HIV-RELATED STIGMA, FRAILTY, AND IT'S PLAUSIBLE CORRELATION: A LITERATURE REVIEW

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ABSTRACT

Persons living with HIV experience many physical and non-physical health problems, despite the many interventions that have been made to improve the quality of life of PLWH. Some of the problems that are increasingly experienced by PLWH are frailty and stigmatization, and these two problems seem to have a relationship that affects the severity of each other. Further exploration of these two problems and their plausible correlation is needed to fill the gap in the knowledge that has never been discussed before. This scoping review aims to delve into what is known regarding HIV-related stigma, frailty, and their plausible correlation using the articles written in English and published in the last five years (2019-2024). The articles were acquired on August 2024 from various databases, namely, Springer Link, EBSCOhost, PubMed, ScienceDirect, Scopus, and Google Scholar. This review found that there's an indirect correlation between HIV-related stigma and frailty through various pathways, such as, depression and social isolation. Overall, this scoping review underscores the need for a comprehensive, multidimensional approach to addressing the complex interplay between HIV-related stigma, frailty, and other social determinants of health. Interventions that target both the physical and psychosocial aspects of these issues may be crucial in improving the overall well-being and quality of life of people living with HIV.

Keywords: HIV, Stigma, Frailty.

INTRODUCTION

Even after 40 years of the first cases that are documented, HIV is still the world's greatest cause of death today (Centers for Disease Control and Prevention, 2024). Even though there has been progress in enhancing the effectiveness and safety of these HIV treatments these days, there are still some health challenges that might occur for a person living with HIV (Brainard et al., 2018).

One of them would be frailty or pre-frailty, which is categorized as premature development of geriatric syndromes (Bloch, 2018; Kehler et al., 2022; Kwong, 2022). In the past, the terms frailty is often used virtually interchangeably with terms like comorbidity, disability, and aging because of their similarities and high rate of coexistence (Kojima et al., 2019). Frailty used to be known to rise with population age because, according to its definition,

frailty is a clinical syndrome brought on by biologic changes associated with aging (Kim & Rockwood, 2024; Lee et al., 2020). Shockingly, as a rising idea in HIV care, it is known that frailty is common at a younger age and is linked to a lower quality of life, disability, multimorbidity, and even death (Bristow & Barber, 2022; Kwong, 2022).

A key factor that may contribute to the progression of frailty in the HIV community is the pervasive issue of HIV-related stigma. "HIV-related" refers to any stigma and discrimination, including that based on sexual orientation, gender identity, drug usage, prostitution, and HIV status, which can have a significant impact on the ability of individuals and communities to access and utilize HIV-related services, as well as their overall well-being and quality of life (UNAIDS, 2021). It is known that both frailty and HIV-related stigma could lead to more serious problems, such as depression and social isolation, which could be caused by HIV status disclosure or severe psychological stress throughout one's existence (Marziali et al., 2021; Prabhu et al., 2022; Schrock, 2024). While the plausible correlation between HIV stigma and frailty has not been extensively explored, there are plausible mechanisms by which HIV stigma may contribute to the progression of frailty (Iriarte et al., 2021, 2024). To ensure a better well-being and understanding of both the physical and mental health of PLWH, it is crucial to delve into the importance of these issues and their plausible correlation.

LITERATURE REVIEW

Human immunodeficiency virus (HIV) is a retrovirus that primarily attacks and tear down the CD4+ T cells, a critical element of the immune system. By compromising the body's immune-supporting cells, HIV infection leaves individuals highly vulnerable to a wide range of opportunistic infections and illnesses (U.S. Department of Health & Human Services, 2023). HIV could spread through the exchange of certain body fluids, primarily through anal or vaginal sexual intercourse and blood contacts by sharing syringes, needles, or other injectable drug supplies, as well as perinatally (Bekker et al., 2023; Patel et al., 2021; Saag, 2021). This virus had a significant impact on global public health despite earnest worldwide and local efforts to address the pandemic (Govender et al., 2021). Current treatments for HIV, such as the creation of medications that are both more potent and well-tolerated, like ARV, as well as prophylactic treatments like pre-exposure prophylaxis (PrEP), have significantly improved prognosis and reduced HIV transmission (de la Mora et al., 2024).

Even though there are many approaches to upgrade the life expectancy and quality of life of a person living with HIV, there are tons of so-called problems that might occur in a PLWH’s life, such as medical, social, and physiological difficulties. One of the issues that more frequently occurs is frailty, also known as pre-frailty (Bloch, 2018). Whilst it is also known that the major barriers to well-being for people with HIV are the stigmatizing attitudes and unfair treatment they experience (Tran et al., 2019).

HIV stigma encompasses the negative attitudes, beliefs, and behaviors regarding individuals living with HIV. In a more specific context, HIV stigma refers to negative and unjustified attitudes, actions, and evaluations related to person with or without HIV that can deter people from getting tested, seeking

treatment, or continuing their care (HIV.gov, 2018). HIV stigma labels people as traitors, slaves, or even criminals who should be avoided in society (Melis et al., 2020). People living with HIV frequently experience stigma, and stigma itself has been demonstrated to interfere with ART adherence (Kalichman et al., 2020). Which then could lead PLWH to a frail state.

Frailty was initially introduced in the literature on geriatric medicine during the 1950s and 1960s, which was then studied through research in the 1980s and 1990s (Sobhani et al., 2021). Frailty was once defined as a clinical condition resulting from age-related biological changes, and it was believed that the prevalence of frailty increased with the aging of the population (Kim & Rockwood, 2024; Lee et al., 2020). Another concept defined frailty as a state of cumulative health impairments because it is known that many researchers have classified chronic illnesses, sensory and cognitive impairment, mood disorders, social status and support, and disability as components of frailty syndrome, which are not limited in the geriatric population only (Sobhani et al., 2021). Frailty could increase the risk of a lower quality of life, disability, multimorbidity, and even death (Bristow & Barber, 2022; Kwong, 2022).

Even though there is only limited research that explores the correlation between HIV-related stigma and frailty among the people living with HIV, there are plausible mechanisms that could be seen proofing the correlation between these two variables, such as the correlation between HIV-related stigma that could trigger depression and substance abuse, which furthermore could lead to inflammation and a frailty state (Derry et al., 2022; Schrock, 2024; Womack & Justice, 2020).

RESEARCH METHODOLOGY

This literature study used a systematic scoping review approach to explore HIV-related stigma, frailty, and their plausible correlation. The articles are acquired through various databases, namely, Springer Link, EBSCOhost, PubMed, ScienceDirect, Scopus, and Google Scholar, using the keywords ‘HIV’ OR ‘Human Immunodeficiency Virus’ OR ‘Human T Cell Lymphotropic Virus Type III’ OR ‘AIDS’ OR ‘PLWH’ OR ‘Person Living With HIV’ AND ‘Stigma’ OR ‘Internalized Stigma’ OR ‘Community Stigma’ OR ‘Healthcare Stigma’ OR ‘Intersectional Stigma’ AND ‘Frailty’ OR ‘Weakness’ OR ‘Pre-frailty’ OR ‘HIV Frailty’. The process of acquiring the articles through the databases were done on August 2024, with the inclusion criteria that are used are articles that were published in the last five years (2019-2024) and articles that are written in English. Prisma guidelines are used to identify the articles that explain the topic interests and fit with the inclusion criteria.

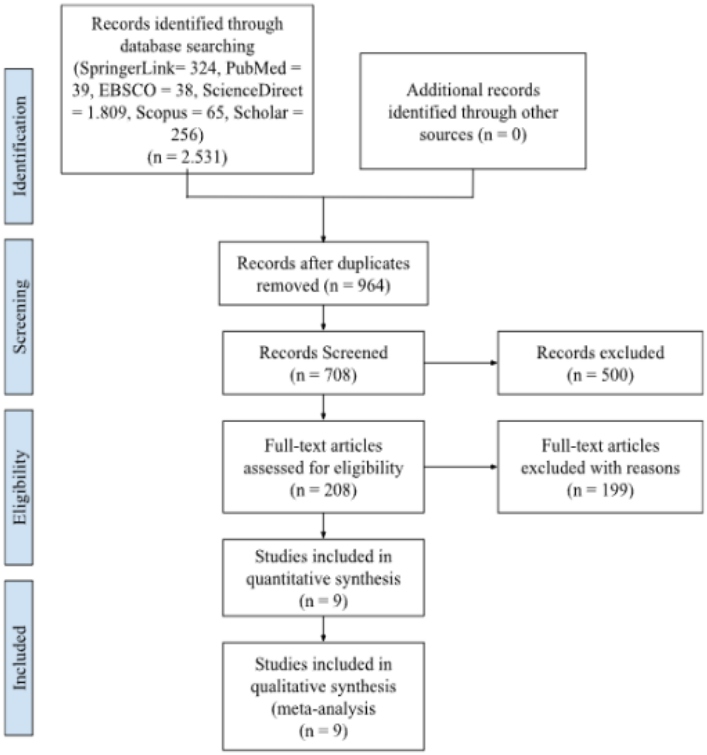

Figure 1. Prisma Flow Diagram

RESEARCH RESULTS

Table 1. Articles That Are Used in The Literature Review

No.	Title, Author(s), Year	Objectives	Study Design	Results
1.	Iriarte, E., Cianelli, R., De Santis, J. P., Villegas, N., Irarrazabal, L., Jankowski, C., & Provencio-Vasquez, E. (2024). HIV-Related Stigma and Multidimensional Frailty Among Older Latinos With HIV.	To investigate the correlation between older Latino PWH's multidimensional frailty and HIV-related stigma.	Cross-sectional design	Higher probabilities of being multidimensionally frail among older Latino PWH are significantly correlated with higher HIV-related stigma (Iriarte et al., 2024).
2.	Iriarte, E., Cianelli, R., De Santis, J. P.,	To investigate factors associated with	Cross-sectional design	Socioeconomic and psychological factors

	Alamian, A., Castro, J. G., Matsuda, Y., & Araya, A.-X. (2023). Factors Related to Multidimensional Frailty Among Hispanic People Living With HIV Aged 50 Years and Above: A Cross-sectional Study.	multidimensional frailty in Hispanic PLWH who are 50 years of age or older.		significantly influence frailty among individuals, with lower income, multiple health conditions, depression, loneliness, and HIV-related stigma correlating strongly with increased vulnerability to multidimensional frailty.(Iriarte et al., 2023).
3.	Derry, H. M., Johnston, C. D., Burchett, C. O., Brennan-Ing, M., Karpiak, S., Zhu, Y.-S., Siegler, E. L., & Glesby, M. J. (2022). Links Between Inflammation, Mood, and Physical Function Among Older Adults With HIV.	To investigate the connections between age-related health outcomes, inflammatory markers, and psychosocial characteristics (such as stigma, loneliness, and depression) in 143 PLWH between the ages of 54 and 78.	Cross-sectional design	This study revealed that among people living with HIV, 11% were frail, 58% were prefrail, and 31% were robust. Those experiencing greater HIV-related stigma had lower inflammatory markers. Individuals with higher cytokine levels were more likely to exhibit prefrailty or frailty, demonstrated reduced physical function, and reported more cognitive difficulties (Derry et al., 2022).
4.	Sao, S., A Knettel, B., A Kisigo, G., T Knippler, E., Osaki, H., N Mwamba, R., Rogathi, J., S Ngocho, J., T	To investigate the community level of stigmatizing attitudes regarding HIV from the	Qualitative study	Key drivers of HIV stigmas included fear of transmission through everyday interactions, the negative

	Mmbaga, B., & H Watt, M. (2020). HIV Community-Level Stigmatizing Attitudes in Tanzania: Perspectives from Antenatal Care.	viewpoints of antenatal care (ANC) patients and medical professionals in Moshi, Tanzania.		associations of HIV with physical weakness, and immoral behavior. And it is known that individuals may experience stigma through gossips or rumors, physical and social isolation, and disruptions in their intimate relationship. Nevertheless, despite the presence of stigmas, some individuals demonstrated resilience in the face of stigmatizing attitudes, such as healthcare workers, family members with relevant experiences, and some supportive male partners.(Sao et al., 2020).
5.	Drewes, J., Ebert, J., Langer, P. C., Kleiber, D., & Gusy, B. (2021). Comorbidities and psychosocial factors as correlates of self-reported falls in a nationwide sample of community-dwelling people aging with HIV in Germany.	To analyze the factors linked to fall risk and to characterize the fall prevalence in the population of PAWH that live in Germany.	Mix of quantitative and qualitative study	A fall occurred in 18% of the participants, and 12% had repeated falls within the previous 12 months. Factors that significantly increased the risk of falls included being single, lower socioeconomic status, living alone, and having an AIDS diagnosis. Additionally, the risk of falls was

				also significantly linked to experiencing HIV stigma, self-stigma related to HIV, unavailable social support, and experiencing loneliness. The findings suggest that addressing HIV-related stigma and the social determinant of health may be important in reducing fall risk for the people who are HIV positive (Drewes et al., 2021).
6.	Dako-Gyeke, M., Boateng, A., Addom, S., Gyimah, L., & Agyemang, S. (2020). Understanding adolescents living with HIV in Accra, Ghana.	To explore the lived experiences of adolescents living with HIV (ALHIV) in Accra, Ghana.	Descriptive qualitative study	Many adolescents were informed of their HIV status by family or other people, but they avoided disclosing it to others, driven by the fear of social stigma and discrimination. These young people described facing stigma directly and expressed conflicting attitudes towards attending medical appointments and adhering to their antiretroviral medication or therapy (ART). Some faced financial challenges that negatively impacted their ability to access

				healthcare. It is known from the adolescents that support from healthcare providers and parents/guardians was reported as beneficial, assisting them in navigating their challenges (Dako-Gyeke et al., 2020).
7.	Prabhu, S., Wanje, G., Oyaro, B., Otieno, F., Mandaliya, K., Jaoko, W., McClelland, R. S., McCormick, W., Andrew, M. K., Aunon, F. M., Simoni, J. M., & Graham, S. M. (2022). Adaptation of a social vulnerability index for measuring social frailty among East African women.	To adjust a Social Vulnerability Index (SVI) that was first created in Canada for use in a study of elderly women in Mombasa, Kenya, who may or may not be HIV positive.	Qualitative study	Stigma is pervasive in the community, leading many women to keep their HIV status a closely guarded secret. Women feared that if their HIV status became known, they would be the subject of gossip and face social isolation (Prabhu et al., 2022).
8.	Abdul-Aziz, S. A., Chong, M. L., McStea, M., Wong, P. L., Ponnampalavanar, S., Azwa, I., Kamarulzaman, A., Kamaruzzaman, S. B., & Rajasuriar, R. (2021). Significant Psychosocial Influence in Frail People Living with HIV Independent	To compare the psychosocial, functional, and physical health of frail individuals living with HIV and PLWH without frailty, whilst also determine the risk factors associated with and the effects on adverse health outcomes, including	Cross-sectional study	There is a significant prevalence of frailty in the group of persons living with HIV (PLWH), with rates ranging from 7% to 22% depending on the assessment tool used. Notably, the psychosocial domain emerged as the most dominant component of frailty in this

	of Frailty Instrument Used.	mortality risk, quality of life, healthcare usage, functional impairment, and fall history, in virally suppressed people living with HIV (PLWH).		population, outweighing the physical and functional domains. Several key determinants for frailty were identified, including poor nutritional status, depression, a history of low CD4+ count, elevated inflammatory markers, syndrome regarding the metabolic system, and a history of AIDS-defining illnesses. The study also found that frailty strongly influenced negative health outcomes, leading to elevated mortality risk, diminished quality of life, increased healthcare usage, and significant functional limitations (Abdul-Aziz et al., 2022).
9.	Marziali, M. E., McLinden, T., Card, K. G., Closson, K., Wang, L., Trigg, J., Salters, K., Lima, V. D., Parashar, S., & Hogg, R. S. (2021). Social Isolation and Mortality Among People Living with	To characterize social isolation in persons living with HIV (PLHIV) and investigate its link with all-cause mortality.	Quantitative study	The study identified three distinct social isolation profiles among the participants, which are; the Socially Connected (SC) class (36.3%), the Minimally Isolated (MI) class (54.3%), and the Socially Isolated

	HIV in British Columbia, Canada.	(SI) class (9.4%). During the follow-up period from 2007-2010 to 2017, 24.5% of the participants died, with the leading cause being chronic disease or comorbidities. While extensive research has documented the negative health impacts of stigma and trauma among people living with HIV, the concept regarding social isolation and its inferences for this population have not been thoroughly explored (Marziali et al., 2021).

DISCUSSION

From the nine articles that are acquired and thoroughly picked for this literature review, it could be concluded that HIV stigma is defined as a psychosocial determinant of health that leads to discriminatory attitudes and behaviors towards people with HIV, stemming from their HIV status (Iriarte et al., 2024; Prabhu et al., 2022). These stigmas can manifest in various forms, including negative self-images, personalized stigma, public attitudes concerns, and disclosure concerns. Personalized stigma refers to an individual's personal experiences of being undervalued, discriminated against, or treated differently because of their HIV status. Disclosure concerns refer to the fear or anxiety of disclosing one's HIV status to others, which is frequently motivated by the expectation of negative reactions or consequences. People living with HIV may also develop a negative self-image as a result of internalizing societal stigma, leading to feelings of shame, guilt, and low self-worth. Lastly, public attitudes concerns reflect the individual's perception of in what manner the general public views and treats people living with HIV, which can further exacerbate the feelings of isolation and marginalization. (Berger et al., 2001; Iriarte et al., 2024).

There are some drivers of these stigmas, including fear of infection among community members regarding the fear of contracting HIV through casual contact, physical weakness, as a result of the association of HIV with

illness and the dependency on medication, also immoral behavior, which rooted from the beliefs that HIV is linked to promiscuity and moral issues (Dako-Gyeke et al., 2020; Sao et al., 2020). Sao et al. (2020) also discuss the manifestations of stigma, which could be in the form of gossip, discouraging persons living with HIV (PLWH) from disclosing their status, physical and social isolation, and even impacting a PLWH's relationship due to significant changes in their intimate relationship because of the high prevalence of stigmatizing attitudes. This is consistent and aligns with the results reported by Dako-Gyeke et al. (2020), that also claim PLWH experience stigma and discrimination, which makes them afraid of disclosing their status to others, socially isolates them, and also builds emotional distress, because they are not only experiencing the stigmatization from the public, but even from their peers and family members.

Social isolation, could be defined by the term "psychosocial determinant of health," which describes quantifiable, objective traits that lead to social disconnection. This disconnection from meaningful relationships and community involvement can have significant implications for an individual's overall health and well-being, in view of the fact that it is known that social isolation in PLWH could lead to a more serious problem that could affect their quality of life, because it is proven to be linked with all-cause mortality and morbidity, including frailty, due to factors such as chronic inflammation, mental health issues, drug abuse, and reduced access to healthcare (Marziali et al., 2021).

Regarding frailty, according to its first concept by Fried et al. (2001), frailty is a medical syndrome or state that is manifested by a depletion in physical reserves and an increased susceptibility to stresses, which predisposes an individual to adverse health effect (Iriarte et al., 2023). It is known from studies that many PLWH experience frailty (Abdul-Aziz et al., 2022; Iriarte et al., 2024). This finding could happen because there are tons of sociodemographic factors that could lead to a frail state in PLWH, including higher depressive symptoms, a higher number of comorbidities, lower educational levels, lower income, female gender, living without a partner, and higher levels of HIV-related stigma (Iriarte et al., 2024). It is known that depressive symptoms and frailty have a very strong association (Abdul-Aziz et al., 2022; Iriarte et al., 2024). This could be explained by the study that was done by Derry et al. (2022), which revealed a significant correlation between the symptoms of depression and elevated inflammatory markers among people living with HIV (PLWH), which means that depression may contribute to increased inflammation and vice versa. Higher levels of inflammation are intricately linked to poorer physical function and cognitive decline, and are more likely to be classified as prefrail or frail.

Furthermore, a study also found that a higher level of overall HIV-related stigma is linked to a higher level of frailty incidence (Iriarte et al., 2024). This plausible mechanism could be explained because it is known that experiencing internalized and HIV-related stigma might increase the odds of falling among PLWH (Drewes et al., 2021). Meanwhile, having social support was inversely related to fall risk, but as we know, PLWH might not have great social support

due to the stigmatization that makes them isolated socially (Dako-Gyeke et al., 2020; Drewes et al., 2021; Sao et al., 2020). One of the findings also finds that people living with HIV experienced financial struggles that impacted their ability and the continuity of their medication and treatments (Dako-Gyeke et al., 2020). Without adherence to medication and treatment, PLWH can have a higher risk of inflammation, which could affect PLWH physical function, creating problems like frailty (Derry et al., 2022).

Therefore, it could be seen that there's an indirect correlation between HIV-related stigma and the odds of being frail among PLWH. This plausible correlation could be connected through various factors that affect one another, creating complex problems regarding both variables. Yet, studies have not explained enough regarding both problems and their plausible correlation.

CONCLUSION

This literature review discusses HIV-related stigma, frailty, and their plausible correlation. From the articles that were reviewed, it can be concluded that PLWH experience struggles regarding stigmas. This stigmatization around PLWH's social life could be the bridge to problems like depression and social isolation, which is known to have a very strong association with frailty. The mechanism of depression could trigger inflammation, which could likely bring PLWH into a frail state; meanwhile, social isolation could lower PLWH's social support, increasing emotional distress, thus resulting in frailty. Other factors might also play a role in bridging these two variables together, such as comorbidities, income, educational level, and gender. Further research regarding the correlation between these two variables needed to be done to know what influences both factors and what interventions can be done to manage them, so that the quality of life, both mentally and physically, of persons living with HIV could be accentuated.

The limitations of this study are the very limited sources regarding the connection between HIV-related stigma and frailty, only a very few studies mentioning direct correlation between the two variables, yet writer didn't find any studies that sees the connection between the two variables from a multifaceted point of view. Therefore, future study needs to delve into the correlation between the two variables, whilst seeing other factors that might be a bridge between the variables.

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