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Qualification en MÉDECINE GÉNÉRALE

Prevalence of neuropsychiatric symptoms in a French nursing home

Prévalence des symptômes neuropsychiatriques au sein d'un établissement français d'hébergement pour personnes âgées dépendantes

Étude descriptive transversale

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Né le 11/02/1996 à Angers (49)

Sous la direction de la Docteure Marine ASFAR

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« Au moment d'être admis à exercer la médecine, je promets et je jure d'être fidèle aux lois de l'honneur et de la probité. Mon premier souci sera de rétablir, de préserver ou de promouvoir la santé dans tous ses éléments, physiques et mentaux, individuels et sociaux. Je respecterai toutes les personnes, leur autonomie et leur volonté, sans aucune discrimination selon leur état ou leurs convictions. J'interviendrai pour les protéger si elles sont affaiblies, vulnérables ou menacées dans leur intégrité ou leur dignité. Même sous la contrainte, je ne ferai pas usage de mes connaissances contre les lois de l'humanité. J'informerai les patient·es des décisions envisagées, de leurs raisons et de leurs conséquences. Je ne tromperai jamais leur confiance et n'exploiterai pas le pouvoir hérité des circonstances pour forcer les consciences. Je donnerai mes soins à l'indigent·e et à quiconque me les demandera. Je ne me laisserai pas influencer par la soif du gain ou la recherche de la gloire.

Admis dans l'intimité des personnes, je tairai les secrets qui me seront confiés. Reçu à l'intérieur des maisons, je respecterai les secrets des foyers et ma conduite ne servira pas à corrompre les mœurs. Je ferai tout pour soulager les souffrances. Je ne prolongerai pas abusivement les agonies. Je ne provoquerai jamais la mort délibérément.

Je préserverai l'indépendance nécessaire à l'accomplissement de ma mission. Je n'entreprendrai rien qui dépasse mes compétences. Je les entretiendrai et les perfectionnerai pour assurer au mieux les services qui me seront demandés.

J'apporterai mon aide à mes confrères et consœurs ainsi qu'à leurs familles dans l'adversité. Que les hommes et femmes et mes confrères et consœurs m'accordent leur estime si je suis fidèle à mes promesses ; que je sois déshonoré et méprisé si j'y manque ».

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À ma famille et mes ami·es.

À mon neveu Jean.

Liste des abréviations

[illegible]

Plan

SERMENT D'HIPPOCRATE

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Prevalence of neuropsychiatric symptoms in a French nursing home

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ABSTRACT

BACKGROUND: Neuropsychiatric symptoms are a highly prevalent complication of neurocognitive disorders, and their management represents a major challenge in the care of residents in nursing homes. A deterioration in quality-of-life, faster cognitive decline, higher mortality, stress on care teams and increased healthcare costs are several of their negative impacts that have been measured. Given the complexity and multidimensional nature of their management, establishing the prevalence of different NPS is a prerequisite for mapping needs and establishing care strategies. Several studies have measured these prevalences, but none in France. The aim of this study is therefore to assess the prevalence of neuropsychiatric symptoms in a French nursing home.

METHOD: We analyzed the results of the Neuropsychiatric Inventory-Nursing Home version (NPI-NH) of a sample of 205 of the 296 residents of a French nursing home.

RESULTS: 76.1% of the included residents had at least one clinically significant symptom, the majority presenting multiple ones. Agitation/aggression (39.2%), apathy (39%), anxiety (27.5%) and irritability (27.3%) were predominant.

DISCUSSION/CONCLUSION: These high prevalences of neuropsychiatric symptoms are consistent with those of similar studies conducted in Dutch, Norwegian, Spanish, and English nursing homes. These results confirm and clarify the important place they should occupy in the care strategies to be developed in nursing homes.

Keywords: Neuropsychiatric symptoms, Nursing home, NPI, Prevalence

INTRODUCTION

Behavioral disorders, more precisely referred to as neuropsychiatric symptoms (NPS), are a highly prevalent complication of neurocognitive disorders (1,2), making their management a major challenge in the care of residents in nursing homes (NH).

Their negative impact has been measured at various levels. For residents, we observed a deterioration in quality-of-life scales (3,4), faster cognitive decline in Alzheimer's patients and higher mortality (5,6). For care teams, they represent a stress factor, often major for certain symptoms such as agitation/aggression, irritability or disinhibition (7,8). Also, from an economic point of view, they contribute to an increase in the cost of care (9,10).

Their management is complex and multidimensional, with recommendations prioritizing non-medicinal approaches (11–14). Determining the prevalence of different neuropsychiatric symptoms in NH is a prerequisite for optimizing care, enabling us to map out the various needs and then establish care strategies.

There are several studies measuring these prevalences, but none in France to our knowledge. In 2007, a Norwegian study found 65.2% of patients with at least 1 significant NPS among 1163 NH residents assessed by the Neuropsychiatric Inventory (15). Among patients with neuro-cognitive disorders, prevalences of up to 86.3% were found (16–20). All these studies show a particularly high prevalence of irritability, apathy and agitation/aggression (15–20).

The principal aim of this study is therefore to assess the prevalence of neuro-psychiatric symptoms in a French nursing home. Secondly, we will assess the impact of different NPS on care teams, and compare the prevalence of NPS according to the GIR ("Groupe iso ressource") dependency scale and the use of psychotropic drugs.

MATERIAL AND METHODS

This is a cross-sectional descriptive study. Data were extracted from medical records of a French nursing home on the 15th of December 2024. At that time, there was a total of 296 residents, 28 of them in dementia special care units, the other 268 in general units.

Patients were considered if they had neuro-cognitive impairment of any grade, a Neuropsychiatric inventory completed within the last year and had resided at the NH for at least 1 month. Patients who objected to the use of their medical data were not included.

1. Primary outcome: neuropsychiatric symptoms

The presence of NPS was measured using the nursing-home version of the Neuropsychiatric Inventory (NPI-NH), an assessment tool initially designed for patients with dementia, which has been tailored for institutional care settings (21–23). Used routinely in resident follow-up, it takes the form of a survey conducted by a trained healthcare professional among caregivers who are familiar with the individual's behaviors, assessing 12 neuropsychiatric symptoms: delusion, hallucination, agitation/aggression, depression, anxiety, euphoria, apathy, disinhibition, irritability, aberrant motor behavior, night time disturbances and appetite/eating change. Each NPS is assessed as absent or present or not applicable in certain circumstances. If present, the frequency F is rated on a scale of 1 to 4, and the severity S on a scale of 1 to 3. Multiplying frequency and severity ($F \times S$) gives a final score ranging from 1 to 12. A NPS with an FxS score of 4 or higher is defined as clinically significant, corresponding to a symptom present on a daily basis, regardless of severity, or to a symptom of medium to high severity observed at least once a week.

2. Secondary outcomes

Additional data were extracted for secondary analyses: NPI-NH caregiver impact scores, psychotropic medication use and GIR score.

The impact of NPS on caregivers is measured by an additional score of the NPI-NH, which asks the caregiver to rate for each presented NPS how much increased work, effort, time, or distress the behavior causes, on a scale from 0 (not at all), to 5 (very severely or extremely).

Prescriptions for psychotropic drugs as background treatment were retrieved from pharmacy files. Drugs were grouped into antipsychotics, antidepressants, thymoregulators/antiepileptics, and anxiolytics/hypnotics.

The "Groupe Iso-Ressource" (GIR) is a classification system used in France to assess the level of dependency of elderly or disabled individuals, comprising 6 levels, from GIR 1 (most dependent) to GIR 6 (least dependent)(24). It is the main determinant in the allocation of financial aid and the coordination of care services in France.

3. Statistical analysis

Subgroup analyses comparing NPS prevalence were performed using Chi-square test or Fisher exact test. P-values<0.05 were considered significant. Data were analyzed using Jamovi 2.6.25.

4. Ethical and legal considerations

Patients and/or their relatives were informed about the study by informative letter. Explicit consent was not required for enrollment, but they were informed that they could refuse to participate. Ethical approval was obtained from the Ethics Committee of the University Hospital of Angers, France (2024-217). The study protocol was also declared to the National Commission for Information Technology and Civil Liberties (CNIL, ar25-0009v0).

RESULTS

Among the 296 residents on December 15th 2024, 239 were identified with a neurocognitive disorder, 206 of whom had a NPI-NH less than a year old. One of them refused to take part in the study, leaving a final sample of 205 participants (flow chart in the annex). The mean age of the residents was 85.1 years, with a majority of females (63.9%). We found a high degree of dependency with predominantly low GIR scores (mean 2.6). In terms of background treatment with psychotropic drugs, 16.6% of patients were receiving neuroleptics, 38% antidepressants, 20% thymoregulators or antiepileptics and 32.7% benzodiazepines or hypnotics (Table I).

Table I: Characteristics of the patient sample (n=205).

Characteristic	
Age (years) (mean $\pm$ SD)	85.1 $\pm$ 12.1
Sex	
female	131 (63.9)
male	74 (36.1)
GIR score	
GIR 6	4 (2)
GIR 5	5 (2.4)
GIR 4	36 (17.6)
GIR 3	51 (24.9)
GIR 2	76 (37.1)
GIR 1	32 (15.6)
Mean	2.6
Psychotropic medication use	
Neuroleptics	34 (16.6)
Antidepressant	78 (38)
Thymoregulator/antiepileptic	41 (20)
Benzodiazepine/hypnotic	66 (32.7)

Figures are in real numbers (%), unless stated otherwise.

76.1% of the included residents had at least one clinically significant NPS (F x S score ≥ 4). A majority (60%) of the sample presented multiple symptoms, with 40% presenting between 2 and 4 symptoms, and 20% between 5 and 10 symptoms.

The prevalences of the various NPS are shown in Table II. Aggression/agitation and apathy were the most frequent symptoms with rates of 39.2 and 39% respectively, followed by anxiety and irritability with 27.5 and 27.3%.

Table II: Prevalence of neuropsychiatric symptoms among nursing-home patients (n =205).

Neuropsychiatric symptoms	N ^a	Clinically significant symptom (% ^b)
Delusions	199	24.1
Hallucinations	205	12.7
Agitation/aggression	204	39.2
Depression	204	21.1
Anxiety	204	27.5
Euphoria	205	7.3
Apathy	205	39.0
Disinhibition	205	17.1
Irritability	205	27.3
Aberrant motor behavior	205	14.1
Night time disturbance	153	15.7
Appetite/eating disorder	188	17.0
Any NPI-symptom	205	76.1

a Number of patients with complete data

b Percentage of patients with complete data

In terms of the impact of NPS on caregivers (Table III), agitation/aggressivity was measured as having the most repercussions. This was followed by night time disturbances, delusions, hallucinations and disinhibition, with similar mean scores. Apathy and euphoria had the lowest impact.

Table III: Mean caregiver impact score for each NPS, ranked from highest to lowest.

Neuropsychiatric symptom	Mean caregiver impact score (SD)
Agitation/aggression	3.26 (1.28)
Night time disturbance	2.97 (1.53)
Delusions	2.97 (1.25)
Hallucinations	2.84 (1.42)
Disinhibition	2.75 (1.49)
Anxiety	2.59 (1.19)
Irritability	2.44 (1.32)
Depression	2.39 (1.29)
Appetite/eating disorder	2.31 (1.36)
Aberrant motor behavior	2.00 (1.64)
Apathy	1.84 (1.25)
Euphoria	1.77 (1.42)

Regarding the use of psychotropic drugs and the presence of NPS (Table IV), we measured a higher prevalence in patients taking neuroleptics, and benzodiazepines/hypnotics, and a lower one in patients taking thymoregulators/antiepileptics although this was not significant. Prevalences were similar for patients taking antidepressants.

Table IV: Presence of neuropsychiatric symptoms according to the use of different neuropsychiatric drugs as background treatment.

Psychotropic medication	Any clinically significant symptom		p-value
	Present n (%)	Absent n (%)	
Neuroleptic (n)			
Yes (34)	30 (88.2)	4 (11.8)	0.080 ^a
No (171)	126 (73.7)	45 (26.3)	
Antidepressant (n)			
Yes (78)	59 (75.6)	19 (24.4)	0.904 ^b
No (127)	97 (76.4)	30 (23.6)	
Thymoregulator/Antiepileptic (n)			
Yes (41)	28 (68.3)	13 (31.7)	0.190 ^b
No (164)	128 (78.0)	36 (22.0)	
Benzodiazepine/Hypnotic (n)			
Yes (66)	53 (80.3)	13 (19.7)	0.331 ^b
No (139)	103 (74.1)	36 (25.9)	

a Fisher's exact test

b chi-2-test

The prevalence of NPS increased with the level of dependency (Table V), with a significant increase between GIR 4 and GIR 3 (52.8% vs. 74.5%), GIR 3 and GIR 2 (74.5% vs. 88.2%), and a non-significant result between GIR 2 and GIR 1 (88.2% vs. 93.8%).

Table V: Prevalence of NPS according to GIR level of dependence.

GIR score (n)	Presence of any clinically significant symptom n (%)	p-value
GIR 6 (4)	0 (0)	-
GIR 5 (5)	2 (40.0)	0.444 ^a
GIR 4 (36)	19 (52.8)	0.663 ^a
GIR 3 (51)	38 (74.5)	0.036 ^{b*}
GIR 2 (76)	67 (88.2)	0.046 ^{b*}
GIR 1 (32)	30 (93.8)	0.501 ^a

The prevalence of each level is compared with the previous one.

a Fisher's exact test

b chi-2-test

* significance level <0.05

DISCUSSION

We measured a high prevalence of neuropsychiatric symptoms among cognitively impaired residents in this French nursing home, with 76.1% of them presenting at least one significant symptom, the majority presenting multiple ones. Agitation/aggression (39.2%), apathy (39%), anxiety (27.5%) and irritability (27.3%) were predominant.

The different results could be expected in comparison with similar studies in other countries. A Dutch study (16) on a sample of 1,322 residents with dementia of 25 NH found a prevalence of at least one NPS of 81%, with irritability, apathy and agitation/aggression predominating (34%, 34% and 31% respectively). Another study from Norway (15) found a prevalence of 71.3% among 933 residents in 26 NH, with irritability, apathy and agitation/aggression again predominating (29.3%, 29.1% and 26.6%). Studies with smaller samples found a prevalence of NPS of 86.3% in Spain (17) among 212 residents, and 84% in England (18) among 137 residents. All these studies showed consistent proportions of the different NPS compared with our results. They can also be compared with a systematic review (19) presenting the prevalence of NPS assessed with different tools worldwide with an average of 82% (from 38 to 95%) of nursing home residents with dementia having at least one NPS. Once again, the prevalence of different symptoms is comparable.

On the caregiver side, the predominant impact of agitation/aggression was to be expected, and in consideration of its frequency, it appears to be a priority in the care strategies to be established. However the lesser impact of apathy, compared to its frequency, requires vigilance to ensure that it is not disregarded by the care team, as studies have shown a relation between the presence of apathy and altered resident's quality of life (25). In this context, it is easy to understand the importance of training caregivers, which has proven effective in managing NPS (26,27) and must be a key point in care strategies, for the benefit of both residents and caregivers themselves.

Observing the relationship between the use of various psychotropic drugs and the presence or absence of NPS is mainly for informational purposes. The first thing to note is the high prevalence of NPS, regardless of the use of psychotropic drugs. Although not significant, subgroups of patients taking neuroleptics, benzodiazepines or hypnotics showed a higher prevalence of NPS than those not taking them. On the other hand, the prevalence was very similar between the antidepressant and non-antidepressant subgroups. Without providing any further explanation of the mechanisms involved, these results at least reflect the complexity of the NPS treatment with drugs, the use of which has often been questioned, in favor of non-drug therapies which are now at the forefront of the latest recommendations (11–13,27,28).

Regarding the level of dependency assessed by the GIR scale, we observed an increase in the prevalence of NPS as the GIR decreases, significantly from GIR 4 to 3 and from GIR 3 to 2. The association between the presence of NPS and the increase in functional limitations has already been observed (29). But these results are also important because the GIR is currently the main indicator of a patient's need for care in the French administration system, so it is necessary to ensure that it can reflect the needs represented by behavioral disorders, thus recognizing the burden on caregivers and allowing appropriate financial support. In this sense, additional investigations in the most dependent patients would be necessary, since our results are not significant for comparisons between the GIR 2 subgroup, which represents the largest number of residents, and the GIR1 subgroup, the most dependent.

Some limitations of our study should be considered. First, despite the large number of residents, the monocentric aspect limits extrapolation to the general population of French nursing homes. Also, the selection of patients with neurocognitive disorders can be criticized, as the inclusion criteria may seem lenient with the aim of including as many people as possible and representing the nursing home population as much as possible but limiting the comparison with foreign studies using stricter criteria. Finally, although the use of the NPI-NH provides a

fairly complete representation of neuropsychiatric disorders, the quantity of data it generates makes subgroup comparisons difficult, requiring multiple statistical analyses that increase the alpha risk. For our study, we therefore limited ourselves to comparing subgroups according to the presence or absence of at least one significant symptom, at the expense of less detailed analysis. However, this study demonstrated that, thanks to the large population for a single NH and the significant amount of data generated by routine medical care and follow-up, we were able to produce detailed and consistent analyses with relative ease, opening up possibilities for other more specific or in-depth studies.

CONCLUSION

A high prevalence of neuropsychiatric symptoms has been found in this French nursing home, in proportions comparable to those found in similar establishments abroad. These results confirm the important place they should occupy in the care strategies to be developed, all the more so considering their impact on the care teams. The management of aggression and agitation seems to be a priority. It is hoped that further research will be carried out to promote better knowledge and recognition of this situation, but also to develop and evaluate new care strategies that emphasize non-drug interventions and training of caregivers.

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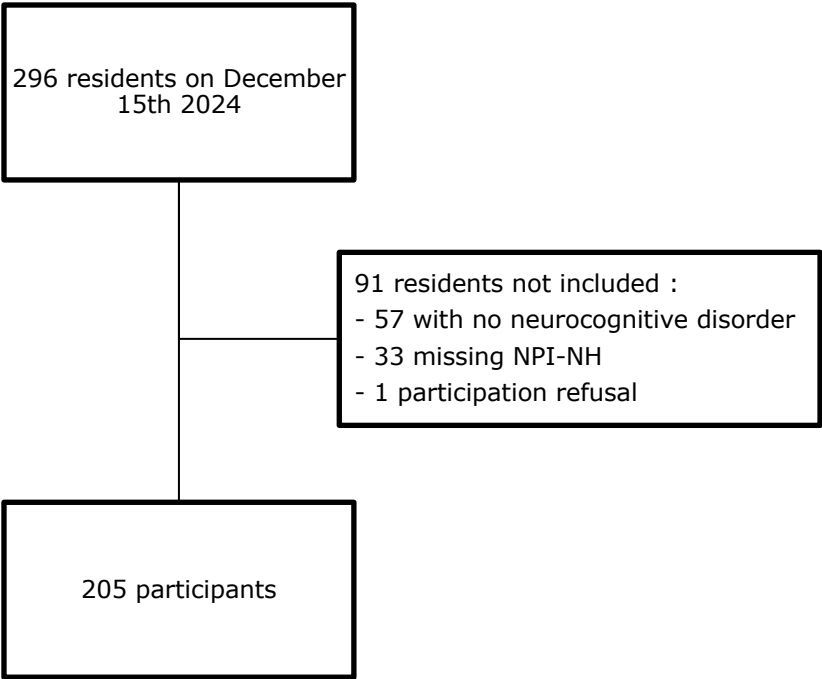
Annexe I: Flow chart I

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ANNEXES

Annexe I: Flow chart



Prévalence des symptômes neuropsychiatriques au sein d'un établissement français d'hébergement pour personnes âgées dépendantes

RÉSUMÉ

INTRODUCTION : Les troubles du comportement, ou symptômes neuropsychiatriques, sont une complication très fréquente des troubles neurocognitifs, et représentent un défi majeur dans la prise en charge des résidents d'EHPAD (Établissement d'Hébergement pour Personnes Âgées Dépendantes). Une détérioration de la qualité de vie, un déclin cognitif plus rapide, une mortalité plus élevée, un facteur de stress pour les équipes soignantes et une augmentation des coûts de santé sont quelques-uns des impacts négatifs qui ont pu être mesurés. Compte tenu de la complexité et de la nature multidimensionnelle de leur prise en charge, déterminer la prévalence de ces différents symptômes est indispensable afin de pouvoir cartographier les différents besoins et établir des stratégies de soins. Plusieurs études ont mesuré ces prévalences, mais aucune en France. L'objectif de cette étude est donc d'évaluer la prévalence des symptômes neuropsychiatriques au sein d'un EHPAD français.

MÉTHODE : Nous avons analysé les résultats de l'Inventaire Neuropsychiatrique pour Établissement de Soins (NPI-ES) d'un échantillon de 205 des 296 résidents d'un EHPAD français.

RÉSULTATS : 76,1 % des résidents inclus présentaient au moins un symptôme neuropsychiatrique cliniquement significatif, la majorité d'entre eux en présentant plusieurs. L'agitation/agressivité (39,2 %), l'apathie (39 %), l'anxiété (27,5 %) et l'irritabilité (27,3 %) étaient prédominantes.

DISCUSSION/CONCLUSION : Ces prévalences élevées de symptômes neuropsychiatriques concordent avec celles observées dans des études similaires menées dans des établissements néerlandais, norvégiens, espagnols et anglais. Ces résultats confirment et précisent la place importante qu'ils doivent occuper dans les stratégies de soins à développer en EHPAD.

Mots-clés : Symptômes neuropsychiatriques, EHPAD, NPI, Prévalence

Prevalence of neuropsychiatric symptoms in a French nursing home

ABSTRACT

BACKGROUND: Neuropsychiatric symptoms (NPS) are a highly prevalent complication of neurocognitive disorders, and their management represents a major challenge in the care of residents in nursing homes. A deterioration in quality-of-life, faster cognitive decline, higher mortality, stress on care teams and increased healthcare costs are several of their negative impacts that have been measured. Given the complexity and multidimensional nature of their management, establishing the prevalence of different NPS is a prerequisite for mapping needs and establishing care strategies. Several studies have measured these prevalences, but none in France. The aim of this study is therefore to assess the prevalence of neuro-psychiatric symptoms in a French nursing home.

METHOD: We analyzed the results of the Neuropsychiatric Inventory-Nursing Home version (NPI-NH) of a sample of 205 of the 296 residents of a French nursing home.

RESULTS: 76.1% of the included residents had at least one clinically significant NPS, the majority presenting multiple ones. Agitation/aggression (39.2%), apathy (39%), anxiety (27.5%) and irritability (27.3%) were predominant.

DISCUSSION/CONCLUSION: These high prevalences of neuropsychiatric symptoms are consistent with those of similar studies conducted in Dutch, Norwegian, Spanish, and English nursing homes. These results confirm and clarify the important place they should occupy in the care strategies to be developed in nursing homes.

Keywords: Neuropsychiatric symptoms, Nursing home, NPI, Prevalence

