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Research Article

Coping Strategies and Mental Health of the LGBTQ with HIV/AIDS – A Systematic Review

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Abstract

Facing stigma on both HIV and sexuality by the larger society puts significant pressure and stress on the LGBTQ living with HIV to cope with their diagnosis. The promotion of coping strategies as an intervention to increase well-being among PLHIV needs to consider current findings to remain relevant. This systematic review took 17 articles from 2008 to 2018 to provide a comprehensive analysis of issues that influenced coping strategies and investigate the association of the chosen coping strategy with their mental health. The results indicated that the impact of double stigma amplifies the challenge faced by the LGBTQ community to deal with their HIV diagnosis and had a significant impact on their mental health wellbeing. Both positive and negative coping styles were present as coping strategies employed with positive coping being used more as a chosen strategy. Each presenting coping strategy was reviewed, with depression and anxiety becoming the baseline indicator to reflect mental health status. This systematic review also revealed that the positive coping strategy does not necessarily lead to a positive psychological state as it is dependent on the changeability of the stressor faced. The findings emphasized the complexities in untangling the influence of coping on wellbeing among PLHIV. More attention should be paid to the mechanisms of stressor appraisal in selecting a more suitable coping strategy.

Keywords: LGBTQ; HIV/AIDS; PLHIV; coping strategies; stigma; mental health.

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Up until 2017, over 36.9 million people are living with HIV globally (UNAIDS, 2019). Higher HIV infection prevalence is seen among the homosexual, bisexual, transgender, and men who have sex with men (MSM) (Beyrer et al., 2012, 2016; Centers for Disease Control and Prevention, 2018). To undergo HIV diagnosis can be a stressful experience for people living with HIV (PLHIV). This is because HIV is heavily stigmatized and the magnitude of associated stigma either internalized or externalized is bigger for those who fall within the LGBTQ community (Cramer et al., 2017; Dalmida et al., 2013; Lowther et al., 2014; Vreeman et al., 2013). One study had found that those who discriminate against homosexuals are 3.49 times more likely to discriminate PLHIV (Aminnuddin, 2019). The societal perception of HIV as a punishment for being homosexual and living a sinful life negatively impacts their acceptance towards the diagnosis, ways of coping, and well-being (Bird & Voisin, 2013; Land & Linsk, 2013; Liboro & Walsh, 2016; Voisin et al., 2013).

The transactional theory of stress and coping describes coping as a constant appraisal process of stimuli that generates an event and emotional outcomes (Folkman, 1997; Lazarus & Folkman, 1984). Various intrinsic and extrinsic factors may influence how well an individual ascribes meaning to the event or stimuli faced, which will determine the intensity of reaction between the stressor and the emotional outcome (Boyd et al., 2009; Chesney et al., 1996; Folkman, 1997; Lazarus & Folkman, 1984). PLHIV engaged in either positive or negative coping strategies depending on their experiences and perceptions towards the stressors faced. Prior studies had shown that PLHIV are more inclined to engage in emotion-focused coping when experiencing negative affect outcomes, and adopted problem-focused when

experiencing positive affect outcomes (Arístegui et al., 2018; Bonanno, 2012; Folkman & Lazarus, 1986; Jeffries et al., 2015).

It has been reported that PLHIV are more prone to develop mental health issues such as anxiety, poor health-seeking behavior, depression, and poor treatment compliance. They also have a higher tendency to indulge in risky behaviors such as the use of drugs and alcohol and unprotected sex due to their inability to cope well with stimuli and stressors such as diagnosis acceptance, poor social support, and stigma (Flowers et al., 2011; Lowther et al., 2014). Whereas in a situation where sufficient psychosocial support, personal resources, and the ability to cope well are available, a positive healthy functioning and adaptability can be established (Bonanno, 2004, 2012; Flores-Palacios & Torres-Salas, 2017).

Adaptive coping was associated with higher adherence to treatment, increased chance of obtaining undetectable viral load, and better psychological well-being such as having meaning and purpose in life, positive emotions, optimism, and sense of humor (Dale et al., 2014a; Dale et al., 2014b; Park, 2013). Previous reviews had examined the effects of various coping strategies and stigma on mental health (Blashill et al., 2011; Sawyer et al., 2010; Smit et al., 2012). However, these reviews tend to be narrowed towards post-traumatic growth (Sawyer et al., 2010; Sherr et al., 2011), a wider population other than LGBTQ (Blashill et al., 2011; Sawyer et al., 2010; Sherr et al., 2011), focused on treatment effectiveness (Blashill et al., 2011) or categorized with other chronic diseases (Hefferon et al., 2009).

Furthermore, the complexity of the double stigma faced by the LGBTQ people—sexual identity and the HIV/AIDS diagnosis, affecting their choices of the coping mechanism had not been fully explored and represented for this population. The present review tries to expand the understanding of coping strategies used by PLHIV among the LGBTQ community using a broader set of questions. Thus, this systematic review aims to identify coping strategies employed, analyze issues faced that influence the choice of coping strategy, and finally investigate the association of the chosen coping strategy with their mental health.

Method

In this study, the PRISMA framework was used to conduct a systematic review (Moher et al., 2009; Uman, 2011). A SPIDER (Sample, Phenomenon of Interest, Design, Evaluation, and Research type) framework was used for research questions development to establish a rigorous process of transparency, increasing replication and reliability of search strategy.

Identifying the research questions

The review centered on the exploration of coping strategies employed, issues, and association of the chosen coping strategies onto the state of mental health among PLHIV/AIDS within the LGBTQ community. Therefore, to ensure a substantial range of literature focusing on the said interest areas is captured, the following research questions were established to guide the exploration:

1. What are the coping strategies employed by LGBTQ people with HIV/AIDS?
2. What are the issues related to the choice of coping strategies?
3. What are the associations of the chosen coping strategies with their mental health?

Identifying relevant studies

Key search terms and concepts were used to scour through related published literature on coping strategies used by PLHIV among the LGBTQ community globally. To obtain a wider coverage of available literature, a variety of keywords for search terms was used. The use of Boolean operators to narrow, widen, and combined literature were used as a searching technique. Consultation with the Universiti Malaya's librarian was sought after to help with creating and identifying key search items and databases that would best yield results needed. The descriptive key search items developed are illustrated in Table 1.

Table1.
Key search items used to elicit published articles

Search terms
"coping strategies" OR "coping mechanism" OR "coping skills" OR "cope" OR "coping" AND
"HIV/AIDS" OR "HIV" OR "aids" OR "acquired immunodeficiency syndrome" OR "human immunodeficiency virus" AND
"LGBTQ" OR "lesbian" OR "gay" OR "homosexual" OR "bisexual" OR "transgender" OR "transexual" OR "homosexual" OR "queer" OR "sexual minority")

To ensure comprehensiveness and feasibility of search on the subject, inclusion and exclusion criteria were created. The review was conducted in 2019 and published literature from the last ten years was used in this review to allow ample coverage of the recent and relevant study on coping strategies with HIV/AIDS. Research before this time may be out-of-date as the research gap on the issue may have been addressed, redundant, and does not reflect the recency of the research area (Pautasso, 2013). Hence, research done from 2008 to 2018 was deemed appropriate, fitting to the purpose aimed for this review. Due to the

limitation on cost and time for translation activity, foreign language articles were excluded from this study which may indicate the possibility of missing relevant papers to be considered in this review. Table 2 illustrates the inclusion and exclusion criteria set.

Table 2.
Inclusion and exclusion criteria.

Criterion	Inclusion	Exclusion
Time frame	2008 to 2018	Articles outside defined years
Language	English	Other languages
Type of article	Original research and peer-reviewed	Non-peer-reviewed articles
Ethics clearance	Studies that obtained ethics approval	Studies without ethics approval
Study focus	LGBTQ people with HIV/AIDS	Other populations with HIV/AIDS
Literature focus	Articles where overwhelming theme relates to coping strategy and impact on mental health experienced by LGBTQ people with HIV/AIDS	Articles that made a passing or token reference to the coping strategy of LGBTQ people with HIV/AIDS
Population and sample	Presence of age range of 20-39 in the study	Out of defined age range and editorials or discussion or personal opinion articles

Nine databases were searched to identify peer-reviewed primary source literature, spanning over four and a half months, ending in December 2018. The following databases were used to complete the exercise: Complementary Index, Academic Search Index, MEDLINE, Scopus®, Academic OneFile, Psychology, and Behavioral Sciences Collection, ScienceDirect, ERIC, and JSTOR Journals. Google Scholar was also utilized together with a hand search method to identify other primary sources within the grey literature.

Study selection

PRISMA checklist (Moher et al., 2009) was used to identify the articles. 1109 articles were identified from the key search descriptors determined from the databases and an additional 50 were identified through Google Scholar. Each of the articles' abstracts was reviewed to screen for relevance against the inclusion and exclusion criteria such as peer-review status, period, language, and study focus. 339 duplicated articles that appeared in multiple databases were also removed from the list. The review revealed 779 articles that do not fit into the said criteria, especially related to people living with HIV/AIDS within the LGBTQ community. The process continued with a deeper iteration of the review where a full-text version of the articles was obtained and carefully reviewed and confirmed as relevant guided

by the inclusion and exclusion criteria by the authors. Each process of the review was done individually by each author and findings from all authors were compared and coordinated to ensure all criteria were consistently fulfilled. The outcome of the process yielded the final 17 articles identified as relevant to the research topic, following the Preferred Reporting of Items for Systematic Review and Meta-Analyses (PRISMA) Statement (Moher et al., 2009) as illustrated in Figure 1 below.

Data charting and collating

Each of the selected articles was summarized by category of author, year, location of study, study design, methods, brief objectives, sample size, and sampling method along with the extraction of findings for each of the research questions. The charting of data stage outcome details is captured and presented in Appendix.

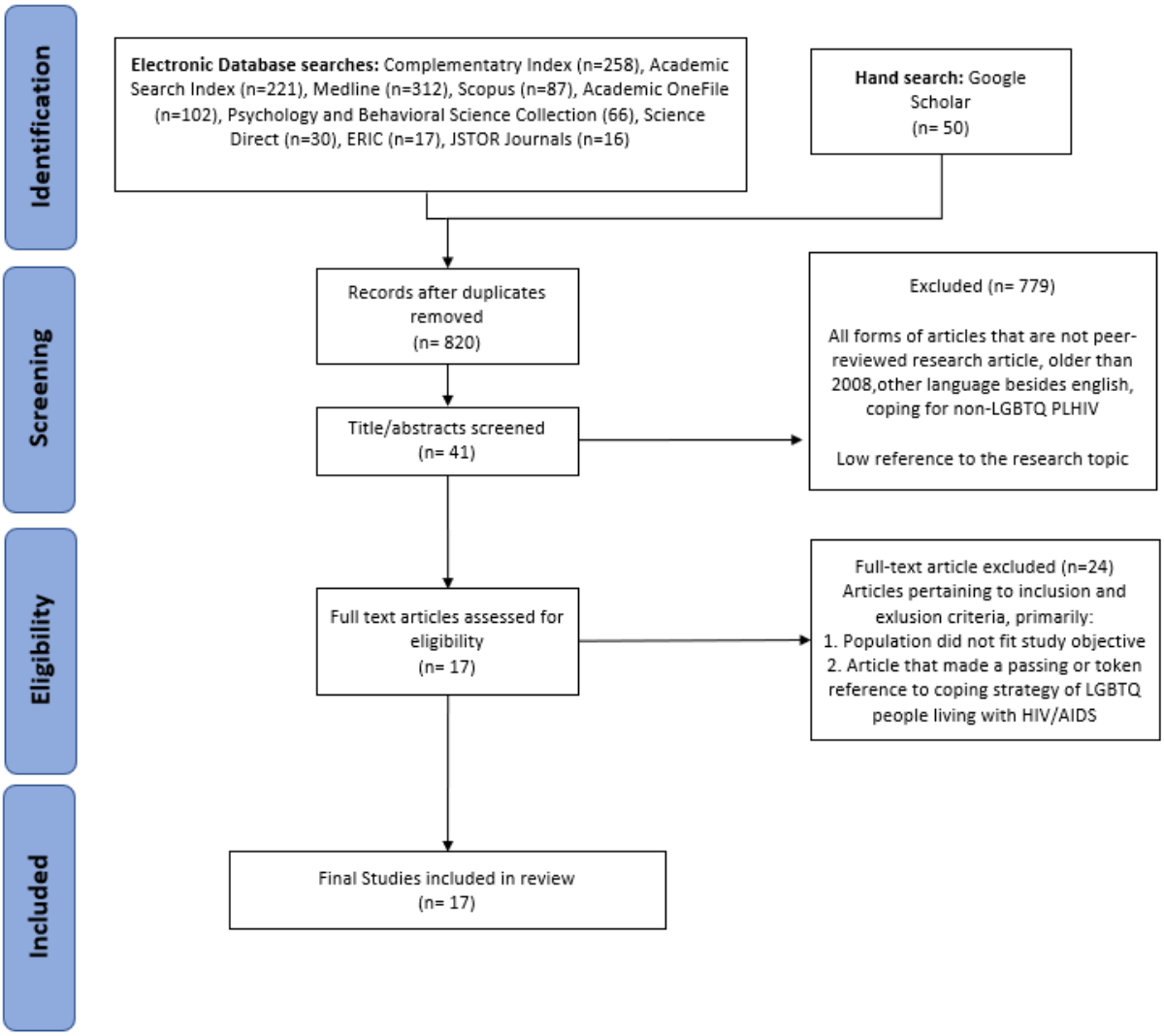

Figure 1. PRISMA flow diagram for article selection

Results summarising, synthesizing, and reporting

Findings from all reviewed articles were summarized and reported based on the research questions. A thematic construction is established by synthesizing the findings to help provide a narrative of the existing literature and determine generalizable findings.

Results

A total of 17 articles were systematically reviewed in this study, retrieved from seven countries. The majority of the articles came from the United States (nine studies), followed by three studies in Canada, and one study each from Mexico, Argentina, Scotland, Netherlands, and Hungary. There was a notable absence of literature from other regions such as Asia, Africa, and the Middle East. This section reports on findings obtained based on the initial research questions set as illustrated in Appendix. The selected articles discussed the types of coping employed, issues revolving around the coping strategy used, and the association it has on the mental health of PLHIV within the LGBTQ population.

Coping strategies employed by the LGBTQ people with HIV/AIDS

Positive coping strategies

There are various positive coping strategies identified. Positive emotional-focused, religious and spiritual-focused, behavioral-focused, and cognitive-focused coping strategies were exercised by PLHIV in the articles reviewed. A total of nine articles discussed the use of emotional-focused coping strategies. Six articles reported peer and social support coping strategies as one of the positive coping mechanisms employed by LGBTQ members. Studied participants were found to seek support groups and self-help networks to obtain emotional support (article 9, 11, and 15,) socialize (article 16), obtain psychoeducational input (article 2), and modeling opportunities (article 2). Self-acceptance of the diagnosis given (article 2, 12, and 15) and using a professional support system such as counselors, psychiatrists, and primary healthcare providers (article 5, 11, and 15) were also observed in three different articles as one of the coping strategies employed. The use of humor (article 15) and being altruistic towards other community members (article 16) were observed as part of emotional-focused coping strategies adopted by PLHIV in this community.

Religious and spiritual-focused coping strategies were reported in five literature reviewed. Participants would seek solace and guidance on their spiritual belief or faith through re-engagement and recommitment to the spiritual and/or faith practices (article 4, 7, 11, 14, and 15). Some participants also reengaged their faith community to solidify their commitment,

providing and obtaining forgiveness for themselves and other community members (article 7).

Behavioral-focused coping strategies were observed in eight articles. Planning (article 13 and 15) and being proactive (article 9) were forms of behavioral active coping strategies used to manage the stressor faced by the participants. Three articles discussed the use of self-disclosure of their HIV status to family members, friends, and loved ones (article 1, 2, and 3). Other literature highlighted practicing safe sex with committed or casual sexual partners (article 3), the use of online resources to obtain information about the disease and its management (article 6), and balancing and managing health needs (article 11) as the employed behavioral strategies.

The use of cognitive-focused coping strategies were discussed in four articles. Participants were found to adopt a cognitive-based active coping by adopting a positive attitude (article 11), reappraisal technique, challenging thoughts (article 13 and 15), and resilience (article 9) to overcome their difficulties with challenges faced; both as a sexual minority and HIV/AIDS patients. Other positive coping strategies observed were dependency on legislation and policy set by the authority to protect their interest (article 2).

Negative coping strategies

Behavioral-focused coping strategies were the most used negative coping strategy observed among the studied participants with a total number of eleven articles highlighting the use of it. Safety behavior was reported in five articles (article 5, 10, 11, 12, and 16) where participants would resort to non-disclosure or selective disclosure (article 11 and 16) of their HIV status to people in their life, social circle, potential partners, and work relations as a general caution to avoid mistreatment, judgment, rejection, and isolation. Four articles (article 1, 4, 8, and 15) reported substance use as the coping strategy used. Substances such as alcohol and drugs were used to help the participants to deal with the stigma faced. Alcohol consumption was also used to enhance sexual performance and positive emotions of the participants in facilitating their sexual experience and encounters (article 8) including as a means to distract the user from engaging in thinking about their issues.

Four articles highlighted dissociation and avoidance behavior (article 5, 11, 15, and 17) as negative coping strategies. Participants reported concealment of behavior including social self-quarantine and behavioral disengagement (article 5 and 15), avoidance of dealing with minor day-to-day stressors (article 11 and 17), and self-distraction (article 15 and 17) resulted from internalized and externalized stigma imposed on them. Meanwhile, practicing

unsafe sex (article 3 and 10) was reported in two articles of reviewed literature. Unsafe sex such as unprotected anal intercourse (UAI) is one of their ways to secure acceptance and connection that resulted from a lack of self-respect, trust, and intimacy issues faced.

Cognitive escape (article 15 and 17) was the only cognitive-focused strategy found in the literature reviewed. This strategy was exercised through the manifestation of emotion-focused and behavior-focused coping such as self-blame, denial, venting (article 15), and usage of drugs during sex (article 17) as means to cognitively escape from current issues at hand. Religious or spiritual-focused coping strategy was not used as a negative coping in all of the literature reviewed in this study.

Issues related to the choice of coping strategies

Stigma and discrimination, fear, self-concept, knowledge level and protective factor, risk-taking behavior, and accessibility were the six issues that influenced the adoption of various coping strategies for LGBTQ people with HIV. Many articles focused on the issue of stigma and discrimination. Twelve articles (article 1-3, 5 ,7-12, 14, and 16) discussed the issue of internalized (article 1, 2, 5, 9, 11, and 12) and externalized (article 2, 8, 9, and 10) stigma because of being HIV-positive. Out of those twelve articles, five articles highlighted participants experienced double stigma (article 3, 7, 9-11, and 14) from their HIV status and sexuality. The felt stigma or internalized stigma accompanied by enacted stigma or externalized stigma in the form of tacit discrimination were highlighted by four articles reviewed (article 2, 8, 9, and 16). The public's perception and schema based on the negative association of HIV being a punishment to the immoral and unacceptable norm of behavior led to enacted stigma (article 1, 2, 9, 10, 11, 14, and 16). The enacted stigma could materialize in the form of subtle rejection and social exclusion (article 9, 10, 11, 14, and 16) or physical behavior such as abuse and violence (article 9 and 10).

The second issue that emerged is fear. Nine articles (article 3, 7, 10-13, and 15-17) identified various types of fears experienced by the participants in dealing with their daily life as HIV-positive people. For example, avoidance behavior (article 7, 11, 15, 16, and 17) in the form of disengagement towards subscribed faith and social circle to minimize conflict, animosity, and stress were reported to be present among the participants. The need to be accepted by family, friends, partners, and society were other fears faced as revealed in article 3, 7, 10, and 16 where the need for social acceptance and support system are important to those who suffer from HIV. Other forms of fears were observed such as a sense of insecurity in a romantic relationship to discuss their HIV status and sexual practices with a partner (article 3) especially when the relationship starts to get more serious (article 16); the potential

mistreatment from healthcare providers as they cannot hide their HIV status (article 16); and having to adapt and adjust with the diagnosis, changes in lifestyle (article 12) and changes in life goals (article 13).

Self-concept is the third issue observed, being highlighted in six articles (article 1, 3, 7, 10, 11, 13, and 15). Participants reported having negative affect such as feeling guilty, shameful, and hopelessness (article 1, 7, and 11), negative social interaction, and devaluing personal worth due to fear of seclusion (article 10). Competency in meeting basic needs such as worrying about having the personal resources and economics to manage the disease (article 3), adjusting life goals (article 13), and having control over their decision and what happens to them (article 15) were significant challenges that they have to deal with which amplifies the negative perception of their self-concept. Another challenge faced by PLHIV was the impact of their knowledge level and protective factors on the efficacy of the coping strategies employed as highlighted in five of the articles (article 3, 4, 14, 15, and 17). Insufficient level of knowledge (article 3) in sexual education may influence how a person engages in sexual practices and their risk factors. It was also noted that the level of education did not necessarily relate to a person's tendency in employing coping mechanisms such as religious coping (article 14). The same can be said for protective factors concerning other negative behaviors such as substance use (article 4) or maturity (age) with religious coping as a choice of coping strategy (article 14). However, it was highlighted that some protective factors such as level of personal mastery (behavioral or emotional) and cognitive escape would influence the effectiveness of stressors management and minimizing negative effects or risks (article 15 and 17).

The last two issues are risk-taking behavior highlighted in three articles (article 4,8, and 10) and accessibility identified in two articles (article 5 and 6). Risky behavior such as substance abuse (alcohol and drug use) to enhance positive emotion in facilitating sex (article 4 and 8) increases the probability of cross-infection to HIV-negative partners, on top of precipitating and perpetuating more substance-related problems (article 8). The need for acceptance and connection felt by PLHIV induced risky sexual practices such as UAI and high-risk activities. Accessibility to resources in helping PLHIV to cope better is the final challenge identified. Access to professional and expert knowledge such as therapist or counselor, primary health care provider and social support group would help in securing emotional and informational support for PLHIV (article 5 and 6). Accessibility issue also refers to the ease of obtaining credible, trustworthy, and latest information to ensure correct and reliable information are properly consumed and practiced (article 6).

Association of the chosen coping strategies on their mental health

Favorable psychological association with their mental health

Emotional-focused coping through family and social support (article 2, 3, 5, and 9) reported having the most favorable association on participants' mental health. Increased level of self-confidence and autonomy, sense of camaraderie and social identity, development of self-competence, optimism and purpose in life, improvement in the quality of life, reduction of stress, better management of loneliness, and finding peace were the outcomes from the chosen coping strategy. The use of online resources and social media (article 6) as a form of instrumental support coping strategy had resulted in higher self-control and personal growth, increased the sense of community, improved competence, avoidance of risky behavior, and better management of loneliness. Self-acceptance coping (article 2 and 12) reported positive associations on mental health such as better self-control and personal growth, problem-solving ability, increased self-confidence and autonomy, and development of self-competence, purpose, and optimism. Article 16 reported positive outcomes on developing social identity, a sense of camaraderie, and increased self-worth and value among those who exercised altruistic coping mechanisms.

Two articles (article 7 and 14) reported religious/spiritual-focused coping helped in building higher self-confidence and autonomy, developing a sense of camaraderie and social identity, and increasing self-worth and hope. On the other hand, cognitive-focused coping such as resilience generated positive mental health outcomes in the development of self-competence and usefulness, improvement in problem-solving ability, managing loneliness, and increased in self-worth as reported in two articles reviewed (article 9 and 11).

Whereas behavioral-focused coping such as active coping strategy (article 9, 11, 13, and 15) had shown to assist in managing depression and anxiety symptoms other than improving emotional stability and increasing self-control and personal growth. Similar to social support coping strategy, active coping also helped PLHIV to obtain a higher sense of self-confidence, autonomy, and overall improvements in the quality of life. Finally, self-disclosure coping promotes the improvement of self-confidence and autonomy for PLHIV as reported in article 11.

Unfavorable psychological association with their mental health

Behavioral-focused coping had the most unfavorable psychological association followed by emotional-focused coping while cognitive and religious/spiritual-focused coping reported not

to have unfavorable outcomes experienced by the participants. Self-disclosure coping strategy (article 1, 3, and 5) reported the greatest number of unfavorable outcomes for PLHIV. The articles reported participants experiencing a higher level of anxiety, stress, depression, rejection, loss of social support, fear of seroconversion, emotional detachments to love ones, sadness, mental distress, worthlessness, and guilt. Avoidance and safety behavior coping followed second with six reviewed articles (3, 5, 10, 12, 15, 16, and 17) reported similar unfavorable outcomes like self-disclosure with elevated stress, depression, rejection, loss of social support, sadness, mental distress, worthlessness, and guilt. The coping strategy also resulted in a higher tendency of suicide risk and lower mental health-related quality of life.

A specific finding was reported on risky sexual behavior as an avoidance strategy where it was found to inhibit intimacy level with their partner and lowered a person's self-respect and self-value as identified in the article (3 and 10). Meanwhile, coping through substance use (article 1, 4, 5, and 8) also shared similar unfavorable outcomes as the first two coping strategies mentioned earlier. Participants reported higher suicide risk, developing depression, anxiety, experiencing rejection, worthlessness, and guilt. Unlike other coping strategies, it was found that coping through substance use resulted in hostility and work problems. Finally, rejection was reported as an unfavorable outcome for online and social media coping in article 6. Self-disclosure, online and social media coping were the only strategies that had both favorable and unfavorable outcomes in this systematic review.

Discussion

Coping strategies employed by LGBTQ people living with HIV/AIDS

From the reviewed literature, it was concluded that there are two groups of coping strategies employed by PLHIV among the LGBTQ community; positive and negative coping strategies. The classification of these two groups was based on the associated probability of adopted coping strategy with the desired outcomes where a positive coping strategy would have a higher association towards a positive outcome, and vice versa (Day & Livingstone, 2001; Dempsey, 2002; Heffer & Willoughby, 2017). The articles in this review indicated a higher preference for positive coping strategies as opposed to negative coping strategies. Such finding is consistent with current literature that suggested a higher tendency of positive coping strategy usage in dealing with stressors in life (Cornish et al., 2017; O'Brien et al., 2019).

Social support, religious/spiritual, and active coping appeared to be the main choice of positive coping strategy; while safety behavior, substance use, and avoidance were the most adopted negative coping strategy. The use of social support, active coping, and religious/spiritual coping enable the user to be empowered to take control of their circumstances in dealing with various stressors such as stigmatization and discrimination towards being HIV-positive and part of the LGBTQ group (Dalmida et al., 2013; Liboro & Walsh, 2016). Having said that, the application of religious/spiritual coping should be taken with caution as it may not represent the whole spectrum of the LGBTQ community since the sample group used for the majority of the articles were mainly gay participants. There is an opportunity to further discover the use of online knowledge and social media as a coping strategy among this population since the internet and online platform have become more accessible in this technological age.

The use of negative coping strategies such as safety behavior, substance use, and avoidance coping were associated with fear, stigma, and discrimination faced by PLHIV for their seropositive status and sexual identity. The overwhelming experience of being diagnosed with HIV, the negative connotation of the disease perceived by the surrounding community, and the uncertainty placed onto those who live with the diagnosis leads to substance usage, avoidance, and safety behavior (Berg et al., 2017; Cramer et al., 2015; Folkman & Lazarus, 1986). Findings from other literature reviews indicated that LGBTQ and HIV-positive people have a higher rate of abusing substances that may lead to various negative implications such as poor mental health well-being and risky behavior (Cramer et al., 2015; Hampton et al., 2010; Skeer et al., 2012) which raise an interesting observation on the role of double discrimination and stigma (Bogart et al., 2010) on this population as compared to the heterosexual group which made them more susceptible towards misusing substances. It is also worth noting that despite the negative connotations of religion towards LGBTQ acceptance, this coping strategy was not adopted as a negative coping option among the community. Further research can be done to understand this phenomenon better to discover the perspective of blaming and locus of control among this sidelined community.

Issues related to the choice of coping strategies

Stigma and discrimination became the key issues faced in most of the literature reviewed. Internalized stigma appeared to be significantly present. However, there is a possibility of enmeshed factors of external perception, the incident of discriminations that fortifies the belief, complex social structure, and lower awareness (Arnold et al., 2014; Haile et al., 2011; Tao et al., 2017) which may intensify negative self-attribute of PLHIV (Henkel et al., 2008; Voisin et al., 2013).

For example, in a society where religion is highly dominant that it cannot be separated from the majority of the population (Aminnuddin, 2020), negative coping strategies such as non-disclosure and concealment of behavior would be the preferable choice, being influenced by fear of reprisal and exclusion. The result of this review alluded that stigma plays a crucial element in the choice of coping strategy adopted by the participants. It is seen as the stem of other issues such as fear, poor self-concept knowledge level, protective behavior, and risk-taking behavior.

However, further research needs to be done to establish the certainty of the accessibility issue towards the credibility and latest information given the fact that there are more available resources in various channels in recent years compared to before. Small sampling size recruited for the said article (article 6) may also contribute towards biases on arriving at such a conclusion.

Association of chosen coping strategies on their mental health

The choice of coping strategy made by participants does not necessarily lead to the desired psychological outcome. Although it can be concluded from the review that a negative coping strategy would have a higher likelihood of an unfavorable psychological outcome, the same conclusion cannot be made for a positive coping strategy as it may lead to either favorable or unfavorable psychological outcomes depending on how an individual chooses their coping strategy to respond with the type of stressor. If a positive coping strategy is used on an unchangeable stressor, a negative psychological effect may take place hence, making it maladaptive. This is consistent with previous studies that suggested the “goodness of fit” of coping strategy against the type of stressor that will influence the psychological outcomes (Allen & Leary, 2010; Folkman & Moskowitz, 2004; Sikkema et al., 2008).

The result from the systematic review indicated online and social media support and self-disclosure coping strategies can either yield desirable or undesirable outcomes on their mental health. Online platforms provide PLHIV with faster access to information and reach to the community versus conventional ways. This expedites their ability to procure information and knowledge to equip themselves in better care of their health, sharing with peers and providing support to each other virtually (Mo & Coulson, 2010a; Perazzo et al., 2017).

The virtual environment can act as a protective factor for those who are slowly trying to gain trust and acceptance with others compared to physical socialization which can be overwhelming for those who are still adjusting to their current diagnosis. Thus, helping PLHIV to obtain higher self-control and personal growth, increase the sense of community, improving competence, and avoidance of risky behavior (Courtenay-Quirk et al., 2010; Mo &

Coulson, 2008, 2010b; Perazzo et al., 2017). However, the discreetness and slower pace of adjustment available through social media and online resources also serves as a double-edged sword as the sense of anonymity could also empower people to behave negatively and inconsiderable towards others or engage in risky and compulsive sexual behavior (Rhodes et al., 2007) and rejection from the potential partner (Courtenay-Quirk et al., 2010).

Similarly, self-disclosure coping strategy appears to be a double-edged sword as there are multiple factors in play that may lead to both favorable and unfavorable outcomes. Double stigma and discrimination play an important success factor in self-disclosure and its impact on the well-being of an individual (Cramer et al., 2015; Dalmida et al., 2013; Lowther et al., 2014; Vreeman et al., 2013). The pre-conceived notion that HIV is a punishment towards sexual orientation and moral values subscribed by the society becomes a barrier towards acceptance and embracement of PLHIV and the LGBTQ community (Bird & Voisin, 2013; Land & Linsk, 2013; Liboro & Walsh, 2016). Such findings suggest the coping strategy chosen should be carefully thought and addressing the right stressor instead of inferring all positive coping strategies will help to resolve issues faced and improve the psychological well-being of an individual.

The presence of social support provides PLHIV a sense of belonging, worthiness, and purpose in life, which enables them to be productive members of their community and function effectively in their daily life. This resulted in positive outcomes on their mental health where they can obtain better self-confidence, autonomy, self-competence, optimism, lower level of stress and loneliness, development of social identity, and ultimately better quality of life (Berg et al., 2017; Slater et al., 2013).

This review discovered that only active coping strategy reported having a positive outcome on depression and anxiety symptoms. This could be very well related to the mechanics behind the coping strategy that utilizes cognitive skills in managing stress factors. A person's ability to cognitively evaluate and appraise their stressors would result in better management of emotional and behavioral outcomes (Fumaz et al., 2015; Li et al., 2017). Avoidance and safety behavior coping strategy often create a temporary comfort towards the stressors faced but does not resolve the stressors in the longer run.

The act of avoidance and safety behavior only serves as an escape form to the issue and reintroduction to the same stressor repeatedly will eventually amplify and put a strain on the person's mental health. The result of reviewed studies has shown that the misuse of substances is associated with various physiological and mental health issues. The majority of the literature concluded that substance usage has a significant impairment on a person's

cognitive and emotional ability which resulted in various behavioral and physical complications including increased risk of seroconversion (Devlin et al., 2011; Fumaz et al., 2015).

Limitations and future research suggestions

The study presented with some limitations where the scope of the study selection was delimited to the LGBTQ population without considering men who have sex with men who might not identify themselves as part of the LGBTQ community. Next is the exclusion of studies that were published in other languages due to the language capability barrier in translation resources. Another limitation in this study is the age group. The research was focused on people within the age of 20 to 39 years old that represent the largest age group of people infected with HIV/AIDS.

Consideration to include men who have sex with men, studies that were published in other languages, and expansion of the age group would help to generate wider understanding and strength on the subject for future research. Future research should consider expansion of geographical representation for replication would be beneficial to extend the current body of knowledge into other regions such as Asia, Middle-east, and Africa. Expanding the sample size for both qualitative and quantitative studies would also help to bring better representation for each sub-group of the LGBTQ population. It was observed that online coping through the use of social media and the internet was not widely explored, suggesting an opportunity for further research to be done on the role of online coping strategy given the advancement of technology and accessibility to such platforms in recent years.

Conclusion

The findings illustrated an intricate relationship between the coping strategies used and issues that enable the choice of coping strategies adopted which will influence the mental health state of the individual. It is becoming evident that stigma plays an important role in determining the choice of coping strategy. The impact of double stigma amplifies the challenge faced by the community to deal with their HIV diagnosis and this had a significant influence on their mental health and wellbeing. Both positive and negative coping was present as a mode of coping strategies employed with positive coping being used more as a chosen strategy among participants in the reviewed articles.

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Appendix

Included studies

(Study Number) Author Details	Location	Study Design/ participation sample	Coping strategies employed	Issues related to coping strategies	Outcomes on mental health
(1) Cramer et al., 2015	USA	1. N = 216 (HIV-positive LGB Adult, 80% primarily male) 2. Quantitative study.	1. Self-disclosure on HIV serostatus 2. Substance-related coping (alcohol and drug abuse)	1. Internalization of a negative self-concept, stigma and negative social beliefs on HIV-positive status 2. Potential substance use where suicide proneness may be elevated	1. Disclosure resulted in greater levels of stress. 2. Depressive symptoms and suicide risk. 3. Higher risk for facing stigma, rejection, or loss of social support.
(2) Arístegui et al., 2018	Argentina	1. N = 35 (18 gay men and 17 transgender women based on HIV status and sexuality) 2. Qualitative study	1. Self-acceptance and disclosure 2. Support of peer groups and self-help networks and/or activism- modeling and psychoeducation. 3. Dependency on law and regulation	1. Stigma and discrimination faced by external and internal sources 2. Social (public) visibility on the issue presented	1. Self-acceptance allows better control over their lives 2. A greater sense of self-confidence and strength to continue forward 3. Develop a sense of self-competence, usefulness, and provided a purpose in life.
(3) Flores-Palacios & Torres-Salas, 2017	Mexico	1. N = 8 (Gay HIV-positive men) 2. Qualitative study.	1. Self-disclosure 2. Both safe and unsafe sexual practice	1. Disclosure to other family members generated more anxiety and stress especially the father figure. 2. Double stigma and discrimination 3. Worry about the economic and personal resources 4. Sense of security to discuss serostatus, condom usage, and fear of contagion. 5. Sexual education level, fear of seroconversion, self-respect, trust, and intimacy issue in influencing sexual practices.	1. Support from a family member and loved one helps reality facing and acceptance 2. Self-disclosure generated more anxiety and stress 3. Fear of seroconversion prevents sexual enjoyment 4. Hiding serostatus can result in emotional detachment in a relationship or intimacy or developing risky sexual behavior 5. The double stigma and discrimination influence the level of self-respect and self-value.
(4) Hampton et al., 2010	USA	1. N = 259 (Gay, Bi, and Transmen of both HIV serostatus) 2. Quantitative study.	1. Religious coping 2. Drug (substance) use	1. Substance use increases the likelihood of HIV seroconversion through sexual risk-taking 2. Religious coping does not become a protective factor in negative coping such as substance use.	1. Those who reported substance (using Viagra) use also reported higher levels of hostility, anxiety, and depression 2. There is a moderate relationship between religious coping and active coping.
(5)	USA	1. N = 129 (MSM HIV-	1. Professional and informal	1. Internalization and fear of	1. Stigma, concealment, and social

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Berg et al., 2017		positive men - 129 for quantitative and 20 for qualitative). 2. Mixed-method study.	support 2. Dissociation and escape behavior 3. Nondisclosure of serostatus	humiliation and rejection from enacted subtle stigma and rejection from friends and potential partners. 2. Accessibility to professionals and other social support groups for both emotional and informational support.	isolation caused considerable mental distress and depression 2. Social support functioned as a buffer, reduced distress, and enhanced quality of life. 4. Talking about HIV with somebody else rewards a sense of closeness and reduces distress.
(6) Courtenay-Quirk et al., 2010	USA	1. N = 63 (HIV-positive gay or bisexual men, heterosexual men & women, transgender women) 2. Mixed-method study.	1. Online Information seeking	1. Difficulty in finding resources online 2. Websites information trustworthiness and credibility 3. Concerns on online privacy, or personal information being misused by others 5. Alternate needs beyond information gathering to make a social connection with other PLHIV	1. Online social connections may increase risky sexual behavior. 2. The online platform serves as an avenue to manage loneliness, dating, information, and resource sharing 3. May benefit users to self-monitor health-related behaviors 4. Allows access to social support
(7) Smith et al., 2017	USA	1. N = 20 (Christian-identified HIV-positive gay males) 2. Qualitative study.	1. Spiritual and religious coping	1. Questioning faith and belief 2. Detachment from faith practices 3. The feeling of shame or guilt or hopelessness 4. Rejection by the church	1. The feeling of hope found in spiritual being and practices 2. Re-engagement with community 3. Increase in self-worth and value 4. Reconnection with spiritual being and/or organized place of worship
(8) Wray et al., 2016	USA	1. N = 185 (Heavy drinking, HIV-positive MSM) 2. Quantitative RCT study.	1. Alcohol use	1. Discrimination associated with drinking alcohol and facilitating sex. 2. Alcohol consumption to improve positive emotions and to improve sex 3. Increased patterns of alcohol use were associated with experiencing more alcohol-related problems	1. Various alcohol-related problems, including guilt, issues at work, or hospitalization for alcohol consumption. 3. Anxiety on finding partners—concerns with possible rejection due to serostatus, may resort to alcohol consumption to ease the anxiety
(9) Logie et al., 2011	Canada	1. N = 104 (HIV-positive women (Lesbians, Transgender & ethnic minorities) 2. Qualitative study.	1. Resilience 2. Social support 3. Challenging stigma	1. Intrapersonal levels of stigma including intense shame and internalized stigma may cause concealing serostatus 2. Enacted stigma makes it harder to be resilient and obtaining social support. 3. Stigmatizing community and	1. Resilience helped improve optimism, determination, tenacity, spirituality and problem-solving ability 2. Support groups help with intrapersonal stress, feelings of isolation, experience sharing and learning

				social norms construct sexual minorities as ‘‘demonic’’ and HIV as a ‘‘gay disease.’’	3. Challenging stigma gives the power to speak up to others 4. Nondisclosure caused intrapersonal stress
(10) Arnold et al., 2014	USA	1. N = 31 (52% HIV-positive MSM and 48% HIV negative African American men) 2. Qualitative study.	1. Nondisclosure of serostatus 2. Unsafe sex practice	1. Being rejected by family members and violent comebacks from people caused status nondisclosure 2. The threat of damaging gossip often caused social and physical rejection 3. HIV’s relationship with death and sickness catalyzed fueled insults from others 3. Using unsafe sex as a strategy to manage estrangement	1. Lost of social belonging, subjected to violence, physical and emotional rejection 2. HIV’s relationship with death and sickness causing mental distress and fear of rejection. 3. Fear of losing intimacy and acceptance from their partners through safe sex
(11) Liboro & Walsh, 2016	Canada	1. N = 9 (Gay Catholic HIV-positive men) 2. Qualitative study.	1. Affirmative and proactive attitudes 2. Managing and balancing health needs 3. Social and professional support 4. Religious coping 5. Avoidant coping 6. Selective disclosure	1. Choosing battles to fight and to minimize conflict and resentment in life. 2. The struggle of choosing between life and dreams versus giving up on life because of HIV/AIDS. 3. Recognizing that their faith is placed in God and not in people. 3. Recognizing changes occurring in Catholic churches over time to instill a sense of hope within the Catholic institution and its communities.	1. Increased autonomy through selective disclosure could be considered a form of denial 2. Active coping strategies improve emotional stability 3. Resilience building through increasing believes in spirituality and faith improves a sense of self, loneliness, and solace. 4. Increased self-confidence and proactiveness helped in increased social connection and belongingness and the ability to cognitively challenge thoughts and priorities.
(12) Flowers et al., 2011	Scotland	1. N = 14 (HIV-positive gay white men) 2. Qualitative study.	1. Sense of adjustment and self-acceptance 2. Nondisclosure of serostatus	1. HIV diagnosis and related prognosis may cause an intense sense of the struggle with identity confusion 2. The effect of a stigmatizing aspect of diagnosis may trigger safety behavior to avoid potential rejection from others 3. The ability of significant others to look past the HIV label to give a	1. Diagnosis period was associated with an intense period of a mental health crisis 2. Nondisclosure sometimes led to suicidal ideation and self-abandonment 3. Acceptance enables change about the diagnosis and relationships and life appreciation appraisal

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				sense of enduring self and support making positive changes in the present	4. Promising new treatments improve optimism leading to adaptation of a healthier lifestyle, wholeness, and honesty
(13) Kraaij et al., 2008	Netherlands	1. N = 104 (92% Gay, 8% Bisexual HIV-positive men) 2. Quantitative study.	1. Positive cognitive coping strategies	1. Higher belief on the ability to adjust goals when important goals are obstructed by being HIV-positive determines levels of personal growth.	1. Positive coping helps with personal growth improvement and reducing anxiety and depression symptoms
(14) Suzuki-Crumly et al., 2010	USA	1. N = 395 (41.8% HIV-positive Gay men and 66.6% straight men) 2. Quantitative study.	1. Religious or/and spiritual cope	1. No path between age and religious activities was significant for homosexuals 2. The level of education does not relate to spirituality or religiosity for gay people 3. Some experienced discrimination from religious groups that consider HIV as being a punishment from God	1. Homosexuals participating in religious activities reported more social support 2. Talking to friends and family about spiritual and religious matters as well as attending religious gatherings would result in greater social contact
(15) Gibson et al., 2011	Canada	1. N = 758 (LGB – 67%, HIV-positive) 2. Quantitative study.	1. Active coping 2. Planning 3. Positive reframing 4. Acceptance 5. Humor 6. Religious 7. Emotional and instrumental support 8. Avoidance (disengagement, distraction and denial) 9. Venting 10. Substance use 11. Self-blame	1. PLHIV with high levels of mastery can reframe life challenges and remain hopeful when encounter challenging life situations, vice versa 2. A low sense of behavioral or emotional mastery is associated with higher use of avoidant coping behavior, damaging behaviors, and stimulate stress-related thoughts 3. The level of mastery would moderate the relationship between negative coping and stressors. 4. Individuals experiencing short-term and unmanageable stressors may gain short-term benefit from avoidance-based coping mechanisms, including self-distraction and venting	1. Positive coping is positively associated with better mental health status. 2. Life stressors can be aimed directly by reducing their scope or intensity on mental health using positive coping. 3. Negative coping is negatively associated with mental health status. 4. Higher level of personal control mastery indicates lower vulnerability towards the negative effect of life stressors.
(16) Takács et al., 2013	Hungary	1. N = 27 (Gay HIV-positive men) 2. Qualitative study.	1. Social support 2. Altruistic 3. Selective disclosure	1. Keeping secret causes stress 2. Concealment of serostatus becomes tricky when starting or	1. Keeping a secret helps sustain a person's social integrity and improves stress

				developing a serious relationship. 3. Impacted sexual life and practices (abstinence) to avoid disclosing their HIV status. 4. Various forms of hostility by healthcare providers towards PLHIV. 5. Changes in the size and intensity of social relationships and support from family and friends post-disclosure.	2. Feelings of isolation and loss of friendship due to trust issues. 3. Altruistic behavior in helping others to cope improves socialization and self-worth.
(17) Alvy et al., 2011	USA	1. N = 1540 (HIV-positive and negative MSM participants) 2. Quantitative experimental study.	1. Avoidant coping 2. Cognitive escape	1. Avoidant coping did not mediate sexual safety or transmission risk rather reflects a general response to stress. 2. Cognitive escape predicts sexual safety risks and controls for depression.	1. Depression level predicts avoidant coping level and self-efficacy level for sexual safety. 2. Self-efficacy and cognitive escape mediate the effect of depression on transmission risk. 3. Cognitive escape strategies will increase the level of depression and transmission risk.

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