

Verbal Agitation in Dementia: The Role of Discomfort

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Marianne Lemay, PhD,¹ and Philippe Landreville, PhD¹

Abstract

Verbal agitation (VA) is a disturbing and commonly observed behavioral symptom in people with dementia. Although several different variables contribute to VA, it seems that discomfort plays an important role. The overall objective of this article is to review the relationship between VA and discomfort among people with dementia. Specifically, this article discusses the place of discomfort within the conceptualizations of VA, empirical support for the association between discomfort and VA, and practical implications of this relationship in the assessment and treatment of VA. This article contributes to a better understanding of VA and provides recommendations for prevention and effective intervention.

Keywords

Alzheimer's disease, dementia, behavioral symptoms, verbal agitation, discomfort

In addition to the deterioration of cognitive functions, dementia is often accompanied by behavioral and psychological symptoms (BPSD).¹ Behavioral symptoms, also known as “disruptive behavior” or “agitation,” refer to inappropriate, repetitive, or dangerous behavior, while psychological symptoms include anxiety, depressed mood, hallucinations, and delusions. Three subtypes of agitation have been identified by factorial analysis: (a) physically nonaggressive behavior, such as wandering or trespassing in inappropriate places, (b) physically aggressive behavior, such as hitting and kicking, and (c) verbally or vocally agitated behavior, such as repeating words or questions, demanding constant attention, shouting, or verbal aggression.²

Manifestations of verbal agitation (VA) are among the most common behavioral symptoms of dementia. In institutional settings, reported prevalence rates are between 10% and 52% depending on the behaviors involved and the methodology used.^{3,4} In the community, Shahr, Snow, Soucek, Ashton, and Kunik⁵ reported prevalence rates ranging between 19% and 51% according to severity criteria, such as frequency and degree of disturbance, taken into account.

Verbal agitation is one of the most difficult behaviors to manage. It often requires attention otherwise it becomes a chronically disruptive problem, occurring several times per hour and representing a considerable proportion of the patient's day.⁶ Verbal agitation is disturbing and often associated with feelings of helplessness, anxiety, and anger among caregivers and others.⁷ Caregivers tend to isolate and overmedicate people manifesting VA.⁷⁻⁹ In long-term care facilities, the distress caused to the nursing staff can influence the quality of their care to the verbally agitated resident and that of other residents as well.^{10,11}

Research conducted so far has identified 2 major categories of variables associated with VA: (a) personal factors, including

female gender, the severity of cognitive impairment, functional disability, pain, depressed affect, and sleep disturbances,^{7,9,12} and (b) environmental factors including social isolation, physical restraint, and time of day.^{13,14} While several variables appear related to VA, researchers seldom rely on a theoretical conceptualization of the phenomenon and generally do not consider the relationships between the various determinants of VA under study.

Discomfort seems to underlie the impact of several factors, such as pain, depression, sleep disturbances, restraint, and social isolation on VA. Discomfort has been defined as a negative affect or physical state, which can vary in intensity in response to internal and environmental conditions.¹⁵ This concept refers equally to sources of somatic discomfort and sources of psychological discomfort. However, while several authors adhere to this definition, others use the terms “discomfort” and “pain” indiscriminately.¹⁶⁻¹⁸ Discomfort is widespread among the elderly individuals, with some studies reporting that between 70% and 86% of residents in the long-term care facilities must contend with some form of discomfort.¹⁹⁻²¹ In addition to their cognitive disorders, older adults with dementia are likely to have other chronic or acute conditions such as musculoskeletal disorders, cancers, cardiovascular disease, and depression, which contribute to discomfort.^{22,23}

¹ School of Psychology, Université Laval, Québec, Canada

Corresponding Author:

Philippe Landreville, School of Psychology, Université Laval, Québec, Canada G1V 0A6.

Email: philippe.landreville@psy.ulaval.ca

The main purpose of this article is to review the relationship between VA and discomfort in people with dementia. Specifically, this article discusses the place of discomfort within the explanatory models of VA, the empirical support for the association between discomfort and VA, and practical implications of this relationship for the evaluation and treatment of VA. This article differs from other previous reviews of the literature by its focus on discomfort rather than covering all variables examined by researchers. Our specific objective is to help better understand VA to provide the best possible care to patients who present it.

Theoretical Models

A number of explanations of VA have been proposed.⁴ Some authors consider VA as the result of the neurological damage associated with dementia.²⁴ For example, the loss of inhibition, caused by severe deterioration of the brain, can lead to verbally agitated behavior. A learning model states that VA is an operant reinforced by attention from others such as family members, nursing staff, and other residents.²⁵ Other authors instead propose that VA is the consequence of social isolation and sensory deprivation.²⁶⁻²⁸ Verbally agitated behavior becomes a way for patients to express their fears, loneliness, and boredom while stimulating themselves. This model is based on the finding that VA is associated with being alone, under physical restraint, and not involved in structured activities.^{13,27} In addition, several studies have shown a reduction in VA associated with sensory stimulation interventions and social interaction.^{29,30}

Two other models reflect more clearly the role of discomfort in the etiology of VA: the Progressively Lowered Stress Threshold (PLST) model and the Need-Driven Dementia-Compromised Behavior (NDDCB) model. According to the authors of the PLST model, people with dementia are less and less able to manage environmental stressors due to changes in the biological mechanisms responsible for adaptation.³¹ Thus, the accumulation of daily stressors leads to increased anxiety and likelihood of problematic behaviors including VA.³² The PLST model identifies six stressors that may cause the emergence of BPSD: (a) fatigue, (b) changes of environment, routine, or caregivers, (c) inappropriate level of stimulation, (d) requests that exceed the level of functional autonomy, (e) physical stressors (eg, illness, medication), and (f) the emotional response to the perception of loss.^{32,33} This model, therefore, considers discomfort as an important factor in BPSD. The basic premise that the stress threshold decreases with the evolution of dementia has never been tested directly but problem-solving and relaxation interventions have been shown to reduce VA and BPSD in general.^{33,34}

Other researchers consider unmet needs as a central factor in the emergence of BPSD.^{8,35-37} According to the NDDCB model,³⁵ VA is a way to express unmet needs that a person with dementia cannot communicate otherwise. Predisposing factors increase the likelihood of VA, whereas other factors precipitate it. Predisposing factors include psychosocial characteristics

and impairment in cognitive functioning and health in general. Precipitating factors include changing needs, psychological and physiological states, and certain elements of the physical and social environment. For example, a person with limited attention span and language skills and poor health would be more likely to yell when feeling intense negative emotions or in the context of environmental changes such as the presence of new staff members in a nursing home. Different authors suggest that VA may be the expression of a need for comfort.^{4,8,35} For example, physical discomfort, like a cold shower, could precipitate VA (eg, shouting, swearing, or complaints), which may serve to attract the attention of the caregiver on the situation so that it may be stopped.³⁵ Kovach and colleagues³⁸ indicate that it is the unmet needs, which cause physical or psychological discomfort that results in a change in behavior.

The development of etiological models is a way to condense the actual knowledge of VA to have an acute understanding of this phenomenon. Moreover, those models provide concrete ways to prevent and manage VA. For example, according to the learning model, VA could diminish if ignored. For PLST authors, the minimization of changes in staff and environment, and appropriate demands according to the functional level of a patient, could avoid the manifestation of VA. Finally, according to the NDDCB model, the answer to basic needs, like comfort and nutrition, should be taken into consideration to minimize VA.

Empirical Support

To directly examine the relationship between discomfort and behavioral disorders associated with dementia, Buffum and colleagues²² recruited 33 people aged between 64 and 96 years, suffering from dementia and living in a care facility. Results revealed a significant positive relationship between discomfort and agitation while controlling for the severity of dementia. Discomfort and agitation shared 14% of common variance. However, these authors limited their study to agitation in general without regard to its subtypes. Various researchers have distinguished VA from aggressive behavior (eg, hitting), and physically nonaggressive behavior (eg, pacing), and the literature supports the idea that the different subtypes of agitation are related to different factors.^{2,12,39} The study of Buffum and his staff does not specify whether the discomfort is more strongly linked to certain subtypes of agitation.

Young²¹ explored the relationship between discomfort and agitation (both general and subtypes) in 104 residents of 3 long-term care facilities. Despite a positive and significant correlation between general agitation and discomfort, a multivariate analysis of variance controlling for the level of cognitive functioning showed no significant relationship between these 2 variables. Regarding the correlations with agitation subtypes, only aggressive behavior was positively associated with discomfort. Unfortunately, these results are difficult to interpret because it is unclear which version of the Cohen-Mansfield Agitation Inventory (CMAI)² was used and the scale used to rate its items. In addition, items that have been taken into

account in calculating the score for each subtypes of agitation are not reported.

Pelletier and Landreville⁴⁰ arrive at different conclusions regarding the relationship between subtypes of agitation and discomfort. They recruited 49 participants from 3 long-term care facilities. Hierarchical multiple regression analyses controlling for various characteristics of the participants (ie, the severity of dementia, disability in activities of daily living, and gender) showed that discomfort explains a significant proportion of the variance of general agitation as well as VA and physically nonaggressive behavior. The relationship between aggressive behavior and discomfort was not significant. Contrary to the findings of Young,²¹ those of Pelletier and Landreville⁴⁰ are congruent with the observation of some authors that conditions perceived as uncomfortable are generally associated with VA rather than other subtypes of agitation.³⁵ However, Pelletier and Landreville⁴⁰ provide no details regarding the determinants of discomfort and specific forms of VA involved in the association between discomfort and VA.

Other studies suggest that VA is associated with specific sources of discomfort, including pain, depressive symptoms, anxiety, sleep disturbances, and certain characteristics of the environment. Many people with dementia also live with physical pain. Indeed, dementia often coexists with painful medical conditions typically associated with aging such as articular degenerative diseases, hip fractures, or other types of fractures.²² Unfortunately, because of limited language skills, people with dementia often have unidentified and therefore untreated pain, which can lead to behavioral symptoms.^{22,41-43} Sloane and colleagues⁴⁴ have shown that pain caused VA in 60% of the participants in their study. People living in long-term care facilities and presenting VA have more diagnoses of physical illness and more physical pain than other residents.³ Other researchers have shown a link between the presence of pain and (a) vocalizations such as screams and groans and (b) an increase in the volume of existing vocalizations.^{43,45}

Depressive symptoms are also seen in many people with dementia. Rates of major and minor depression in the population⁴⁶ with dementia of the Alzheimer type vary between 30% and 50%. Various researchers have found that depressive symptoms are associated with VA, some even showing that residents of institutional settings, who present VA show more signs and symptoms of depression than other residents.^{12,47,48} They raise three hypotheses to explain this relationship: (a) depression and VA have a common etiology, (b) VA is an indirect cause of depression, and (c) depression in the elderly individuals with cognitive deficits may lead to VA. Other authors have also associated VA with anxious concerns.^{28,44} Sloane and colleagues have identified that 19% of their verbally agitated participants had a history of anxiety indicated in their medical record.⁴⁴

Sleep disturbance may affect up to 44% of people with Alzheimer's disease.⁴⁹ Various studies conducted over periods of 24 hours have shown pronounced disruption of circadian rhythm and fragmented sleep in this population.^{50,51} Some researchers have reported that one third of nursing home residents presenting VA have a diagnosis of sleep disorder and that

they experience significantly more sleep problems than other residents.²⁶ Cohen-Mansfield and Marx⁵² have also found a relationship between VA and sleep problems and that patients manifesting VA during the day tend to wake up at night, get up early in the morning, and sleep fewer hours. Other authors have suggested that fatigue is associated with VA.^{8,45} Finally, Cariaga and colleagues²⁶ have proposed that VA could be the result of discomfort caused by fatigue and irritability that are themselves caused by sleep problems.

With regard to environmental variables, different authors report that between 64% and 80% of patients show VA when they are alone.^{13,44} Potentially unpleasant physical stimuli, such as bathing, clothing, and physical restraint, have also been associated with VA.²⁷ Others note that bathing causes VA in 51% of cases and dressing in 48% of cases.^{27,44} Furthermore, Cohen-Mansfield et al²⁷ argue that VA increases when patients are physically restrained. For their part, Aubert et al¹³ indicate that VA occurs in 78% of patients who are physically restrained. Others raise the possibility that the consequences of restraints on VA may persist over a few days. Indeed, Sloane and colleagues⁴⁴ indicate that over 20% of participants in their study showing VA had been restrained in the last 7 days. The literature also suggests the influence of time of day on the behavior of persons with dementia. Several researchers have focused on the sundown syndrome hypothesis, which proposes that behavioral symptoms mostly appear in the late afternoon or early evening.⁵³⁻⁵⁵ However, because of differences between studies regarding the study population, the behaviors taken into account, the measurement instruments used, and the duration of observations, the findings regarding this syndrome are inconsistent.^{56,57} In fact, some authors included all types of dementia in their study, while others concentrated their efforts only on patients with Alzheimer's disease or on nursing home residents with VA. Some researchers examined VA only, others included physical agitation and VA, and still others observed the appearance or exacerbation of behavior disturbances during the sun-downing hours, with no definitions of the behaviors included in their study. Some researchers used questionnaires to assess behaviors manifested by patients and observed by their caregivers, while others chose real-time observations. Moreover, the duration of real-time observations vary from 4 times an hour over a 12-hour period to 12 hours a day during weekdays over a 2-week period. Consequent to these differences in research design, some authors argue that VA is more frequent in the morning^{2,58} in contrast to others who, in agreement with the sundown hypothesis, observe it more in late in the afternoon.^{6,13,14} Some reasons might explain the manifestations of VA at different time of the day. For example, in the morning, VA could be the expression of tiredness, hunger, or pain caused by arthritic conditions during washing and dressing. In the late afternoon, the stress of the day, as the PLST model suggests, could precipitate VA. Again hunger and thirst might be reasons of VA, as noises and agitations from nurses' shifts changes.

Although studies to date provide important information, our knowledge about the relationship between discomfort and VA remains limited. First, because of their correlational nature, the

results of these studies do not establish a causal link between these variables. A prospective cohort study would be a good design to specify the directions of these relations. Second, the lack of control over potential confounding variables limits the interpretation of the results of several studies. In fact, it would be beneficial to consider the role of female gender, functional disability, and cognitive impairment and control such variables in statistical analyses. Third, studies of the relationship between discomfort and VA provide no information regarding the sources of discomfort involved in the association between VA and discomfort. Because discomfort refers to a rather broad concept, the variance between these variables could be explained more specifically by certain specific potential sources of discomfort such as pain, depression, or lack of sleep. Fourth, existing studies do not specify what forms of VA (eg, complaints, repetition of sentences or questions, negativism, constant requests for attention) are most strongly related to discomfort and its sources. Future studies could examine whether the relationship between VA, discomfort and its sources is particularly strong for certain types of VA.

Practical Implications

Research on the determinants and treatment of BPSD has contributed to the publication of guidelines and recommendations by various organizations.⁵⁹⁻⁶⁴ In general, these guidelines share 5 main steps for the optimal management of BPSD, including VA: (1) specify the behavior, (2) identify the causes of the behavior, (3) use psychological treatment as a first step (unless the behavior is dangerous or results from a cause likely to respond better to pharmacological treatment), (4) if necessary, use a pharmacological treatment, and (5) reassess the treatment regularly. To appropriately manage a difficult behavior, it is often necessary to proceed with a preliminary functional assessment including (a) the operational description of the behavior, (b) the identification of conditions that precipitate this behavior and (c) a description of conditions that maintain the problem. In this section, we discuss the evaluation and treatment of VA in the context in which a relationship with discomfort is likely.

Because of its potential role in VA, clinicians should consider the level of discomfort as they assess and try to manage VA. In cases where discomfort seems to contribute to the problem, it is essential to push further the evaluation to identify sources of discomfort involved. Clinicians should be particularly vigilant with regard to pain, depression, and sleep problems. The instruments presented below may be helpful. It is particularly important to consider different sources of discomfort because they are not mutually exclusive. For example, a person with VA may be both depressed and in pain.

Assessment Tools

Several tools have been developed to measure BPSD, but none is intended exclusively for the assessment of VA. However, several of these have items that allow a screening of VA. This

is the case of the CMAI, which includes 8 of 29 items that assess the frequency of VA.² In addition to this scale, the Dementia Behavior Disturbance Scale,⁶⁵ the Nursing Home Behavior Problem Scale,⁶⁶ and the Disruptive Behavior Rating Scale⁶⁷ contain enough items to assess VA. These instruments are described in detail elsewhere.⁶⁸⁻⁷⁰

Few instruments have been developed and validated for the assessment of discomfort in people with dementia (see Table 1). Among these, the most commonly used is probably the Discomfort Scale for Patients with Dementia of the Alzheimer Type (DS-DAT).¹⁵ The DS-DAT consists of 9 behavioral indicators of discomfort that are accompanied by a list of specific observable behaviors. For example, the behavioral indicator "frown" is evaluated using the following observable behaviors: face looks strained; stern or scowling looks; displeased expression with a wrinkled brow and creases in the forehead; corners of mouth turned down. Although it has good psychometric qualities, this tool is difficult to use and requires several hours of training to reach satisfactory interrater reliability. Another tool is the Assessment of Discomfort in Dementia (ADD) Protocol, which measures discomfort through changes in facial expression, mood, body language, voice, and behavior.⁷¹ Little information on the administration and psychometric properties of this method of assessment are available, although there is evidence of interrater reliability for the assessment of behavioral symptoms.⁷¹ More recently, the Discomfort Behavior Scale (DBS) has been developed. This instrument measures the frequency of 17 items reflecting discomfort during the last 7 days. The items are taken from the Minimum Data Set, a database of demographic, clinical, and functional characteristics of each resident in the US long-term facilities.¹⁶ This instrument presents good psychometric qualities.¹⁶

Table 1 lists other instruments available to assess the variables associated with discomfort. Regarding the assessment of pain, the Checklist of Nonverbal Pain Indicators (CNPI)⁷² and the Pain Assessment Checklist for Seniors with Limited Ability to Communicate (PACSLAC)⁷³ are examples of most of the instruments that focus on behavioral symptoms that health professionals consider signs of physical pain. Unlike the CNPI, the PACSLAC has the advantage of covering the 6 categories of pain behaviors recommended by the American Geriatrics Society.⁵⁹ As noted by Herr and colleagues,⁷⁴ the CNPI would be more useful with additional items assessing more subtle behaviors as well as changes in behavior and interactions. This tool would thus provide a more comprehensive assessment of pain while allowing better detection in individuals whose pain is less obvious. Other more complex instruments, such as the Pain Assessment in Advanced Dementia (PAINAD)⁷⁵ and the Pain Assessment for the Dementing Elderly (PADE)⁷⁶ are also available. All these tools are described in details elsewhere.^{18,74,77,78}

With regard to the assessment of depression, one of the few scales validated in this population is the Cornell Scale for Depression in Dementia.⁷⁹ The Dementia Mood Assessment Scale, although less studied, can also be used.⁸⁰ The Geriatric

Table 1. Measures of Discomfort, Pain, Depression, and Sleep Disturbance in Persons With Dementia

Measures	Content	Total Score Range
Discomfort		
Discomfort scale for patients with dementia of the alzheimer type (DS-DAT) ¹⁴	Nine behavioral indicators rated according to frequency, intensity, and duration	Between 0 and 27
Assessment for discomfort in dementia protocol (ADD Protocol) ⁷¹	Fifteen behaviors associated with discomfort are rated according to their frequency	Does not apply (no total score)
Discomfort behavior scale (DBS) ¹⁵	Seventeen items taken from the minimum data set and reflecting discomfort during the last 7 days	Between 0 and 102
Pain		
Checklist of nonverbal pain indicators (CNPI) ⁷²	Six behaviors rated as present or absent	Between 0 and 6
Pain assessment checklist for seniors with limited ability to communicate (PACSLAC) ⁷³	Sixty behaviors rated as present or absent	Between 0 and 60
Pain assessment in advanced dementia (PAINAD) ⁷⁴	Assess 5 domains of observable signs of pain	Between 0 and 10
Pain assessment for the dementing elderly (PADE) ⁷⁵	Twenty-four items from 3 domains rated according to intensity	Between 0 and 96
Depressive symptoms		
Cornell scale for depression in dementia ⁷⁶	Nineteen items rated by a clinician based on an interview with patient and caregiver	Between 0 and 38
Dementia mood assessment scale ⁷⁷	Seventeen items rated by a clinician based on direct observation and interview with patient and collateral source	Between 0 and 102
Geriatric depression scale (GDS) ⁷⁸	Self-report scale 30 items (15 items version available)	Between 0 and 30
Hamilton depression rating scale ⁷⁹	Clinician-rated scale of severity of depression using 17 items	Between 0 and 54
Depression subscale of the neuropsychiatric inventory (NPI-D) ⁸⁰	Eight items rated according to frequency and severity of symptoms as well as impact on caregiver Information provided by caregiver	Between 1 and 4 for frequency Between 1 and 3 for severity
Sleep disturbance		
Sleep subscale of the NPI (NPI-S) ⁸⁰	Eight items rated according to frequency and severity of symptoms as well as impact on caregiver Information provided by caregiver	Between 1 and 4 for frequency Between 1 and 3 for severity
Sleep disorders inventory (SDI) ⁸¹	Eight items rated according to frequency and severity of symptoms as well as impact on caregiver Information provided by caregiver	Between 0 and 4 for frequency Between 0 and 3 for severity

Depression Scale (GDS)⁸¹ as well as the Hamilton Depression Rating Scale⁸² are other potentially useful instruments although they have not been developed to be used with patients with cognitive problems. Thus, their results must be interpreted with caution and verified with collateral sources of information to ensure the reliability and validity of the assessment. To rapidly detect the presence, frequency, and severity of symptoms of depression, the depression subscale of the Neuropsychiatric Inventory (NPI) can be administered by questioning a relative or caregiver.⁸³ For more information about these tools, see the review by Snowden, Sato, and Roy-Byrne.⁸⁴

Finally, when evaluating the quality of sleep, researchers generally use an objective measure, such as an actigraph (a device worn as a bracelet and which serves to record both movement and immobility, which can then be interpreted, respectively, as arousal and sleep), or standardized questionnaires answered by a person familiar with the patient.⁸⁵⁻⁸⁷ Among these, the sleep subscale of the NPI (NPI-S)⁸³ and the

Sleep Disorders Inventory (SDI),⁸⁵ an improved version of the NPI-S, can be used.

The choice of instruments for the assessment of discomfort and associated variables should take both empirical and practical considerations into account. For example, because it is based on the Minimum Data Set, the DBS may be a more practical solution for practitioners, while a detailed observational tool such as the DS-DAT or the ADD may be more appropriate for research purposes. In the absence of a gold standard, researchers should consider using multiple indicators of discomfort. The Cornell Scale for Depression in Dementia is a good choice because it has been developed specifically for this population. Several observation-based instruments for the assessment of pain in persons with dementia have been developed in recent years. Further validation may be necessary before they can be implemented in clinical practice although the validation of the PACSLAC is somewhat more advanced compared to other similar tools.⁷⁸

Treatments

There are several nonpharmacological interventions to reduce VA, and they can be grouped into several categories: (a) behavioral techniques (eg, reinforce appropriate behavior), (b) changes in the environment (eg, provide clues to help patient's find their way), (c) sensory stimulation (eg, listening to music), (d) increasing comfort (eg, repositioning the patient), and (e) psychosocial interventions (eg, validation therapy). The majority of these interventions have been found to be successful, although only some personalized behavioral and environmental interventions meet criteria of effectiveness of the American Psychological Association.⁸⁸⁻⁹⁰ Regarding pharmacological treatment, it has been shown that cholinesterase inhibitors have beneficial effects on verbal repetition.^{91,92} However, studies also indicate that some treatments, including atypical antipsychotics, have multiple side effects and are ineffective in reducing screaming, inappropriate verbalizations, and vulgar language.^{93,94}

Regarding the treatment of discomfort, the literature addresses the assessment and treatment of sources of discomfort in dementia rather than discomfort itself or discomfort associated with VA. For example, studies support the effectiveness of cognitive-behavioral interventions for the treatment of depression^{95,96} and insomnia⁸⁶ associated with dementia and guidelines for the treatment of pain in dementia patients have been published.⁵⁹ Kovach et al⁷¹ have proposed a treatment protocol that targets discomfort and has the following aims: (a) assess discomfort in people with dementia who cannot verbalize their physical pain or emotional discomfort, (b) treat physical pain and psychological discomfort, and (c) decrease inappropriate use of psychotropic drugs administered "as needed." However, the assessment of psychological discomfort is performed after the assessment of physical pain rather than at the same time. If the medical evaluation does not reveal anything significant, it is presumed that the origin of disruptive behavior can be emotional and nonpharmacological interventions, such as sensory stimulation or relaxation, are tried. If these interventions do not work, nonopioid analgesics are administered "as needed." Finally, if and only if nonopioid analgesics are ineffective, a stronger analgesic or psychotropic drug administered "as needed" is prescribed. Unfortunately, the authors take little account of the sources of psychological discomfort such as feelings of depression, anxiety, or sleep disturbance. Treatment using antidepressants or benzodiazepines does not seem to be considered. Although their intervention strategies are consistent with their goal of reducing inappropriate use of psychotropic drugs administered "as needed," they unfortunately can delay or even omit the pharmacological treatment of psychological discomfort associated with depression or anxiety.

The effectiveness of an intervention based on this treatment protocol, the Serial Trial Intervention (STI), has been evaluated.⁹⁷ In this double-blind study, half of the 114 participants from 14 long-term care facilities received the STI (experimental group) and half received usual treatment (control group). To be included in the study, participants had to (a) present moderate to severe cognitive deficits, (b) have little functional autonomy,

(c) have been admitted to their facility at least 4 weeks before beginning the study, and (d) have no psychiatric diagnosis other than dementia. Results indicate that participants in the experimental group showed significantly less discomfort after the intervention than the control group but that behavioral symptoms decreased in both groups. Furthermore, a significant difference was found between groups regarding the use of pharmacological treatments to reduce discomfort. More specifically, 46% of participants in the experimental group received analgesics compared to 3% of controls. No significant difference has been noted regarding the frequency of administration of nonpharmacological treatments (86% of the experimental group and 91% for control group). The reported high use of nonpharmacological treatments in both groups could explain the similar decrease in behavioral symptoms and therefore the lack of effect of the intervention on this variable. This study demonstrates that it is possible to effectively treat discomfort in persons with dementia.

The STI is a promising approach to the assessment and management of discomfort and associated behaviors, including VA, in patients with dementia. Clinicians could integrate a similar protocol to their practice. Future research could try to replicate previous findings with the STI, identify which aspects of the intervention are the most useful, pinpoint which patient characteristics are associated with favorable outcome, and evaluate the long-term maintenance of the effects of the intervention.

Conclusion

Several authors suggest that VA may be the manifestation of physical or psychological discomfort. Although some researchers have attempted to directly verify this relationship, results are mixed. However, other researchers have found an association between VA and potential sources of discomfort including pain, depressive and anxiety symptoms, sleep disturbances, and certain environmental conditions. Given the possibility that discomfort is an underlying cause of VA, it is remarkable that relatively little attention has been devoted to the study of this relationship. From a clinical angle, we can presume that the prevention and treatment of discomfort may have a favorable impact on verbally agitated behavior. Thus, it is recommended to evaluate the level of discomfort as part of the assessment of VA. If a particular source of discomfort appears to be important, it can be directly targeted to make the person more comfortable and reduce VA.

We have identified several limitations in current knowledge that require consideration and further research. First, the correlational nature of the studies limits the interpretation of the results with regard to causality. Second, the lack of consensus among researchers about the definition of discomfort is problematic. Some refer to pain and discomfort interchangeably, while others make a distinction between these concepts. It would be useful to better distinguish and operationalize these concepts. Third, studies that have directly examined the relationship between discomfort and VA are few and findings are mixed. More studies are needed to elucidate this relationship and to provide information about the strength of the evidence.

Furthermore, future work on this relationship could go further, particularly in specifying the sources of discomfort related to VA and, conversely, the manifestations of VA related to these sources of discomfort. If specific sources of discomfort and forms of VA are interrelated, the results could help caregivers to better target and treat the causes of discomfort and thus reduce VA.

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