Dementia and inappropriate sexual behavior (ISB): What we know and what we need to know

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ABSTRACT: Traditionally, there has been no place for sexuality in older age. However, research has shown that sexuality plays an important role in older people's life, even in situations such as dementia. The goal of the article is to review the scientific literature regarding the inappropriate sexual behavior that these kind of patients might present. In order to do so, we will firstly address the definition of inappropriate sexual behavior or, more precisely, its multiple definitions. After that, we will deal with other issues such as its prevalence, factors that can cause its appearance, its consequences and some of the available therapeutic options. Finally, in the last section some recommendations for future research will be provided, such as the need to clarify the concept of inappropriate sexual behavior, to find more efficient ways to address this problem, and the desirability of considering sexuality as a human dimension with a high adaptive potential in old age.
Keywords: Dementia; Sexuality; Inappropriate sexual behavior; Sexual behavior; Old age; Hypersexuality.

RESUMEN: *La vejez es una etapa del ciclo vital en la que, tradicionalmente, no tênia cabida la sexualidad. No obstante, la investigación mostrado que la sexualidad desempeña un importante papel en la vida de los mayores, incluso en situaciones como la demencia. El objetivo del artículo es revisar la literatura científica en relación a los comportamientos sexualmente inapropiados (CSI) que este tipo de pacientes pueden*

manifestar. Para ello, se abordará, en primer lugar, la cuestión de su definición o, más bien dicho, de sus múltiples definiciones, y luego se ahondará en otros aspectos tales como su prevalencia, los posibles factores que pueden desencadenarlos, sus consecuencias, y algunas de las alternativas terapéuticas de las que se dispone. Finalmente, en el último apartado ofreceremos algunas recomendaciones para investigación futura, como son la necesidad de solventar la ambigüedad que gira alrededor del concepto de CSI y de encontrar las formas más eficientes de abordar terapéuticamente esta problemática, así como la conveniencia de considerar la sexualidad como una dimensión humana con un gran potencial adaptativo en la vejez.

Palabras clave*: Demencia; Sexualidad; Comportamiento sexual inapropiado; Conducta sexual; Vejez; Hipersexualidad.*

Old age has been associated to many myths and negative connotations, and several misconceptions have been ascribed to it. One of them has to do with older people losing sexual desire (Weeks, 2002), and this could explain, at least in part, the scarce amount of research regarding this topic.

But if there are few studies on sexuality in old age are few, studies focused on sexuality and dementia are even scarcer. The lack of interest towards this topic is particularly striking if we take into account that dementia does not eliminate the sexual needs of those suffering from it or their spouses (Davies, Zeiss & Tinklenberg, 1992), and that it can be accompanied by several changes affecting sexual drive and its expression (Kuppuswamy, Davies, Spira, Zeiss & Tinklenberg, 1992).

Firstly, erectile dysfunction seems to be more prevalent among male dementia sufferers than in the general population, affecting around 50% of the former (Dourado, Finamore, Barroso, Santos & Laks, 2010; Zeiss, Davies, Wood & Tinklenberg, 1990), and 32% of the latter (Martín-Morales *et al.*, 2001).

Secondly, memory losses and the diagnostic of dementia can be followed by confusion, discomfort, anxiety or worries, especially among those who are aware of their deficits, and this, in turn, can lead to aggressive or demanding behaviors (Litz, Zeiss & Davies, 1990). Given these changes, caregivers might start to feel

disorientation, stress and anger, and the intimate dimension of the couple could begin to deteriorate.

Thirdly, the functional and cognitive impairments that are usually associated to dementia can pose real challenges for the proper sexual functioning of both patients and their partners. For instance, whilst the former could experience problems in remembering the sequencing of sexual intercourse, the latter might feel uncomfortable having intimate relationships with someone who barely remembers their name or recognize them, or having dilemmas when judging whether it is right or not to continue doing so with a person whose ability to give sexual consent might be diminished or absent (Davies *et al.*, 1992; Litz *et al.*, 1990). Actually, distressing behaviors that mild cognitive impaired patients may display can be severe enough to diminish marital quality in general and the satisfaction with the expression of affection and sex in particular (Garand *et al.,* 2007).

Lastly, dementia can cause other behavioral changes that, because of their nature, can end up being even more dysfunctional than those listed above, such as inappropriate sexual behaviors (ISB). According to Lyketsos *et al.,* (2000), approximately two-thirds of people with dementia are going to manifest one, or more, behavioral disturbances at some stage of the disease. Taking this into account and that dementia does not necessarily erase sexual desire (Davies *et al.*, 1992), it is logical to think that, in some cases, these disturbances will affect sexual behavior.

Nevertheless, even more important than the prevalence of this phenomenon might be its consequences. In fact, ISB are not one of the most frequent alterations among dementia sufferers, but their appearance might have harmful outcomes going beyond these patients, and affecting in a particularly intense way those around them (Hashmi, Krady, Qayum & Grossberg, 2000). Since any person with dementia can exhibit ISB during its progression, shedding more light on this topic should be a significant purpose for dementia research. Although this is not going to be the prevalent pattern, we should be warned of their appearance and dispose of the appropriate tools to deal with them.

Thus, the aim of this paper is to review the scientific literature on ISB, highlighting the main findings and controversies regarding its definition, prevalence, etiology and treatment. Afterwards, some considerations for future research will be

provided, pointing out the need to advocate for an adaptive perspective that takes into account the patient's point of view.

The indefiniteness of ISB

The first issue to discuss about ISB is that it is a fuzzy concept, to our understanding, due to three reasons. The first one is the multiplicity of terms that have been used to address this topic, such as "sexual disinhibition", "inappropriate sexual expression" or "aberrant sexual behavior" (Harris & Wier, 1998; Nagaratnam & Garagay, 2002; Wallace & Safer, 2009). The second one is that the term ISB has frequently been equated to hipersexuality, which might not be entirely accurate. The last one, a consequence of the previous two, is the lack of a universally accepted definition of ISB. Thus, ISB definition differs from one study to another, making it more complex to compare their results (Johnson, Knight & Alderman, 2006).

Some definitions, for instance, only emphasize the consequences of ISB, but do not delimitate their characteristics. Thus, Black, Muralee and Tampi (2005) refer to ISB as sexual disruptive behaviors that can interfere in the provision of care. Meanwhile, Zeiss, Davies and Tinklenberg (1996) highlight the importance of the context in their definition of ISB, according to which they should be considered behaviors with sexual intent or meaning that occur in a public setting, such as making sexual comments, touching others' breasts or genitals and showing one's genitals to others. Although this definition establishes a clear criterion to identify an inappropriate sexual behavior, does not consider the fact that some behaviors might be sexually inappropriate in spite of not being carried out publically, such as trying to meddle in someone's bed without consent to have sexual relations with him or her.

The definition proposed by Johnson *et al.* (2006) could be considered more complete. In accordance with it, ISB are verbal or physical acts of an explicit or perceived sexual nature that are unacceptable in the social context they take place in. De Medeiros, Rosenberg, Baker and Onyike (2008) expanded this definition and proposed a classification of ISB, distinguishing between intimacy-seeking and disinhibited sexual behaviors. The former would include affective behaviors directed towards wrong targets (e.g., trying to kiss someone who the person with dementia is mistaking for his or her

partner). The latter, instead, would include impulsive, indiscriminate and invasive behaviors marked by the apparent loss of control and probably elicited by environmental stimuli such as the proximity of a potential sexual partner. Grabbing a formal caregiver's breasts during the bathing routine would be a clear example of this kind of ISB.

Furthermore, both De Medeiros *et al.* (2008) and Zeiss *et al.* (1996) proposed a category to classify those behaviors that do not fit sexually appropriate nor inappropriate behavior. Whilst the former called it "nonsexual behavior" and the latter, "ambiguous sexual behavior", they converge in highlighting that some behaviors might seem to be of a sexual nature but are not originated for any sexual need. For instance, this would be the case of a person who walks naked down a residence because he or she has forgotten how to dress up.

As mentioned above, a second source of confusion comes from equating hypersexuality with ISB. Hypersexuality is normally defined as a disorder caused by an insatiable sexual desire that can lead someone to get involved in continuous and uninhibited sexual behaviors both directed to himself or others (Kuhn, Greiner & Arseneau, 1998; Wallace & Safer, 2009). The indiscriminate use of both concepts might not be accurate for two reasons. Firstly, the prefix "hyper" means superiority or excess, so the term hypersexuality should only be used to talk about a person with dementia when he or she has an excessive sexual drive, which implies the subjective and complex task of determining the threshold at which someone's sexual drive is or is not normal. Such complexity becomes more evident in some articles where patients are labeled as hypersexual because they show ISB but no reference to their frequency is made (e. g., Nagaratnam & Gayagay, 2002). Secondly, hypersexuality in dementia could not always take the form of a sexually inappropriate behavior (Kuhn *et al.*, 1998). Thus, a person with dementia could show an excessive pattern of appropriate sexual activity, for example, if that person compulsively masturbated him or herself in his or her own room.

Due to these reasons, we advocate for the use of ISB instead of hypersexuality to talk about this phenomenon, and we will only use this term henceforth, although we want to highlight that both of them have often been indistinctively used in the literature (e. g., Robinson, 2003; Series & Dégano, 2005; Wallace & Safer, 2009).

The prevalence of ISB

Since the definition of ISB is not consistent across studies, it is difficult to estimate its prevalence (Johnson *et al.*, 2006). According to Tsai, Hwang, Yang, Liu and Lirng (1999) and Zeiss *et al.* (1996) ISB would be relatively common among people with dementia, as these authors place their prevalence by 15% and 18% respectively. Similarly, Szasz (1983) found a prevalence of 25% in a sample of nursing staff working in units of dementia care for older men.

Nevertheless, other authors have found lower levels of prevalence. For instance, De Medeiros *et al.* (2008) reported a prevalence of 7,9%, whereas Alagiakrishnan *et al.* (2005) state that ISB prevalence would not be higher than 2%. Interestingly, in their study 9,8% of participants displaying ISB did not have dementia, but mild cognitive impairment. Consistently, many other studies have also found that prevalence of ISB would be lower than 10%, such as those conducted by Burns, Jacoby and Levy (1990), Devanand *et al.* (1992), and Rabins, Mace and Lucas (1982), who found a prevalence of sexual disinhibition in their samples of 7%, 2,9% and 2% respectively.

In relation to the factors that have been associated with the presence of ISB, the type of dementia has been the most frequently studied one. For example, Zeiss *et al.* (1996) reported lower rates of ISB in Alzheimer's disease than in other types of dementia. In their study, the number of people suffering from Alzheimer's disease showing inappropriate or ambiguous sexual behaviors was lower than among those suffering vascular dementia, Pick's disease or Korsakoff's syndrome, and the same was true for the frequency at which these behaviors occurred and their duration. Nevertheless, these differences did not achieve statistical significance, which is consistent with other studies that have not found differences on the prevalence of ISB depending on this variable (De Medeiros *et al.*, 2008; Tsai *et al.*, 1999). However, De Medeiros *et al.* (2008) found that intimacy seeking behaviors were present only among those suffering from Alzheimer's disease, whilst those suffering from vascular, frontotemporal or Parkinson dementia tended to show more sexually uninhibited sexual behaviors. In contrast to these results, and based on retrospective reports of 2.278 people, Alagiakrishnan *et al.* (2005) pointed out that ISB may be present regardless of

the type of dementia, although they were more frequently associated to vascular dementia than to Alzheimer's disease.

The prevalence of ISB has been linked to other variables apart from the type of dementia and, again, evidence is not conclusive. To this regard, some authors do not find any relation between ISB and the degree of cognitive impairment (De Medeiros *et al.*, 2008; Tsai *et al.*, 1999), whilst others have found a positive correlation between sexual disinhibition and the severity of the impairment (Burns *et al.*, 1990). Likewise, according to several studies the prevalence of ISB would be higher among men than among women (Alagiakrishnan *et al.*, 2005; De Medeiros *et al.*, 2008), but the results of Burns *et al.* (1990) and Tsai *et al.* (1999) suggest that sex would not make any difference in the presence of ISB.

Finally, in relation to the place of residence, according to Alagiakrishnan *et al.* (2005) the prevalence of ISB would not differ between those living in the community and those living in a residence, but Drachman, Swearer, O'Donell, Mitchell and Maloon (1992) found a higher percentage of non-institutionalized people with dementia showing ISB.

Etiology and consequences of ISB

The reasons why an older person with dementia can start behaving in a sexually inappropriate way also remain unclear, although neurobiological factors are the ones that have received more attention from scientific literature. To this regard, Shapira and Cummings (1989) proposed that ISB might arise due to an alteration of the neural pathways that regulate sexual desire. According to Robinson (2003), frontal and temporal lobes are the main responsible for the regulation of libido, and people showing affections in those areas are susceptible of showing behavioral and personality disturbances. Specifically, frontal lobe dysfunction may lead to alterations of the inhibitory mechanisms of the sexual behavior, whilst temporal lobe dysfunctions may involve problems regarding the emotional and intellectual interpretation of one's sexual arousal (Wallace & Safer, 2009). The appearance of ISB among people with dementia has also been linked to the use of certain psychoactive drugs such as levodopa, benzodiazepine and alcohol (Series & Dégano, 2005), and to the suffering of psychiatric

alterations like bipolar disorder, hallucinations, schizophrenia, obsessive-compulsive disorder or delirium (Lesser, Hughes, Jemelka & Griffith, 2005; Haddad & Benbow, 1993).

Apart from the neurobiological factors mentioned above, the emergence of ISB among dementia sufferers has also been related to psychosocial factors. First, these patients can experience intense feelings of loneliness, fear and anxiety, which can lead them to try approximating others (Robinson, 2003). In addition, the accumulation of losses that take place all along the illness process can deteriorate their self-concept and self-esteem, and sexual practice might be a strategy to enhance the self-evaluative component of the self. Thus, in order to overcome negative feelings or improve one's evaluation, people with dementia could engage in several sexual behaviors, some of which could occur in the wrong setting.

As Robinson (2003) also highlights, memory problems, especially forgetting the recent past, can make the person want to initiate a sexual relationship repeatedly if he or she forgets having already done so recently. Difficulties in interpreting certain situations could also lead to ISB (Hashmi *et al.,* 2000). For instance, receiving help during some intimate activities of daily living such as showering or toileting could be misinterpreted by some patients, who could get sexually aroused as a result. Another possibility is the person with dementia taking someone for his or her partner and trying to make sexual advances to that person (Mayers, 2000).

Suffering from dementia can also trigger a number of changes in the patient's social sphere that can lead to ISB. Examples of these changes are the lack of a regular sexual partner (e. g., after the death of his or her partner, or because that person refuses to continue maintaining sexual relationships with him or her), lack of privacy among institutionalized people, the abandonment of the place of residence so as to move to a setting that is not only less familiar, but also less stimulating (Series & Dégano, 2005) or being exposed to sexual content material in shared spaces (Hashmi *et al.*, 2000).

Regarding the consequences of ISB, they might have a greater negative impact than other behavioral disturbances that appear more frequently, such as aggressive behaviors (Johnson *et al.*, 2006), which presence has already been linked to high levels of burden among caregivers (Miyamoto, Tachimori & Ito, 2010) and with a high probability of institutionalization (Gaugler, Davey, Pearlin & Zarit, 2000). In fact,

according to Onishi *et al.* (2006), ISB would be the behavioral disturbances that informal caregivers would find more difficult to cope with.

Inappropriate sexual behaviors can also have important negative outcomes for dementia sufferers themselves, since their behavior can result in the acquisition of sexually transmitted diseases (Mayers, 1998), genital trauma (Haddad & Benbow, 1993), the decline in the quality of the care received, institutionalization or becoming the target of jokes and rejection.

Informal caregivers may also be adversely affected by ISB. The management of ISB can be embarrassing, stressful and complicated from the very first moment in which they appear (Hashmi *et al.*, 2000; Tucker, 2010). Some relatives of dementia sufferers may feel stressed because of seeing how their loved one begins to behave in a manner that is not consistent with his or her previous life. In fact, people displaying ISB can even try to force their caregivers or others to have sex with them (Mayers, 1998), with all the negative consequences that going through such a situation can lead to. Formal caregivers working in residential aged care facilities are also exposed to many difficulties since they have to face the conflicts that may arise from the ISB of some residents, and manage those behaviors when they are directed towards them or other residents or visitors (Mattison & Hemberg, 1998). Addressing these situations can be hindered by the lack of education and training in this regard (Mayers, 1998).

Finally, ISB can also pose a risk to the safety of other people around the patient (Alagiakrishnan *et al.*, 2005), especially for those with less or no ability to make autonomous decisions, give sexual consent or defend themselves, such as children in the context of the community or other residents with cognitive impairment in the case of an institutional setting.

Evaluation and treatment of ISB

Obtaining a detailed and complete clinical record, either asking directly to the patient or the patient's relatives and/or caregivers when his or her impairments can compromise the quality and reliability of the gathered information, is essential in order to evaluate ISB (Kamel & Hajjar, 2004). Apart from this clinical record, which should always include a sexual record, it would also be recommendable to conduct both a

comprehensive evaluation of cognitive functions to know to which extent they are preserved or deteriorated and a physical examination (Black *et al.*, 2005).

All the information collected by these methods can be useful when it comes to estimating the risk of someone manifesting ISB in the future, and to prevent their appearance (Lothstein, Fogg-Waberski & Reynolds, 1997). Instead, when a patient has begun to display certain behaviors which are susceptible of being considered sexually inappropriate, this information could be used to discern whether they really are ISB or, on the contrary, they should rather be considered sexually ambiguous behaviors (Kuhn *et al.*, 1998). A detailed ISB evaluation is also a key to understand the reasons that may have originated such behavior and, therefore, to choose the best intervention strategy.

Finally, it would also be desirable to obtain information regarding the frequency at which ISB occur and the characteristics of the context which they take place in, paying special attention to their antecedents and the consequences which they are followed by.

Regarding their treatment, ISB have been addressed both from a pharmacological and non-pharmacological approach (Harris & Wier, 1998). Although the number of systematic studies focusing on this topic is limited, there is some evidence suggesting that both types of intervention might be effective (Black *et al.*, 2005).

Non-pharmacological treatment

Although there is a lack of experimental studies empirically supporting the effectiveness of non-pharmacological treatments to prevent, reduce or eliminate ISB (Tucker, 2010), it is reasonable to consider that such strategies might be useful to do so if we take into account that ISB can be triggered by psychosocial factors (Robinson, 2003; Series & Dégano, 2005).

In spite of the absence of structured interventions of proven effectiveness, some authors suggest the potential usefulness of strategies such as behavioral modification, supportive psychotherapy or sex education. While the premises on which they are based and the methodology they use are different, these three strategies might have positive effects both on the patient manifesting ISB and people around him or her.

Perhaps reducing the frequency at which ISB occur is the most straightforward way to achieve beneficial effects. A first approach to do so might be explaining the patient why certain behaviors are not acceptable in a sympathetic and clear way, always trying to avoid direct confrontation, which could lead to feelings of guilt and embarrassment (Black *et al.*, 2005). It is needless to say that the applicability of this strategy depends on the degree of cognitive deterioration of the patient, so it might be especially indicated when his or her ability to understand and reason remain sufficiently preserved. If this is not the case, alternative behavioral modification techniques might be considered. Obviously, the choice of one technique or another will depend on the nature of the ISB at issue, so the more specific it is its analysis, the greater will be the probability of designing the most appropriate intervention and achieving satisfactory outcomes. The behavioral modification techniques that have been most often cited in the literature are stimulus control, extinction and reinforcement of incompatible behaviors.

In the case of a patient who only displays inappropriate sexual behaviors in certain contexts, it could be hypothesized that those behaviors might be elicited by situational factors such as the excess or lack of stimulation, or the participation in activities that may be confusing (Series & Dégano, 2005; Hashmi *et al.*, 2000). Given this, stimulus control might be a technique to consider, and strategies such as keeping the patient away from the context were ISB appear or modify such context to make it less ambiguous might help reducing their frequency (Mayers, 1998). For instance, if a patient only displays ISB while he or she is receiving help with showering, and only when the help provider is a person of a certain gender, ISB might decrease just by assigning a person of the opposite gender to assist that patient with that activity.

If there is a suspect that a certain ISB keeps occurring because it is being reinforced, it might be useful to intervene in order to modify its consequences. Extinction (Domjan, 2003) might be a useful technique when the inappropriate sexual behavior is followed by a reinforcing consequence. Thus, ignoring a patient while showing an ISB could be a feasible strategy if ISB implies getting a reward, such as attention from others. However, it is important to note that some ISB can be highly striking, which makes it more complicated to achieve the complete cessation of the positive reinforcer. It should be also taken into account that the positive reinforcement following certain ISB might be inherent to them. Ignoring public masturbation, for

instance, might not help decreasing its frequency since it is associated to pleasure. In these situations, another technique to consider would be the reinforcement of incompatible behaviors, which consists on reinforcing other behaviors that cannot occur at the same time that the behavior that we want to eliminate (Martin & Pear, 1999).

In addition to trying to reduce the frequency at which ISB occur, other non-pharmacological interventions can be carried out to reduce the difficulties associated to them, and they can also be directed towards other agents rather than the person with dementia. Supportive psychotherapy with their informal caregivers, for instance, might be especially helpful to those caregivers who make wrong attributions regarding the reasons why their relative is acting in such a way. Thus, some caregivers can think that the person with dementia is displaying inappropriate sexual behaviors on purpose rather than considering them a symptom of the illness. When this occurs, helping caregivers to reinterpret their relatives' behavior in a more positive fashion (for example, attempts to ask for closeness or intimacy) could contribute to decrease their discomfort (Hashmi *et al.*, 2000). Another alternative would be sex education for formal caregivers in order to change their attitudes towards sexuality in old age and inappropriate sexual behaviors, and to improve their skill to cope with them. In this case, it would be very important to emphasize the need to reduce ISB while promoting, at the same time, appropriate sexual expression (Black *et al.*, 2005), instead of eliminating any kind of sexual practice. According to Mayers (1994), around 82% of formal caregivers report some interest in participating in such programs.

Pharmacological treatment

ISB have been effectively treated by multiple drugs, including antipsychotics, antidepressants, cholinesterase inhibitors, mood stabilizers, anxiolytics and testosterone regulators (Series & Dégano, 2005; Tucker, 2010).

Nevertheless, this approach presents several problems. Firstly, the evidence regarding the effectiveness of psychoactive drugs for the treatment of ISB comes from case studies, and there are no systematic studies comparing the effects of different drugs on different experimental groups, and between each one of them and a control group. Furthermore, in many cases patients were taking multiple psychoactive drugs

simultaneously, which makes it more difficult to ascribe the results observed to just one of them (Tucker, 2010). Apart from this, these drugs can have adverse side effects, and the treatment of sexually inappropriate behaviors is not generally one of their indications for use (Series & Dégano, 2005).

Taking all of this into account, we agree with Black *et al.* (2005) that medication should be, in most cases, an option to consider after the failure of the implementation of non-pharmacological interventions, or that both strategies should be combined to achieve synergy effects. However, some situations may require a more urgent intervention, especially when ISB pose a real and significant risk of serious harm for the person with dementia or for anyone around him or her. In those cases, the extinction of the ISB becomes a priority task, so starting with a pharmacological treatment might be the most convenient option.

In relation to which drug should be the first choice for the treatment of ISB, some authors argue that antiandrogens are the most recommendable option (Light & Holroyd, 2006), whilst others suggest that they should only be administered when other drugs, such as antidepressants and antipsychotics, have proven ineffective (Guay, 2008; Levitsky & Owens, 1999).

Inappropriate sexual behavior and dementia: a research agenda

Although inappropriate sexual behaviors are not the most prevalent problem among people with dementia, their consequences can be severe enough to justify the importance of devoting more resources to their study. In the last section of this paper some of the challenges that research on ISB should address will be discussed.

Overcoming the indefiniteness of ISB

To begin with, one of the most significant problems of research on ISB is the lack of consensus on the definition of this term. In part, this lack of consensus comes from the existence of multiple concepts to refer to the same phenomenon, some of which can be somewhat subjective or vague. Hopefully, overcoming this problem could

lead to a more accurate knowledge of the true prevalence of ISB among people with dementia, as well as to clarify the existing relationship between ISB and certain variables such as the type of dementia, the severity of cognitive impairment, the patients' gender and their place of residence, and the relative weight of the different etiologic factors which it has been linked with. This, in turn, could give us more tools to more accurately estimate the potential risk that each individual with dementia has to end up displaying some kind of ISB.

In our opinion, a first step to move forward in this direction should be differentiating ISB from hypersexuality and reserving the latter for those cases in which someone complains about, and experience subjective distress due to, a sexual drive that he or she considers excessive and dysfunctional, regardless of whether it takes the form of inappropriate sexual behaviors or not.

The key to define ISB, in turn, could lie in finding a way to distinguish between sexual versus non-sexual behaviors, and between appropriate versus inappropriate sexual behaviors. Although this might seem obvious, it should be recalled that some of the definitions given in previous sections did not explicit what requirements should meet a behavior to gather both criteria.

To this regard, something useful to take into account when deciding whether a behavior accomplishes the first criterion or not would be if the patient was trying to produce, or if his or her behavior was followed by, a change in his or others' sexual arousal, always trying to obtain the patient's point of view. If this was not possible, it would be convenient to make such a decision through interdisciplinary discussion rather than leaving it to one person's hands.

The role of sexuality in human development and its adaptive value

Secondly, it should be emphasized the role that sexuality can play in people's lives, even among those suffering from dementia. Apart from recognizing that dementia is not necessarily accompanied by the cessation of sexual interests, we should also consider the potential adaptive value of both appropriate and inappropriate sexual behaviors among these patients.

Sexuality is a part of us from the moment we are born until the moment we die, and sexual behaviors can fulfill reproductive, ludic or social functions, among others. Thus, as some authors suggest, sexual activity can help to reduce feelings of fear, anxiety or loneliness, or to enhance self-esteem (Robinson, 2003), so we can infer that sexual behavior can serve as a primary control strategy: a way to modify the environment and transform it into a context where achieving one's goals is more feasible (Heckhausen & Schulz, 1993). Given this, it is easy to understand why both people with dementia and their caregivers can try to meet certain needs through engaging in sexual behaviors, although in some occasions the formers can do so in an inappropriate way.

From this perspective, ISB may sometimes be considered the expression of an effort to continue exercising control over environment through sexuality. Coherently, some authors have highlighted how other behavioral problems such as passive and dependent behaviors can pursue adaptive purposes, since they can be used to get others to satisfy one's needs (Goldfarb, 1969). According to Horgas, Werner-Wahl, and Baltes (1990), some institutionalized older patients can display dependent behaviors to obtain some attention as well as physical or emotional contact from staff. The occurrence of those behaviors may be reinforced by the staff if they pay more attention to those who act in such a way, regardless of their real abilities. Inappropriate sexual behaviors can also work as strategies to interact with others (Tune & Rosenberg, 2008), and although they lead to negative interactions, such result may be preferred by some patients to the absence of interaction.

Thus, when addressing ISB it should be considered that such behaviors can be the result of needs that have not disappeared with dementia and that are not being met, or as a mean for obtaining certain rewards.

The evaluation and treatment of ISB

Finally, developing effective procedures to effectively evaluate and treat ISB is also a key task. Neither the assessment nor the treatment of ISB should forget the adaptive value that such behaviors may have.

Since the deterioration caused by dementia can erode patients' ability to exert control over their environment, any treatment aimed at maintaining and enhancing their well-being should try to keep their preserved control strategies. That is why we agree with Blackerby (1990) that ISB treatment should focus on mitigating their consequences whilst promoting appropriate sexual expression instead of trying to suppress any kind of it. Thus, reducing the negative outcomes associated to ISB (either working with patients or their caregivers) and, simultaneously, trying to turn their sexual drives into appropriate sexual behaviors might be a useful strategy.

In any case, it would also be convenient to conduct further research to compare the effectiveness of different types of interventions (both pharmacological and non-pharmacological) between them and with a control group. The results of such research would probably help taking decisions about what to do when ISB appear.

New non-directive models conferring more prominence to patients and their subjective experience should also be considered. A particularly promising model to this regard is person-centered care (Brooker, 2004), which emphasizes the need to take into account the individual perspective of the people with dementia, so that the meaning that they ascribe to their situation and their personal and unique point of view is not ignored when caring for them. In addition, this approach also highlights the role of social contact in the well-being of these patients. Listening to the patients' opinion about certain behaviors that may seem ISB before deciding if that is the case or not; letting them share the reasons why they think they are acting in such a way; getting them involved in the process of finding the most appropriate treatment, and not taking them away from their social context might be coherent strategies with the person-centered care approach.

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