RESEARCH ARTICLE

Concept analysis of self-control in the sexual behaviors of men who have sex with men

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ABSTRACT

Background: Self-control is an integral concept in understanding the sexual behaviors of men who have sex with men (MSM). It has varying definitions and descriptions which may affect its practical and scientific use.

Objective: To examine self-control in the context of MSM's sexual behaviors.

Methodology: Walker and Avant's concept analysis method was used to clarify the attributes, antecedents, consequences, and empirical referents of self-control.

Results: The attributes of self-control were recognition of sexual impulses, rationalization of sexual perceptions, and regulation of sexual behaviors. The antecedents of self-control were personal drivers, situational experiences, social linkages, and environmental structures. Self-control promotes empowered decision-making toward sexual behaviors and HIV risk reduction. Variations exist in how self-control is conceptualized and measured.

Conclusion: Self-control does not automatically mean inhibiting sexual urges and avoiding sexual engagements. It involves a conscious effort to make independent decisions over one's sexual thoughts, emotions, and actions.

Keywords: *concept analysis, men who have sex with men, health education, HIV prevention, self-control*

Introduction

Men who have sex with men (MSM) have varying sexual behaviors and practices [1,2]. Personal, socio-cultural, structural, and healthcare risk factors influence MSM's sexual knowledge, behaviors, and practices that can increase their HIV risk [3,4]. It is necessary to promote MSM's capacity to make self-directed decisions and actions toward their sexual behaviors and practices [2]. Self-control is an important determinant to empower MSM to lessen HIV risk, fight psychosocial harm and violence, and promote self-acceptance and role preservation [5]. It has promotive and protective effects on health and wellbeing [6,7] which must be integrated into HIV prevention studies and programs [8].

However, self-control has varying definitions, characteristics, and usage in different disciplines. Some concepts are interchangeably used to denote self-control. Some of the concepts associated with self-control are conscientiousness, power, regulation, and will [9,10]. Clarity of the meanings and characteristics of self-control would help understand its context in terms of MSM's sexual behaviors. Examining self-control can inform knowledge conceptualization, program implementation, and research development toward HIV risk reduction and sexual health promotion among MSM.

MSM's HIV Risks

The Joint United Nations Programme on HIV/AIDS (UNAIDS) reported that MSM is one of the most HIV at-risk populations. In 2018, MSM comprised approximately 17% of new HIV transmissions globally. MSM comprised the majority of new HIV cases in western and central Europe and North America (51%), Latin America (40%), and Asia and the Pacific (30%) regions [11]. Multiple factors affect MSM's risk of HIV. In a study in China, the prevalence of condomless sex among 225 newly-diagnosed HIV-seropositive MSM ranged from around 28% to 34% [12]. In a survey conducted in the capital city of

Cote d'Ivoire, about 31% of 585 MSM participants reported having three or more casual male sex partners in the past year [13]. Furthermore, MSM's engagement in condomless sex was associated with alcohol consumption in the past 30 days, a regular partner in the last 12 months, at least one casual sex partner in the previous 12 months, and low HIV risk perception [13]. Smith and Tasker's qualitative study described MSM's use of drugs during sex or 'chemsex' to increase sexual desires and feel a sense of acceptance and belongingness [14].

Social, cultural, and environmental factors also affect MSM's risk of HIV. MSM experience discrimination, stigma, and violence [13,15,16]. Barriers to effective condom use among MSM include inaccessibility to condoms and lubricants, inadequate knowledge of condom use, poor social relationships, socioeconomic vulnerability, and alcohol and drug use [17]. Fear and discomfort of sharing sexual practices and the negative attitude of health workers impede MSM's access to healthcare [16].

Descriptions of Self-control

Self-control has positive implications for individuals' physical and psychosocial health [7,9,10,18]. However, the concept has varying descriptions and definitions. In psychology, self-control is defined as the ability to resist temptations, delay gratifications, and regulate behaviors to achieve a specific goal [9,10,19]. Baumeister *et al.* described self-control as a capacity to change one's response by following standards such as ideals, values, and moral and social expectations [19]. In criminology, individuals with higher self-control levels are less likely to commit crimes than those with lower self-control levels [9,20].

This paper aimed to examine self-control in the context of MSM's sexual behaviors. A concept analysis was performed through a systematic review of literature to determine the attributes, antecedents, consequences, and empirical referents of self-control.

Methodology

Design

Walker and Avant's [21] concept analysis method was used to examine self-control in the context of MSM's sexual behaviors. Concepts, as building blocks of theories, are representations of thoughts and ideas that are useful to describe, examine, and validate phenomena. Inconsistencies and differences in how they are conceptualized and utilized have implications for their practical and scientific use.

Concept analysis is a step toward theory development [21] to elucidate how self-control is significant in HIV risk reduction and sexual health promotion among MSM. The steps performed in this analysis were: (1) selecting self-control as the concept of interest; (2) identifying the aim of this analysis; (3) identifying the uses of self-control; (4) determining the attributes, antecedents, consequences, and empirical referents of self-control; and (5) presenting model, borderline, and contrary cases. The analysis resulted in a conceptual model presenting how self-control is exhibited and formed and its impact on MSM's sexual behaviors.

Data Collection

The author conducted a systematic search of literature from January to March 2020. Electronic databases (PubMed, CINAHL, ScienceDirect, JSTOR, and SagePub) were searched using the following combination of keywords: “self-control,” “sexual behavior,” “sexual activity,” and “men who have sex with men.” A total of 1,772 records were retrieved. After the removal of duplicates, titles and abstracts of 1,702 records were screened for relevance. Eligibility criteria for papers to be included in this analysis were: (1) primary research studies (quantitative, qualitative, or mixed methods); (2) studies relevant to self-control and sexual behaviors; (3) studies involving the MSM population which include gay or bisexual men, cisgender men, heterosexual men, and transgender men; and (4) studies published in English. A full-text examination of 78 papers was done and the final analysis included 23 articles (12 quantitative and 11 qualitative studies) published from 1992 to 2019 (Figure 1).

Data Analysis

Thematic analysis [22] was used to analyze data. Initially, a table was devised to extract information about the study design, sample, data collection and analysis methods, findings, and self-control attributes, antecedents, consequences, and empirical referents. Data in the table were compared and validated against the articles to ensure accuracy. These steps helped the author attain familiarization with the data. Connections, differences, and similarities among pieces of data were determined and analyzed to identify relationships and patterns. The author performed an iterative process of reading and comparing patterns to identify and define emerging themes. Consultation with an expert in concept analysis was performed to enhance the clarity and comprehensiveness of this analysis. Finally, themes were reviewed, modified, and finalized in line with the steps of the analysis.

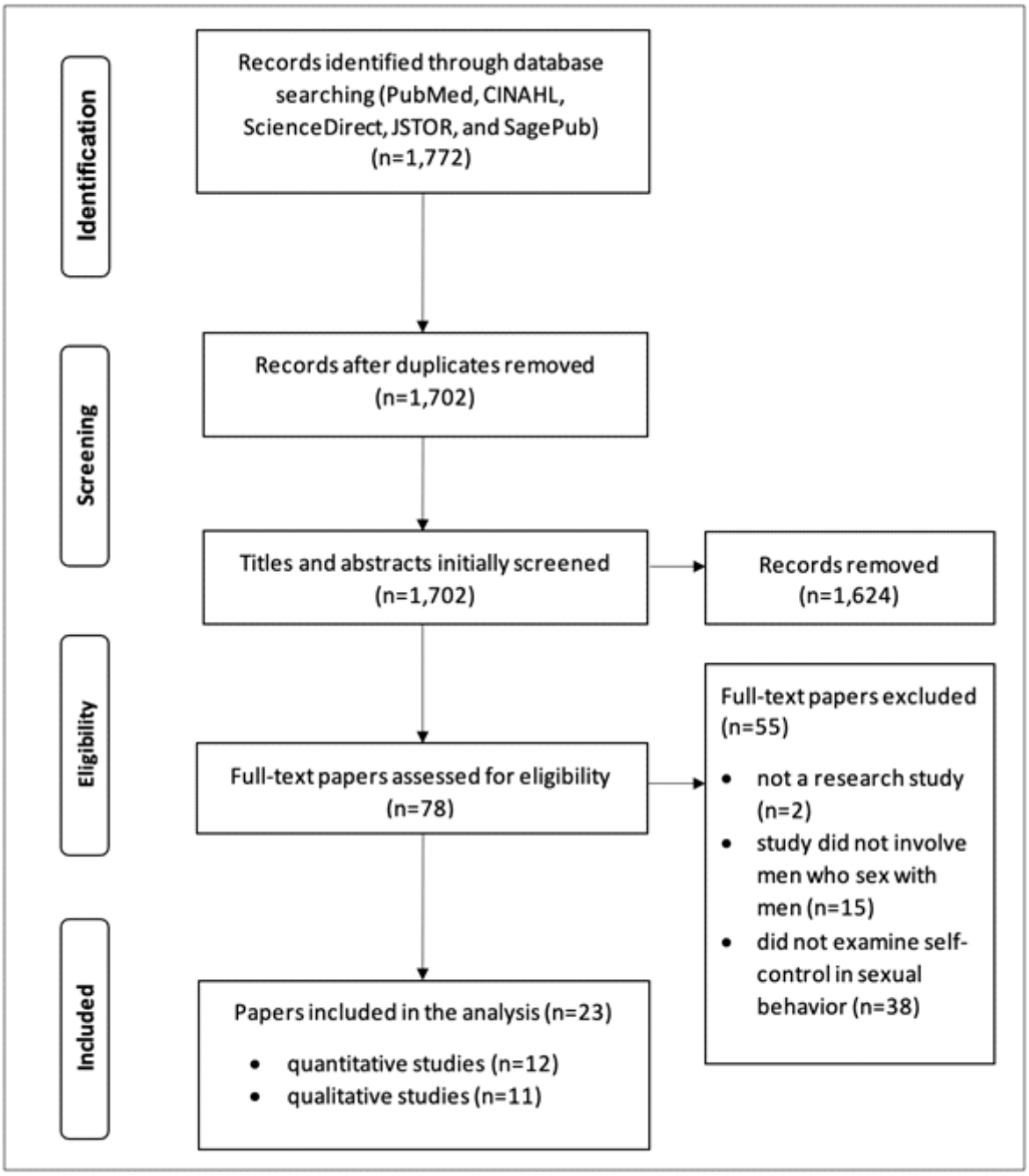

Figure 1. *Flow of Literature Search*

Results

Attributes of Self-control

Attributes are the defining characteristics of the concept. They are the heart of the concept analysis [21]. In this analysis, the attributes of self-control within the context of MSM's sexual behaviors were recognition of sexual impulses, rationalization of sexual perceptions, and regulation of sexual behaviors.

Recognition of Sexual Impulses

Two studies measured self-control as an awareness of sexual impulses [23,24]. Moods, locations, persons, substances, and situations trigger MSM to engage in sex [25,26]. Perceptions and interpretations of these sexual impulses permit MSM to control sexual engagement [25-28]. When sexual impulses are controllable, one can predict if sexual engagement will happen or not [25]. The feelings of sexual urges and desires signal one to be in control to make decisions about sexual engagement [29].

Rationalization of Sexual Perceptions

The second attribute of self-control is anticipating and weighing the possible consequences of sexual perceptions [24,30]. Personal responsibility for preventing harm to themselves and the social responsibility of protecting others from HIV transmission were considerations by MSM living with HIV regarding sexual engagement [31-33]. Fear of others discovering HIV status motivated MSM living with HIV to use condoms consistently [32]. MSM perceived lower HIV risk when they were the insertive partner and with a clean, fit, and healthy-looking partner [34]. Older MSM perceived HIV with less impact on their life, considering chronic illnesses related to old age [34]. MSM who ignored and justified the effect of online sexual behaviors were more likely to repeat the behaviors [35].

Regulation of Sexual Risk Behaviors

Self-control involves modifying sexual behaviors [23,24, 35-39]. It is the ability to control and mitigate risks in sexual engagements [28] and change sexual response [36]. Melendez-Torres *et al.* suggested that self-control mediates the relationship between drug use and sexual behavior [38]. In support, the cross-sectional study of Adam *et al.* [39], participated by 1,129 MSM, revealed that self-control attenuated the influence of sexual sensation seeking on condomless sex with casual partners. The interaction effect between sexual sensation seeking and self-control influences MSM's number of casual sex partners. Self-control acts as a protective mechanism to prevent or lessen one's tendency to engage in HIV at-risk sexual behaviors. In a randomized controlled trial, impulse-control self-efficacy was the only significant mediator between the HIV/STI risk reduction intervention and consistent condom use among African MSM [40].

Antecedents of Self-control

Antecedents are conditions that must be present before the concept's occurrence [21]. Multiple conditions emanate from individuals' characteristics, situations, and experiences and their social, cultural, and structural environment that led to the formation of self-control. Personal drivers generally include individual characteristics, goals, needs, and values. Age and education have significant associations with self-control [39]. More school years were associated with greater control over partner selection [28]. One study reported that MSM perceived condom-based risk reduction strategies as a hindrance to pleasure, adventurism, experimentation, and spontaneity [34]. MSM perceived HIV status in different ways. Some MSM perceived that a negative HIV status means a lower risk of acquiring HIV, resulting in increased sexual risk-taking [34]. For other MSM, HIV-negative status implies the need to maintain it and protect health [29]. A sense of social responsibility to protect others promoted condom use and lessened sexual engagements among MSM living with HIV [31,33]. Sexual engagements fulfill psychological needs such as self-esteem, self-worth, self-acceptance, and power [35,41].

Situational experiences involve events, incidents, and circumstances that influence how MSM elicit control over their sexual behaviors. Pornographic exposure [25,42), sexual identity and orientation quest [41,42], and childhood trauma [34] are experiences that influence self-control. The initiative to have HIV prevention conversations does not happen when one is already in the moment and heat of sexual encounters [29]. Drug use inhibits self-control [29,34,38], increases sexual pleasure, and relieves anxiety from perceived HIV risk [34]. Engagement in condomless sex is more likely to happen in times of depression, anxiety, and unemployment [34]. The inability to control online sex engagement is a manifestation of negative coping with stress, isolation, loneliness, depression, and anxiety [35]. Higher negative emotionality [24] and relationship problems [25] impair self-control. Financial needs are factors to passiveness in decision-making on condom use [43]. The study of Salmerón-Sánchez *et al.* revealed that male sex workers had a higher self-control failure of sexual impulses and behaviors than gay men who were not sex workers [44].

Social linkages including social networks, groups, and relationships, help MSM build and foster self-control [29,31,45]. Adam *et al.* found that self-control was significantly associated with a steady relationship [39]. Opportunities for MSM to communicate their thoughts and feelings, establish connections and relationships, and learn from others' experiences helped them reflect on their sexual behaviors and HIV risks [45]. Being a volunteer of an organization encouraged some MSM to change their sexual practices and consistently use condoms because the members reminded them about HIV risk reduction [31].

Environmental structures are the characteristics, resources, and policies of the environment that support self-control. Jemmott III *et al.* found that one-on-one sessions on HIV/STI risk reduction intervention significantly increased impulse-control self-efficacy [40]. Also, the intervention was found to have an indirect effect on consistent condom use through impulse-control self-efficacy. Locations such as a bar, commercial sex

venue, sex club, steam room, or sauna are triggering factors that reduce self-control [25,33]. Laws governing sexual practices drive MSM living with HIV to engage in HIV risk reduction measures to protect their sexual partners from HIV transmission [33].

Consequences of Self-control

Consequences are conditions that occur due to the occurrence of the concept [21]. In several papers, self-control promotes empowered decision-making toward sexual behaviors and HIV risk reduction. Diaz *et al.* reported self-control as a significant predictor of HIV risk among MSM [27]. Studies have shown that higher self-control is associated with a higher likelihood of having fewer sexual partners in the last six months [28] and 12 months [36,39]. Those with low self-control have greater difficulty staying faithful to their romantic partner [37]. In a grounded theory methodology, MSM with a low self-control expressed frustrations with the time and energy they spent while engaging in online sexual activities [35]. MSM with a lower self-control reported a higher number of hours spent on geosocial networking apps [36].

A higher level of self-control is associated with a lower likelihood to engage in condomless sex [27,39,43]. The study of Yeagley *et al.* revealed that young sexually active MSM with a lower self-control were more likely to engage in receptive condomless sex occasions in the last two months [30]. Miner *et al.* found that a lack of control over sexual behavior was a significant predictor of MSM's engagement in condomless sex with a discordant or unknown HIV status partner in the last three months [23]. Self-control enabled MSM living with HIV to resist sexual activity and be mindful of condom use [31,32]. In the study of Lichtenstein *et al.*, low self-control was a reason for young Black MSM to be passive in making decisions on condom use in sex with more masculine partners [43].

When self-control is initiated and exhibited, methods of HIV risk reduction are discussed, encouraged, and practiced. These practices include preventing ejaculation, refraining from anal penetration, stopping sexual activity, and having only one partner [32]. Other measures are withdrawal, making condoms accessible, insisting condom use, setting sexual limitations, and HIV disclosure [32]. A higher level of self-control is associated with fewer oral sex occasions, fewer HIV at-risk sexual activities, and lesser tendencies to use drugs [28].

Empirical Referents of Self-control

Empirical referents provide descriptions and methods of how concepts are referred to, defined, and measured to present their existence [21]. Table 1 shows the instruments used to describe and quantify self-control. There are variations in how self-control is measured in contexts, descriptions, terminologies, and item numbers.

Two studies used a single-item questionnaire to assess the level of control exerted during a sexual session [38] and

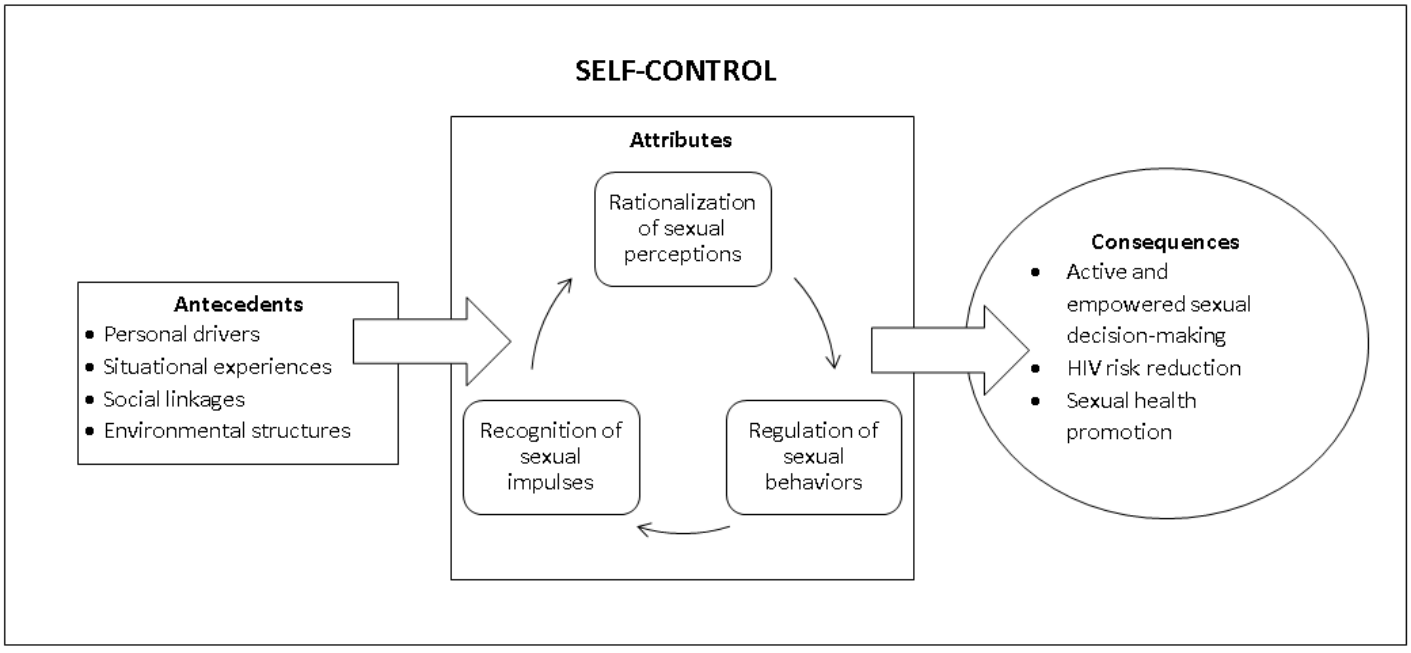

Figure 2. *Antecedents, Attributes, and Consequences of Self-control in the Context of Men Who Have Sex with Men's Sexual Behaviors*

perceived over risky situations [27]. Two studies [36,37] used the Tangney Self-control Scale, a 36-item instrument that generally measures a person's self-control. The majority of the studies used instruments to measure perception and exertion of control over sexual behaviors. Three studies [23,24,30] used the control subscale of instruments that measure the compulsiveness of sexual behaviors.

Some instruments measure self-control in specific sexual attitudes and behaviors. Wu *et al.* used a six-item scale to measure the confidence level to refrain from having concurrent multiple male sex partners under various difficult scenarios [26]. Jemmott III *et al.* used an instrument to measure the belief to control oneself to use a condom when sexually aroused [40].

Model, Borderline, and Contrary Cases

Table 2 shows three cases that illustrate the attributes of self-control. According to Walker and Avant, a model case shows all the concept's attributes. A borderline case shows most of the concept's attributes, while a contrary case does not present any of the attributes of the concept [21]. These cases are representations of the presence and absence of the attributes of self-control.

Discussions

Self-control is not merely inhibiting sexual desire or avoiding sexual engagements based on how it is commonly described [9,10,19]. It involves the dynamic interplay of recognizing sexual impulses, rationalizing sexual perceptions, and regulating sexual behaviors, similar to Duckworth *et al.*'s illustration of self-control [46]. This analysis suggests that through self-control, MSM can demonstrate the ability to determine sexual triggers of sexual engagements. Initiating and doing self-control involves anticipating, mitigating, and addressing possible HIV risks that can bring harm and threats to MSM. Furthermore, self-control optimizes MSM to understand and manage possible consequences of their sexual behaviors.

In this analysis, attributes of self-control have differences in how some of the papers described the concept. Self-control has been measured with instruments on compulsivity, impulsivity, or general self-control measure. Other studies have measured it with limited questions that might not reflect the wholeness of the self-control capacity. The diversity of instruments on how self-control is measured is a potential threat to the concept's practical application and examination regarding MSM's sexual behaviors.

Table 1. *List of Relevant Instruments that Describe and Measure Self-control*

Instruments	Description of instruments	Studies
Compulsive Sexual Behavior Inventory-Control Subscale	Coleman *et al.*'s [52] version has 28 items with 13 items to measure the sense of a lack of control over one's sexual behavior	Miner *et al.* [23]
	Miner *et al.*'s [53] version has a total of 22 items with 13 items that measure the difficulty of controlling one's sexual behavior	Miner *et al.* [24]
Control Scale	a one-item questionnaire with four responses that measure the level of control exerted during a sexual session	Melendez-Torres *et al.* [38]
Hypersexual Behavior Inventory-Control Subscale [54]	an eight-item tool that measures the level of control and perception related to sexual behavior and activity	Yeagley *et al.* [30]
Impulse-control Self-efficacy Scale	a scale that measures the belief to control oneself to use a condom sufficiently when sexually aroused	Jemmott III *et al.* [40]
Perceived Behavior Control Scale	a six-item scale that measures the level of confidence to refrain from having anal intercourse with other men who are not their male regular sex partner under various difficult scenarios	Wu *et al.* [26]
Perceived Sexual Control Inventory [28]	a 10-item tool that measures the ability to control sex drive and risk behavior	Adam *et al.* [39], Exner *et al.* [28]
Self-control Scale	a one-item questionnaire on perceived sexual impulse control in risky situations	Diaz *et al.* [27]
Sexual Compulsivity Scale [55]	a 10-item tool that measures failure to control sexual impulses	Salmerón-Sánchez *et al.* [44]
Tangney Self-Control Scale	a 36-item tool that generally measures self-control	Beymer *et al.* [36], Lehmiller and Ioerger [37]

Table 2. *Model, Borderline, and Contrary Cases*

Model case
• A 28-year-old partnered male receives an invitation from his friend to a birthday party. He decides to go to the event. Upon arrival, his friend introduced him to a guy he liked. They talk with each other while drinking a beer. The guy asks him to have another bottle but he refuses because he will still drive to go home. The guy asks him if they can go out after the party. He pauses and tells the guy that he cannot go because his partner is waiting for him.
Borderline case
• A 21-year-old male visits his partner at home. After dinner, they go to the partner's room and listen to music. Suddenly, they feel a romantic desire, start to kiss each other, and decide to have sex. He asks his partner to use a condom and lube. During their sex, his partner asks him to remove the condom to increase pleasure since their HIV test results last three months are non-reactive. He tries to refuse, but then his partner insists, and he passively agrees.
Contrary case
• A 24-year-old male uses a social dating application for an average of 60 to 120 minutes daily. He usually postpones some of his activities at work because of a strong desire to chat with guys, especially attractive ones. One day, his manager reprimands him because of poor work performance. He feels sad and stressed. Eventually, he opens a social dating application and decides to go to the place of a guy he never met before. Upon entering the house, the guy invites him to the room. The guy starts to kiss him and feels a strong sexual urge and desire. Eventually, they engage in condomless anal intercourse.

Determinants of Self-control

Personal drivers, situational experiences, social linkages, and environmental structures support and strengthen self-control. More than the assumption that self-control is influenced by the presence and socialization of parents and teachers during a child's development [20], individual experiences and the social, cultural, and structural environment should be considered to obtain a holistic perspective of MSM's self-control. Along with these, advancements in HIV prevention and management must be considered on how they affect MSM's self-control and sexual behaviors.

The UNAIDS [47] campaigned the concept of undetectable equals untransmittable, emphasizing the importance of achieving HIV viral suppression to undetectable levels to prevent and reduce HIV transmissions. Adherence to antiretroviral therapy (ART) plays a significant role in achieving HIV viral suppression among persons living with HIV [48]. The use of pre-exposure prophylaxis (PrEP) is an effective and safe method to prevent HIV transmission [49]. These developments must be incorporated into studies and interventions on MSM's sexual behaviors and self-control.

Promotion of Self-control

Self-control positively influences MSM's sexual behaviors. Integrating self-control in intervention development would help MSM assert autonomy, decision-making, and power over their sexual behaviors. Behavioral and psychosocial interventions may help in the promotion of MSM's sexual health. Educational and counseling interventions on self-control can offer a specific, beneficial, and relevant strategy for assisting MSM in regulating sexual behaviors.

A safe environment where MSM can openly discuss their sexual concerns, identities, and behaviors without prejudice and stigma is helpful to identify what support they will need [50] which can build and strengthen their self-control. Social networks and groups are essential sources of knowledge on HIV risk reduction among MSM [51]. Childhood experiences and significant life events must be considered to examine self-control and sexual behaviors [42].

Limitations

This concept analysis was primarily done through a systematic review of literature using online databases. It included works published only in English. This analysis focused on MSM who have different sexual behaviors and self-control capacities from other key populations. Along with this, specific characteristics of the MSM population were not indicated in the selection of papers. In this case, MSM populations varied in terms of sociodemographic and behavioral characteristics. This analysis found variations in the instruments used to describe and quantify self-control.

Recommendations

This analysis presents a conceptual model to understand the role of self-control in MSM's sexual behaviors. The attributes of self-control in this analysis can be used as specific constructs in developing an instrument to measure self-control in the context of MSM's sexual behavior.

However, social and cultural backgrounds and characteristics must be considered to generate instrument items that show congruency with self-control and cultural-appropriateness for MSM population.

Further testing and validation are valuable to refine and expound the model. These steps should consider the expanding developments in HIV prevention and the emerging trends in sexual behaviors among the MSM population. Quantitative methods can help determine the associations between the influencing and outcome variables of self-control. They can assist in identifying strong predictors of self-control which can be the focus of health education and counseling among MSM. In different settings, MSM population can have different perspectives and understanding of self-control. MSM's interaction with their social, cultural, and healthcare environment can influence how they define and contextualize self-control in line with their sexual behavior and sexual health. Qualitative methods can help ground the meaning of self-control among the MSM population. These designs can help explore views, practices, and values of self-control, especially among subgroups of MSM.

A prescriptive approach to delivering health education on HIV risk reduction might not be beneficial and supportive for MSM. This analysis indicates that healthcare providers must strive to provide education and create an environment conducive to strengthening MSM's self-control. Opportunities for MSM to safely express and understand their sexual behaviors and experiences could help them make realizations and reflections leading to heightened awareness of one's self-control. Additionally, it would be significant to determine the value of social networks and groups in MSM's self-control.

Conclusions

How self-control is defined and conceptualized varies not solely on the discipline in which it is being examined. It may be influenced by the purpose, population, and setting of a study. In this analysis, self-control is characterized by a simultaneous process of recognizing sexual impulses, rationalizing sexual perceptions, and regulating sexual behaviors. Self-control does not automatically mean inhibiting sexual urges and avoiding sexual engagements. It involves consciousness over one's sexual thoughts, emotions, and actions. While self-control comes at the individual level, its manifestation may align with an individual's social, cultural, and healthcare backgrounds and experiences. The individuality of self-control is influenced by personal drivers, situational experiences, social linkages, and environmental structures.

Self-control can enable MSM to make empowered decisions and actions on their sexual behaviors and sexual health while limiting the influence of internal and external conditions. Further investigation is needed to test, expand, and modify the analysis' proposed assumptions and descriptions of self-control as a significant concept in HIV prevention and sexual health promotion among the MSM population.

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Conflict of interest

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