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# An ecological working framework as a new model for understanding and preventing the victimization of women by drug-facilitated sexual assault

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ABSTRACT

An innovative approach towards the holistic and multidisciplinary study of the victimization of women by drug-facilitated sexual assault has been developed. This phenomenon constitutes a significant problem given the narrowing of the gender gap in drug use over the last few decades and the widespread presence of psychoactive substances worldwide. As violence against women and drug misuse intersect in this phenomenon, this intersectional nature emphasizes the need for a novel approach that enables us to go beyond the studies carried out to date. Consequently, a multidimensional strategy incorporating a gender-sensitive approach has been implemented. The study was aligned with approaches recommended by international authorities concerning sustainable development, thus meeting current global challenges. Furthermore, the study was structured based on an ecological model divided into multiple influence levels and integrating the triangular theory of violence. As a result, a new ecological working framework was built as a multilevel platform useful for understanding and preventing the victimization of women by drug-facilitated sexual assault.


## Introduction

Drug-facilitated sexual assault (DFSA) involves assailants approaching victims who are unable to consent due to the disability produced by the effects of psychoactive substances, used either voluntarily or involuntarily [1,2]. As such, the DFSA phenomenon results from the intersection of two public health problems seriously affecting contemporary societies worldwide, namely sexual violence and the misuse of psychoactive substances. Sexual violence includes any sexual attempt or act, comments and unwanted sexual advances [3] and disproportionately affects the wellbeing and human rights of women [4–6]. In turn, drugs, including both recreational and pharmaceutical substances, are widely used nowadays. Misuse is an increasing concern since the inappropriate use of legal drugs comes in addition to the diverse and growing market in their illegal counterparts [7]. Furthermore, the gender gap in the consumption of alcohol and other drugs has narrowed significantly over the last few decades in Western countries [8–10], particularly among younger cohorts [8,11,12]. However, if changes in consumption trends are not accompanied by genuine progress in gender equality, the likelihood of women suffering DFSA is likely to be higher. Indeed, the vast majority of studies concerning DFSA have focussed on young women and leisure contexts as the profile and context mainly involved in victimization, respectively [13–20]. On the other hand, the focus of forensic case reviews is typically limited to an analysis of the evidence, with no in-depth study of other significant factors involved in victimization. Several authors have drawn attention to the need for a comprehensive approach involving the study of all related risk factors and the situational characteristics contributing to sexual assaults [14,17,21–23]. Such biased approaches have resulted in a narrow understanding of the DFSA phenomenon to date. Violence has an intersectional nature in which the factors

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involved may simply add one form of disadvantage to another, or produce a multiplier effect [24]. As such, drug-related effects are not the only vulnerability factor involved in DFSA, with many others also affecting violence and increasing the risk of sexual assault [18]. From a public health point of view, the most appropriate approach to understanding violence requires a holistic view of the multiple influencing factors involved [2]. In this regard, an intersectional approach based on socio-ecological models has been shown to be a suitable tool for improving our understanding of violent phenomena [2]. Ecological models have previously been used to study intimate partner violence [25,26]. However, such frameworks have not yet been used to study the victimization of women via DFSA in an in-depth manner. The study of how the factors involved in DFSA interconnect to create experiences of victimization is an urgent requirement in order to address the problem properly. Furthermore, since DFSA is a phenomenon violent in nature, the incorporation of the triangular conceptualization of violence [27] allows achieving a more comprehensive approach to the experience of victimization. In this way, the combination of the ecological model and the violence triangle complement each other. Both approaches are necessary to complete the study of DFSA and take into account the three faces of violence suffered by victims: direct, structural and cultural. Therefore, this study addresses DFSA as an intersectional phenomenon resulting from the interrelationship between violence against women and the misuse of psychoactive substances. To this end, this work aimed to propose a new working framework that applies several approaches recommended by international authorities and combines the ecological model with the triangular conceptualization of violence. This innovative framework intends to be a useful instrument for understanding the victimization of women by DFSA and serving as a foundation for the development of well-targeted prevention strategies.

## Material and methods

Several approaches recommended by international authorities were applied for the in-depth study of the victimization of women by DFSA. The strategy incorporated a differentiated and intersectional gender-sensitive approach committed to the defence of women's human rights. The integration of gender mainstreaming is encouraged to understand the causes, consequences, and mechanisms of violence against women [28]. Likewise, the differential approach takes into consideration diverse factors that generate vulnerability beyond gender in order to recognize the dynamics of discrimination that specifically affect women [28,29]. This focus is aligned with the intersectional approach required to visualise the multiple intersections of vulnerability factors in victims [29–31]. The strategy also applied an approach based on disability-related drug use. Disability encompasses many health conditions that may be long term or temporary [32,33]. As such, drug use is associated with the risk of developing health problems leading to disability [7,12,34]. In addition, an approach based on human rights, targeted towards the analysis of situations in which those rights are violated, was also applied [35]. At that point, given the need for an intersectional analytical perspective [29,36] and the convergence of personal and contextual factors [32,33], a holistic approach is necessary to go further when studying the DFSA phenomenon. The application of holistic approaches has been recognized as an important need for addressing development challenges [37]. As such, an ecological framework operating on multiple influence levels was used as a multidimensional structural frame. Furthermore, the combination of the ecological model and the violence triangle reinforces a more comprehensive approach visualizing the experience of victimization by DFSA as a whole. Therefore, a strategic sequence is observed, which starts with the application of the recommended approaches, and goes through the implementation of a holistic focus based on an ecological model finally complemented with the violence triangle. Thus, as shown in Fig. 1, the methodology applied implemented a multidimensional strategy supported by different approaches and theoretical lines, used for the in-depth study of studies related to the DFSA phenomenon, including reviews, forensic case studies, and related research studies. This multipronged approach allows us to be faithful to the global challenge of "*no one will be left behind*" pursued by the Agenda 2030 for Sustainable Development [36], given that, in order to leave no-one behind, it is necessary to go beyond.

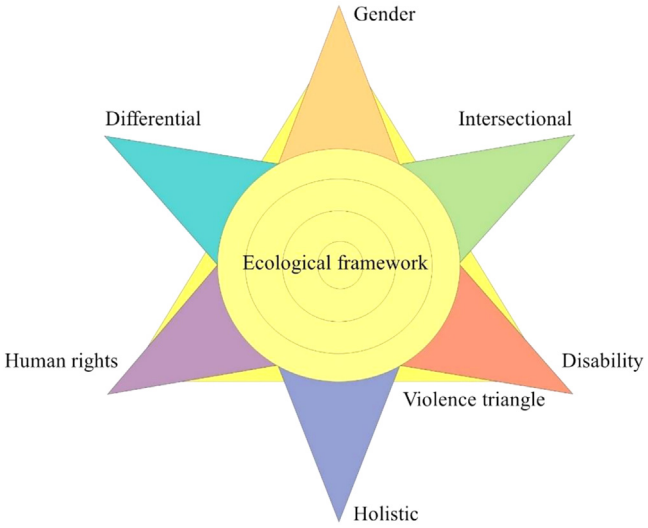


**Fig. 1.** Conceptual strategy, specifying the analytical approaches, structural ecological framework applied, and the triangular theory of violence.

## Results and discussion

### *1. A new ecological working framework concerning the victimization of women by drug-facilitated sexual assault*

A new working framework is proposed herein as an instrument to achieve progress in understanding and preventing the victimization of women by DFSA. The new framework combines the ecological model [38] and the triangular conceptualization of violence [27]. The phenomenon studied is complex and involves multiple vulnerability factors, so the need to integrate a holistic view led to the use of an ecological model. Such a heuristic tool organizes the existing knowledge around the studied issue into an intelligible whole. The ecological approach conceptualizes violence as a multifaceted phenomenon grounded in diverse factors classified into four levels of influence [25]. Fig. 2 illustrates these levels as concentric rings. On the other hand, the new framework also incorporated the violence triangle to improve the understanding and achieve a more comprehensive approach to a phenomenon violent in nature. As shown in Fig. 2, both approaches complement each other, reinforcing the potential of the new framework.

The intersection of the two external ellipses illustrates how both sexual violence against women and the misuse of psychoactive substances come together in an internal ellipse corresponding to the DFSA phenomenon. From outside to inside, the four concentric rings represent the influence levels encompassed by the ecological framework, namely macrosystem, exosystem, microsystem and individual [2,25,38]. The four rings share a mutual interrelation since all of them interconnect and influence each other. The central point corresponds to the position held by the

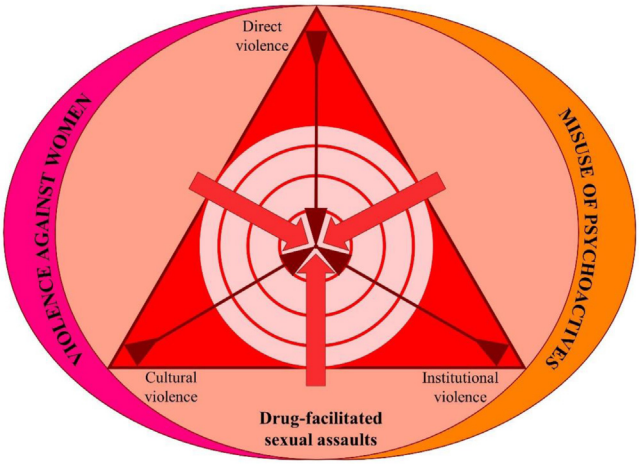


**Fig. 2.** The new ecological working framework developed to understand the victimization of women by DFSA.

victim and is the common centre influenced by the four levels. As such, the experience of victimization is affected by the factors classified at each level. The thick red arrows pointing towards the center illustrate the flows of influence generated by the configuration of the factors into the four levels in a way that contributes to breaking the ecological balance between the victim and the environment.

The central point in Fig. 2 is also the centre of the triangle external to the rings. Violence is considered a vicious triangular syndrome, which can start at any corner of the triangle and be transmitted to the other corners by causal flows [27]. Each corner of the triangle corresponds to one of the three forms or levels of violence described by Galtung [27], who differentiated between direct, structural and cultural violence. The first corresponds to violent events between people. In turn, structural violence is a process that happens within structures at the end of long and ramified causal chains and cycles. Structural violence herein refers to processes carried out by administrative structures or institutions that result in forms of institutionalized violence, thus leading to secondary victimization. Cultural violence is the set of social attitudes and beliefs justifying direct and structural violence [27]. The configuration of the influence levels in a way that breaks the ecological balance leads victims to face these three forms of violence, a process represented by the thin arrows from the corners of the triangle to the central point.

Therefore, the ecological model allows a structured study of the configuration of the factors at each influence level to articulate the process of violence. Such an instrument enables the disaggregated study of the numerous factors involved in the victimization process in a tidy manner, through their classification into levels of influence. In turn, the violence triangle represents in itself the three different levels of violence faced by victims. In this way, the new framework operates on multiple levels as a multidimensional structural frame. The combination of both approaches enables a more comprehensive look at the experience of victimization. Both approaches share a meeting point, as illustrated by the tangency between the more external ring and the triangle (Fig. 2). As such, cultural values and beliefs classified at the macrosystem level are strongly connected with the notion of cultural violence set by the triangular syndrome. This violent cultural background is the breeding ground to feed institutional and direct violence.

### *1.1. Influence levels*

The most significant factors involved in the victimization of women by DFSA have been classified into the four influence levels. Fig. 3 specifies the factors analyzed within each level. Implementation of the new working framework allows the door to be opened, thus leading to an in-depth understanding of victimization by DFSA.

*Individual level.* The factors included at this level correspond to those intimate features arising due to biological aspects, experiences, and personality, which influence an individual's behaviour [2,25]. The data were mainly obtained from studies of alleged cases attended at sexual assault treatment centers [39–46], and from studies of alleged sexual assaults reported to the judicial authorities [47–56].

**Gender.** Women face a disproportionately greater risk of gender-based violence simply for being women [57], especially in terms of sexual violence [4,5]. In the USA, rates of rape or sexual assault reach 1.8 per 1000 women, compared with 0.3 per 1000 men [58]. Victimization figures relating to DFSA show a significant gender component [59]. Case studies indicate that women represent the vast majority of victims, reaching between 92 % and 100 % in most studies [39–41,46–52]. Many other focused only on female samples [42,43,52,53,60].

**Age.** Younger age increases the vulnerability to victimization by sexual violence, especially for women [2,25]. Women aged between 18 and 24 years have the highest rate of sexual assault victimization [20]. Studies of alleged DFSA cases are consistent with this observation, with the vast majority of victims having an average age ranging from 23 to 27 years [39,40,43,44,47–51,53,54]. Concerning the age ranges, ages of between 18 and 30 years were noted in around 69 %–73 % of cases [41,42]. More than 60 % of victims were aged between 15 and 25 years in two studies [41,53] and the percentages of victims varied between 52 % and 55 % for ages ranging from 18 to 25 years [43,49]. In turn, other case studies directly focussed on research into DFSA in young people [46]. The highest-risk age ranges for sexual assault were from 16 to 19 years [60] and the first year of college [13]. A survey-based study observed that 4% of college women had suffered DFSA during the previous year, compared with 0.4 % from the general population [61].

**Use of psychoactive substances.** The vulnerability produced by psychoactive substances is a defining factor in DFSA since intoxication is positively correlated with the risk for sexual assault [19,22]. Assailants take advantage of the state of vulnerability experienced by the victim because of intoxication. As such, DFSA perpetration is classified into two different types based on the way in which the assailant acts, namely opportunism and pro-activity [1]. Opportunism involves assaults after the voluntary use of substances by victims, whereas involuntary intake happens in proactive assaults, in which assailants covertly or forcibly

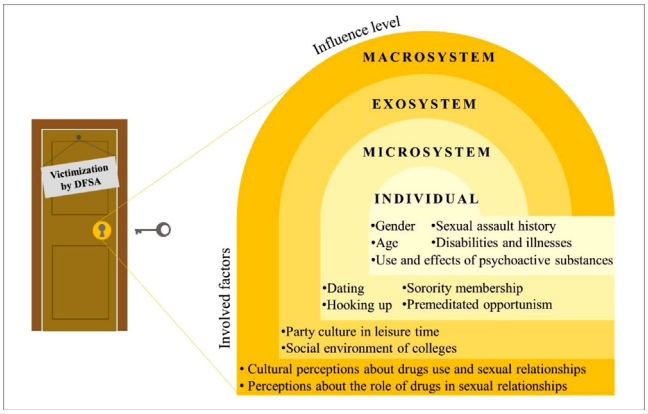


**Fig. 3.** Influence levels of the ecological framework and the factors analyzed.

administer substances to victims. Covert use refers to the surreptitious administration, whereas forced administration refers to involuntary consumption by coercion, threats or the use of physical force. Studies indicate that the vast majority of alleged cases are opportunistic [22,59,60]. Indeed, the prevalence of voluntary use can be as high as 97 % [55], approaching 80 % in other studies [49,50]. On the other hand, with regard to involuntary use, a large case study related only 3% of alleged DFSA cases to involuntary consumption [55]. Similarly, another study classified 3% of cases in a sample of nearly five hundred people who had experienced sexual assault as proactive DFSA. This value reached 20 % when considering only the smaller sample consisting of DFSA cases [47]. Other authors reported suspicion of proactivity in 13 % of cases [50]. In other study no voluntary consumption of any substance was reported by 5% of subjects [43]. Proactive DFSA was suspected in 21 % of subjects in a Canadian study, although the authors recognized a possibly higher percentage of victims suffering assaults after voluntary intake [45]. Another study from the same country classified 12 % of cases as proactive DFSA [62]. Involuntary consumption was only found in less than 1% in another recent study [46]. High detection rates for unexpected substances may be attributable to poor or incorrect recall of substance use by victims, as well as the slow metabolising of some drugs, such as cannabis.

**Effects produced by psychoactive substances.** Multiple drugs are potentially able to impair the ability to consent to sexual activity [41]. Impairment depends on several factors, such as age, prior drinking experience, weight, dose consumed, speed of drinking and concomitant use of other psychoactive substances [47,53]. The substances usually encountered in DFSA cover a wide range [63], which reflects the availability derived from prescribing practices [50,55,56], as well as social behaviours related to drug abuse [42,49]. However, a positive result for a substance does not necessarily mean that the victim was under its influence at the time of the assault. The time elapsed between consumption and sample collection makes correct interpretation of the analytical results more difficult.

Alcohol may increase the risk of assault as a result of physiological changes that disrupt cognitive processes [64], which make perception more difficult, facilitate the misinterpretation of cues and promote ineffective communication [22,65]. Victims self-reporting alcohol intake before the attack range from 71 % to 88 % [46,48,49]. The lowest detection rates were 22 % [42] and 24 % [44], whereas several studies reported values ranging between 31 % and 38 % [39,46,48], or 45 % and 48 % [40,43,51,55]. The highest detection rates were 55 % [53] and 66 % [50]. Some studies have explored the retrograde extrapolation of the blood alcohol concentration (BAC) around the time of the alleged assault, observing mean BACs of around 0.2 g/dL [40,43,51,53,55]. Such high levels are likely to cause loss of consciousness and to affect the ability to provide consent and to recall the event [48,51]. Furthermore, the likelihood of suffering a greater intoxication becomes higher when alcohol is used concurrently with other substances [55,60].

The prevalence of self-reported use of illicit drugs, such as cannabis and central system stimulants, before an assault range from 20 % [49] to 26 % [39,48]. Cannabis has been related to DFSA because of its relaxing effect and impairment of short-term memory [42,60]. Detection rates vary from 5 % to 7 % [42,43,53], intermediate values such as 19 % [66] or 26 % [55], or higher values of around 33 % [41] or 34 % [39]. However, the detection of cannabinoids may result from long-term detectability and slow metabolism [42]. Furthermore, advantage may be taken of the effects of central system stimulants to increase euphoria, libido and render victims more receptive to sexual activity [42,55,60]. Studies observed self-reported rates of cocaine use of 11 % [46] and 6% [41] in alleged DFSA cases. As regards detection, cocaine reached 21 % [39], 18 % [41], 11 % [55] or 6 % [42].

The majority of medications found in DFSA cases produce sedative-hypnotic effects [53]. Selfreported use of prescription medications prior to the alleged assault varied from 49 % [48] to 29 % [39]. In one study, 70 % of patients had been prescribed one or more benzodiazepines, antidepressants, antipsychotics, opioids or antiepileptics [48]. In another study, 26 % of subjects reported having used over-the-counter medications prior to being assaulted [39]. Benzodiazepines produce impaired thinking and memory loss, lack of coordination and drowsiness [66], and are some of the most commonly detected pharmaceutical drugs in DFSA cases [59]. Detection rates range between 4% and 12 % [39,41,42,53,55].

Mass media use the term “date rape drugs” to refer to substances with supposed high prevalence rates in DFSA, including gamma-hydroxybutyric acid (GHB), flunitrazepam and ketamine [66]. GHB increases sex drive, lowers inhibition, impairs judgment, and produces an amnesic effect, dizziness, and drowsiness [60]. Case reviews have shown a prevalence of GHB between 3% [66] and 4% [67]. The detection in other studies varied from 1% to 3% [39,47,51], decreasing to below 1% in a few others [42,53]. Regarding flunitrazepam, most studies report the detection in less than 1% of cases [43,51,53].

**Sexual assault history.** A history of sexual assault influences future re-victimization [2,13,22,68]. Sexual assault is related to an increased risk of post-traumatic stress disorder and major depression [69], which affects sexual re-assault by reducing the ability to recognize the risk [21]. Victims of sexual assault use different strategies to cope with post-traumatic stress and negative feelings [18,70]. As such, a history of sexual assault is strongly associated with the use of alcohol or other drugs [19,22,68,69,71]. However, drinking to cope increases the risk of re-victimization by DFSA [68,72] due to a decreased risk perception when faced with perpetrators who may target them [21]. Studies show that women who have suffered an incapacitating sexual assault before college are likely to experience the same type of attack at this stage [73]. Some authors propose a bidirectional connection between alcohol consumption and sexual assault [22,74] according to which alcohol use acts as a risk factor and at the same time is an after-effect of assault [75].

An acknowledgment of rape requires the victim to consider the violence suffered to be a crime and therefore self-identify as a victim [22]. Nevertheless, the assaulted person can actively seek to avoid the victim label by downplaying the event and not engage in any processes typical of victims, such as disclosing the attack or seeking help [22]. In particular, people suffering from sexual assaults involving alcohol consumed voluntarily do not recognize themselves as victims easily [76,77] because they do not feel that their experience meets the criteria of a “real rape” [78]. This is likely due to stereotypical notions concerning rape [22]. Many victims are unsure as to whether to label their experience as aggression or to conceptualize it as miscommunication or bad sex [79]. Furthermore, unacknowledged victims are at heightened risk of re-victimization, as they do not recognize the need to take precautions against future assaults [77].

**Vulnerability derived from physical and/or mental disabilities or illnesses.** According to the hunting model, assailants select victims based on situational components, such as the victim’s vulnerability [80]. Disabilities and illnesses lead to an increased risk of sexual assault by diminishing the ability to resist an assailant [81,82]. With regard to DFSA, for persons with a deficient health status, temporary incapacitation derived from psychoactive substances adds to the compromised physical mobility and/or comprehension skills related to their usual condition. Moreover, health problems usually involve the use of psychoactive substances. As a result, these people are particularly vulnerable. On

the other hand, victims suffering disabilities or illnesses may experience increased difficulties in reporting or seeking help [81]. A lesser access to justice is also related to marginalization by police when reporting an assault [83]. In addition, intellectual disability may lead to a lack of understanding of the criminal meaning of sexual abuse [82]. Health problems involving disabilities or illnesses ranged from 33 % to 35 % in two studies [39,49], and around 10 % in another [50]. In turn, victims self-reporting mental health issues represented around 44 % of subjects [43,49]. In another study, 49 % of victims reported the use of prescription medication, with 70 % of these using one, or more, sedative drugs [48].

*Microsystem level.* Human social contexts encompass personal relationships within defined groups of people interacting in their immediate physical surroundings [84]. The microsystem level refers to situational characteristics involving direct personal interactions [25]. The majority of sexual assaults on women involve interactions with one male perpetrator [2,5]. Case studies have reported similar findings for DFSA related to both gender [48] and number of assailants [43,49]. Sexual offenders are in most cases known to the victim [6,20]. Traditional dates and hooking-up are the two types of relationships particularly studied related to DFSA [85]. At this level, sorority membership and premeditated opportunism also require attention (Fig. 3).

**Dating.** Dating involves participants who know one another, or want to get to know each other, and there is the possibility of a future relationship [85]. Companionship and intimacy are goals for dating principally reported by women, whereas men are more likely to have sexual goals [86]. Alcohol is typically consumed on dates [87,88], and drinking has been reported to be the strongest predictor of involvement in sexual behaviour on first dates [88]. However, drinking accompanying sexual behaviour may increase the potential for miscommunication and risky sexual activity [87]. Dating violence is consistently associated with the use of alcohol [89]. As such, sexual assault is likely to occur in dating situations involving alcohol use [90]. On the other hand, less communicative intimacy is expected in party dates [85]. These situations encourage the use of substances by both potential victims and offenders, where they are less likely to be alone, thus making communication more difficult [15].

**Hooking-up.** This interrelationship involves sexual activity between people who do not know each other well, such as strangers, casual friends or brief acquaintances, with no commitment to a future relationship [85,91]. Alcohol consumption is involved in 60–80 % of casual sexual encounters on college campuses [90,92], with hook-ups typically occurring at parties, bars and clubs [85,91], where two people who have used psychoactive substances meet and engage in sexual behaviours. Therefore, little or no communication between hook-up partners is typical [91]. Miscommunication increases risky sexual behaviours and the likelihood of sexual assault. In this sense, through a variety of situations, hook-ups end when one partner falls asleep or passes out [91], which is a potential risk situation for DFSA. Thus, descriptions of hook-ups often involve behaviours that would legally be considered rape [85,91].

**Sorority membership.** Research into sexual violence often focuses on colleges as contexts of youth cohabitation. The microcosm for students living in university communities consists in an immediate social circle, similar to family in the model of Heise [25]. In this sense, behaviours and attitudes associated with the peer group play an important role in encouraging sexual aggression [93]. The immediate context is intimately linked to the motivation for using drugs and the perceptions of risk [94]. Relationships derived from sorority membership put women at significant risk of suffering rape [95]. In this regard, hooking-up has become more frequent at college than dating [85,91], and many sexual assaults happen during hook-up interactions, which typically occur in fraternity houses [91,96].

**Premeditated opportunism.** The motivations for the use of alcohol and other drugs, as well as the related risk perceptions, are intimately linked to interactions with the immediate context [94]. In this sense, alcohol use by victims of sexual assault is frequently encouraged by another person, often the assailant [15,97]. Significant proportions of male college students admit to encouraging their female counterparts to consume alcohol in an attempt to pursue sexual intercourse [15,16,98]. This behaviour may be related to sexual goals as the primary motivation for dating in males [85,89,99].

*Exosystem level.* The exosystem refers to social structures affecting immediate contexts surrounding an individual and influencing their experiences [25]. The vulnerability to assault may be increased in certain risky situations due to the contextualized involvement of various risk factors, such as the presence of motivated perpetrators and a greater use of alcohol [22]. In this sense, assault is likely to occur in drinking-related social contexts [18]. This level includes the study of party culture in leisure time and the social environment of college campuses (Fig. 3).

**Party culture in leisure time.** Younger people understand the recreational nightlife context as a key space for socialization [94,100,101]. In this leisure model, both consumption and sexual interaction are integral activities [102,103], so sexual relationships based on hooking-up and the use of drugs are intimately linked [22]. The odds of sexual intercourse under the influence of substances increases in this party culture [102,104], where the prospect of a sexual encounter leads to increased drug use [100,105]. Nevertheless, drinking-related social contexts generate risky situations for assaults, where intoxicated women may come into contact with motivated offenders [22]. Sexual assaults involving the use of drugs are more likely to involve interactions in parties or bars [65]. Visiting pubs or nightclubs significantly increases the rate of sexual victimization [106]. Physical determinants from the typical party setting usually involve noise, which may reduce close and intimate communication [87].

**Social environment of college campuses.** Sexual assault is a generalized problem at high school and university [106–108]. The majority of rapes of women on college campuses occur when the victim is too intoxicated to resist [71], thus suggesting that DFSA is more frequent than forcible sexual assaults [108,109]. A study observed that one in seven women experienced incapacitated rape during the first year in college [108], whereas another reported that 11 % of women had been sexually assaulted while incapacitated since entering college [107]. This high risk of sexual assault for college women results from their close daily interactions with young men in a range of social situations involving several risk factors, such as social environments with high levels of alcohol use [73]. Substance use is associated with an increased risk of sexual victimization among female college students [110], therefore women who engage in heavy levels of drinking may be at a higher risk of assault [22]. Indeed, up to 70 % of sexual assaults on campus involve alcohol use by the perpetrator, the victim, or both [110]. Consistent with this view, the majority of female students victimized by incapacitated sexual assaults in the study by Krebs et al. [107] reported that incidents happened off campus. Other studies found no differences in rape victimization between college and non-college students, although a higher risk was reported for sexual assault among women living away from their parents, and among women engaging in heavy episodic drinking [111]. These findings suggest that the social settings where various risk factors

converge may put women at risk of DFSA rather than their student status [22].

*Macrosystem level.* Human social environments also include components of social processes such as various inequalities and cultural practices. Similarly, historical social and power relations contribute markedly to the shape of contemporary social environments [84]. The macrosystem refers to this broad set of cultural values and beliefs [25]. Over the last few decades, the cultural frameworks of the youth lifestyle within a leisure context have changed from a traditional community-based model towards a more secular and individualist one in which the use of drugs and sexual relationships are considered almost exclusively as instruments through which to achieve fun and pleasure [100,105,112,113]. These modifications are strongly connected with cultural violence since they have led to changes in attitudes towards drug use and sexual relationships, as well as in the interconnection of these two phenomena. This level includes the study of the cultural perceptions about drug use, sexual relationships and the role of drugs in sex (Fig. 3).

**Cultural perceptions of drug use.** Young people perceive getting drunk to be a normal event and a central objective in leisure nightlife [104,114]. They believe in the existence of a widespread social tolerance for alcohol consumption [94,115], and recognize drinking as a primary motive for frequenting socialization spaces characterized by alcohol availability [94]. Another significant change related to substance use involves a significantly narrowed gender gap among younger cohorts, so females and males are reaching similar levels of alcohol and other drugs use [8–10]. This results from easier access to drugs by women, due to cultural influences characterized by shifts away from more traditional gender roles [8].

**Cultural perceptions about sexual relationships.** Sociocultural changes have also involved significant modifications based on a more liberal view of sexuality [116]. The magnitude of these changes became so evident that they are now viewed as a sexual revolution [116,117], involving significant changes in positive attitudes toward premarital sexual intercourse and sexual activity during teen [116]. This more liberal approach emphasizes personal pleasure to guarantee the satisfaction of needs for gratification [117]. In this regard, some authors note that many youths nowadays sharing a model of consumerist sexuality [102,118]. Likewise, the cultural significance of many leisure settings encourages sexual interrelation [102,119]. Consequently, young people enter leisure nightlife contexts with the expectation of a sexual encounter, seeking to experience sexual interrelations [102,112].

**Perception about the role played by drugs in sexual relationships.** Young people consider drugs to be facilitators of sexual intercourse and to help them in their search for effects related with sexual interaction [104,106,120]. As such, many youths value the use of drugs in order to achieve sexual goals positively due to their relaxing and disinhibiting effects [98,113,120]. The belief that alcohol reduces the resistance of women is widespread among men, who view drunk women as more accessible sexual targets [120,121]. In this regard, it should be remembered that vulnerability plays an important role in victimization, according to the hunting model for sexual offenders [80,97,98], an attitude based on premeditated opportunism. Considering dating, women mention companionship and intimacy as goals more frequently than men, who are more likely to have more positive attitudes towards casual sex [86]. Sexual goals are more easily obtained by hooking-up [85], a mode of interaction in which alcohol consumption is frequently involved [91,92]. However, hooking-up has been associated with feelings of sexual regret among women and greater depression [122].

### 1.2. Violence levels

The proposed framework comprises three violence levels, as shown in Fig. 2. These levels include the cultural, institutional, and direct violence and correspond to the three corners described by the violence triangle of Galtung [27].

*Cultural violence.* Cultural violence is defined as any aspect of culture used to justify violence [27]. This notion holds a key position in the new working framework. In this sense, in Fig. 2, the tangency between the triangle and the ring corresponding to the macrosystem level illustrates the meeting point between the ecological approach and the triangular conceptualization of violence. As such, the cultural values and beliefs included in the macrosystem level condition the social attitudes and perceptions promoting violence, shaping cultural violence. This cultural background is the breeding ground for articulating direct and institutional violence. Rape culture normalizes sexual assaults and feeds rape myths, which move the focus of attention from the crime and the assailant onto victims and their behaviour [123] while excusing the assailant and increasing victimblaming [106,124]. Socialization processes embedded in this medium predispose to the belief that sexual assault is justifiable [16,125]. The study of assailants shows narratives involving sexual objectification of women [125], which may result in reduced moral concern for the person objectified [126]. However, objectification experiences may also socialize women to perceive themselves as objects [127]. Women internalizing these ideas can decrease the reporting of sexually violent incidents [128]. College subcultures have heightened levels of rape-prone attitudes [129]. Violence against women is especially denied within leisure contexts on college campuses, with perpetrators being more likely to be excused, as well as maintaining stereotypical definitions of rape [129,130]. In the same vein, a double standard continues to affect gender perceptions regarding sexual behaviour. Thus, based on the frequency of their intercourse, men are rewarded whereas women are derided [131].

Cultural violence in DFSA includes social reaction to sexual violence involving the use of drugs. Perceptions about sexual violence involving the use of drugs are influenced by social opinion about consumption, which varies based on the gender of the consumer. In some societies, excessive drinking by women is viewed as breaking traditional cultural scripts, and therefore as unacceptable behaviour [97]. Moreover, society still views drunk women as sexually available targets in order to get intercourse [132]. Rape myths support social perceptions about the alleged promiscuity of female victims who have drunk before suffering a sexual assault, holding them responsible for their victimization [97,128]. On the other hand, the female adherence to rape myths increases vulnerability to assault as this affects a woman's ability to respond to danger cues [133]. Furthermore, rape myths blaming victims of DFSA may lead them to not acknowledge their experience as an assault [22]. Drinking alcohol before the assault is related to greater self-blame [96]. Victims do not feel that their experience meets the criteria for a "real rape" [78] and they do not label it as a crime [22,76].

*Institutional violence.* Institutional violence refers to those processes carried out by administrative structures leading to situations that promote secondary victimization. Most victims of sexual violence do not seek help from either the courts or other institutions [4,5]. The majority of victimized women disclose the violence suffered to informal sources but not to the police [134]. A reason frequently cited is the belief that police cannot help them [135]. Victims with a history of reporting sexual assaults express their dislike of complaining again because of negative experiences with the authorities [136]. Regarding victimized women who

drank before an assault, the justice system is less likely to provide effective responses [137]. These victims suffer negative social reactions when disclosing an aggression, including being blamed and disbelieved more commonly than victims of non-alcohol-related assaults [22,123]. In court trials, the adherence of jurors to rape myths influences their perception about intoxicated victims of sexual assault, and give them lower credibility [95,97].

*Direct violence.* According to the violence triangle of Galtung, direct violence corresponds to violent events [27]. Regarding the DFSA phenomenon, the episodes of direct violence are violations of the sexual freedom of victims.

*2. A framework for understanding the phenomenon and improving preventive actions*

The new framework allows an in-depth understanding of the currently existing knowledge about the victimization by DFSA, as well as to articulate new lines of work that enable progress in its study. As such, structuring by levels of influence is a useful guide for visualizing vulnerability factors involved in the victimization process. The combination of the ecological framework and the triangular conceptualization of violence allows achieving a more comprehensive approach to the experience of victimization. In this sense, the vast majority of studies have focussed on assaults suffered by young women in leisure contexts, while there is a large gap concerning the study of other profiles and settings of victimization. Further research is necessary focussing on minors or partners in domestic cohabitation, disabled, sick, or elderly people, as well as any profile or context in which vulnerabilities converge. This need to consider all profiles of victimization is in line with the global challenges established by the Agenda 2030, according to which "*no one will be left behind*" [36].

On the other hand, the new framework shows a route to the prevention of DFSA by configuring an inverse process to victimization, consistent with the target 5.2 of the Agenda 2030, pursuing the elimination of all forms of violence against women. Such an alternative process to the configuration of violence results from the existence of a powerful capacity for action to influence positively, as shown in Fig. 4. As such, there is a reciprocal relationship between the individual located at the central point of the model and the violence process. Indeed, flows in the model are not restricted from the outside to inside: the opposite direction [from inside to outside] is also possible. The arrows from the central point to outside the external ring illustrate the potential flows of positive influence. This approach does not hold victims

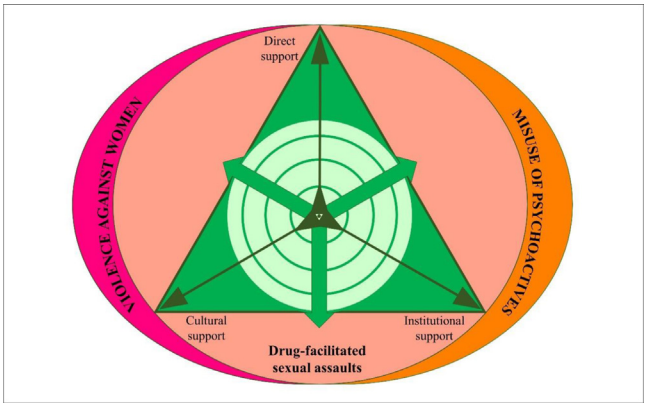


**Fig. 4.** The capacity of the proposed framework for action to influence positively, configuring an inverse process to violence, and generating support against DFSA.

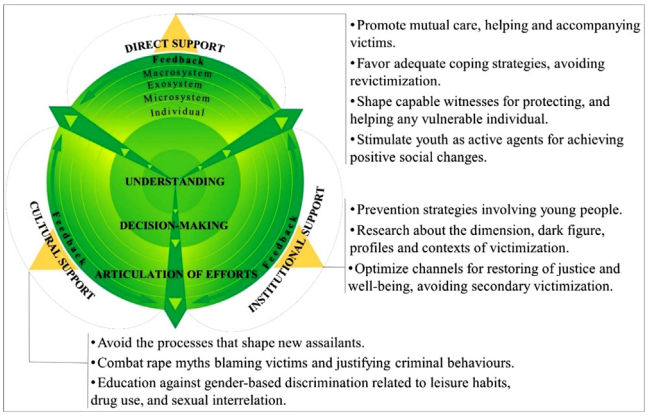


**Fig. 5.** Strategic framework for promoting an inverse process to victimization by DFSA and coordinating the improvement of institutional, cultural, and direct support.

responsible for the violence suffered. Instead, this line pays special attention to the ability to act against the violence process. Likewise, as the victimization process affects both the victim and the community as a whole, the capacity for action extends to the community. Consequently, in opposition to the vicious triangular syndrome of violence, positive influences may lead to a virtuous triangle promoting support [27]. This is why the corners of the triangle refer to the related types of support [institutional, cultural and direct] rather than violence.

Structuring by levels of influence of the new framework is an excellent guide for advancing through the route to the prevention of DFSA. A three-step sequence leads the way, as shown in Fig. 5. Firstly, the ability to influence begins with an in-depth understanding of the issue of intervention. In turn, knowledge facilitates a well-targeted decision-making process based on evidence and adjusted to the reality of the phenomenon, a fundamental basis for the orderly planning of intervention strategies. Thirdly, the new framework is a conceptual map for articulating efforts and effective processes of positive influence.

Some examples of interventions for generating support are showed in Fig. 5. The positive influence derived from these actions promoting non-violence can start at any corner of the triangle and be transmitted to the other corners. Because of this feedback, the implementation of various well-targeted flows of positive influence at different levels may lead to efficient prevention and build support where there was previously violence.

## Conclusions

A new ecological working framework has been proposed as a multilevel platform designed for studying and preventing the victimization of women by DFSA. This innovative approach uses an ecological model structured into four influence levels circumscribed to the theoretical triangular conception of violence, all framed within an intersectional approach resulting from violence against women and the misuse of psychoactive substances. This new framework significantly improves the detailed understanding of the multiple vulnerability factors related to the victimization of women by DFSA. In addition, the instrument developed goes beyond a simple theoretical study of the phenomenon and constitutes a singular working tool for actions at different levels. For example, it constitutes a guide for further DFSA-related research since the influence levels establish a structured pattern that may prove useful for visualizing fundamental aspects of the victimization process. Similarly, the proposed framework also establishes a multi-level guide for coordinating the development

of processes focused on prevention. Future well-targeted strategies against this form of sexual violence might be oriented in ways specified and ordered based on the classification of risk factors by levels of influence. As such, this new framework shows the existence of a reciprocal influence that highlights the important role of the individual and community empowerment, especially of young people, in the fight against victimization by DFSA.

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## CRediT authorship contribution statement

**Pablo Prego-Meleiro:** Conceptualization, Methodology, Investigation, Visualization, Writing - original draft. **Gemma Montalvo:** Project administration, Funding acquisition, Supervision, Validation, Writing - review & editing. **Óscar Quintela-Jorge:** Supervision, Validation, Writing - review & editing. **Carmen García-Ruiz:** Supervision, Visualization, Validation, Writing - review & editing.

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