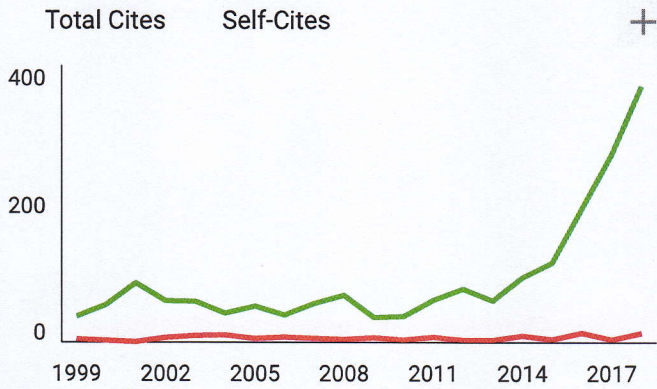
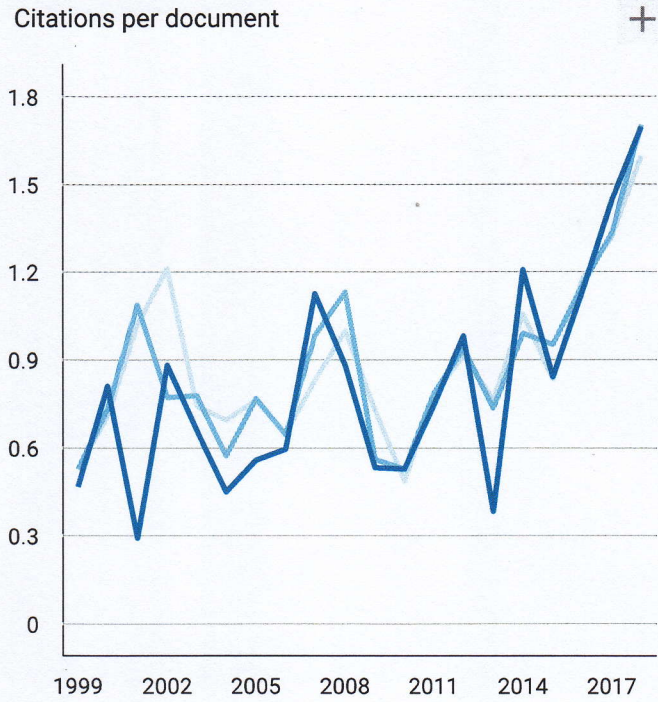
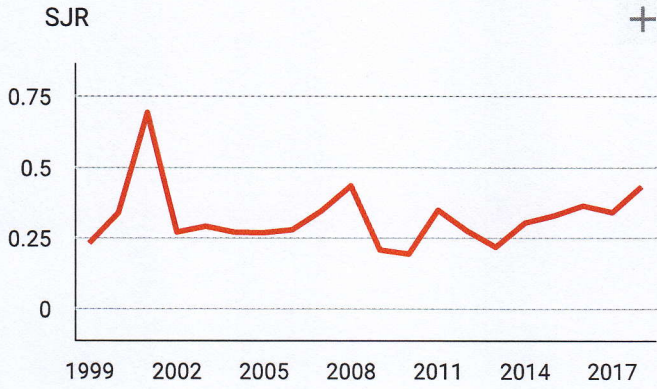
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