Clinical Interventions in Aging Dovepress

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Perception and Identification of Behavioral and Psychological Symptoms of Dementia (BPSD) in China Medical Community

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Background: Behavioral and psychological symptoms of dementia (BPSD), as neuropsychiatric manifestations within dementia, constitute core features of dementia. However, there remains a gap in understanding the recognition of BPSD in China. Our current study was to explore the clinical awareness and treatment approaches for BPSD in China, focusing especially on the perspectives of neurologists and psychiatrists.

Methods: A multicenter national survey was designed and a semi-structured questionnaire was distributed to healthcare professionals including doctors and nurses across all provinces of China. The questionnaire incorporated either closed (yes/no) and multiple-choice questions. The questions centered on the following areas: the perceived global frequency and relevance of BPSD; the assessment tools employed for evaluating BPSD; pharmacological approaches for addressing psychosis, apathy, agitation, aggression, depression, anxiety, sleep, and nutrition disorders; drug-related side effects; non-pharmacological treatment strategies. The anonymity of questionnaire responses was maintained to encourage participants to candidly express their viewpoints.

Results: The majorities of respondents recognized the importance of BPSD. There were apparent differences in the perception of BPSD between neurologists and psychiatrists, encompassing variances in symptoms recognition, diagnostic approaches, and treatment strategies. A notable high percentage of neurology (27.8%) and psychiatry staff (23.6%) would not choose non-pharmacological interventions. Meanwhile, antipsychotics was overused in China. For aggression and agitation, more than half of neurologist and psychiatrist preferred antipsychotics. For psychosis, more than 80% of doctors chose antipsychotics. Nearly one-third of the medical staff expressed a preference for traditional Chinese medicine including ginkgo biloba extract.

Conclusion: In summary, this study in China has shed light on the features related to perception, recognition, management, treatment options, and observed side effects associated with BPSD. Our findings have the potential to significantly enhance the understanding of BPSD characteristics among medical practitioners and offering valuable insights into improved management and treatment strategies of neuropsychic symptoms of dementia in China.

Keywords: dementia, BPSD (behavioral and psychological symptoms of dementia), BPSD management, psychosis

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Introduction

Dementia stands as one of the greatest global challenges for healthcare and social care, with China hosting the largest population of dementia patients. The number of patients with dementia in China accounts for approximately 25% of the total global dementia population.[1] According to a recent nationwide cross-sectional study, there are 15.07 million individuals aged 60 years and older suffering from dementia in China.[2] Beyond cognitive impairment, behavioral and psychological symptoms of dementia (BPSD), also known as neuropsychiatric symptoms of dementia, represent one core feature of this condition.[3] BPSD encompasses array of symptoms and behaviors, including screaming, calling out, verbal and physical aggression, agitation, apathy, sexual disinhibition, defiance, wandering, hostility, intrusiveness, repetitive behavior and vocalization, hoarding, nocturnal restlessness, emotional liability, paranoid behaviors, and psychosis (hallucinations and/or delusions). Nearly all patients with dementia experience certain forms of BPSD during the disease development.[4] The presence of BPSD contributes to higher rates of admission to long-term care facilities and prolonged in-patient hospital stays.[5] Furthermore, the development of BPSD is associated with a worse prognosis and a swifter illness progression.[6] From caregiver's standpoint, BPSD acts as a major source of stress and depression, even more significant than cognitive decline.[7,8] Additionally, the significance of BPSD in the assessment and diagnosis of dementia is increasingly gaining recognition in recent years.

Assessing of BPSD is a complex task for physicians with limited treatment options. The management of BPSD remains non-standardized, encompassing various non-pharmacological and pharmacological approaches. In clinical practice, antipsychotics are commonly used for BPSD when non-pharmacological interventions and serotoninergic antidepressant are not sufficient, or in case of emergency.[9,10] The American Psychiatric Association suggests use of antipsychotic medication in dementia patients, particularly those with dangerous agitation or psychosis, to "minimize the risk of violence, reduce patient distress, improve patient's quality of life, and reduce caregiver burden".[11] Antipsychotics are associated with some serious adverse effects such as increased mortality and are not recommended unless there is a significant risk to the patient or others.[12] Unfortunately, viable pharmacological alternatives remain rare. It is generally agreed that non-pharmacological interventions should be the first-line treatment due to their lack of adverse effects.[12] Several shortcomings of non-pharmacological choices should be taken into consideration, including insufficient evidence of efficacy, difficulty in implementing these strategies, and limited applicability to patients with dementia living independently.[3]

With the increasing prevalence of dementia, the workload associated with BPSD is expected to increase markedly, posing even greater pressure on medical staff. As described above, management of BPSD is challenging considering the difficulties associated with its diagnosis and treatment. In China, neurologists and psychiatrists are mainly responsible for the management of BPSD. Development of guidelines and standard procedures for management and treatment of BPSD is urgently needed. To date, no related investigations have been conducted in China. As the first step toward this goal, here we investigated the clinical perception and the adopted treatment strategies for BPSD in China, especially among neurologists and psychiatrists.

Methods

Participants and Assessments

A multicenter national survey was developed, which consisted of a semi-structured questionnaire that was sent to doctors and nurses who work in different departments especially neurology and psychiatry in all provinces in China, except Hong Kong, and Macao (Figure 1). Participants were asked to specify their working settings such as neurology or psychiatry departments. The questionnaire included both closed (yes/no) and multiple-choice questions, focusing on four key aspects: general information, clinical impression, treatments, exams and assessments (see Figure S1). The survey was kept anonymous to encourage responders to freely express their opinions.

Statistical Analysis

The analysis was performed using Stata software, and the findings were reported in terms of frequencies and percentages. To compare proportions, the χ^2 test was employed, with any P value less than 0.05 considered statistically significant.

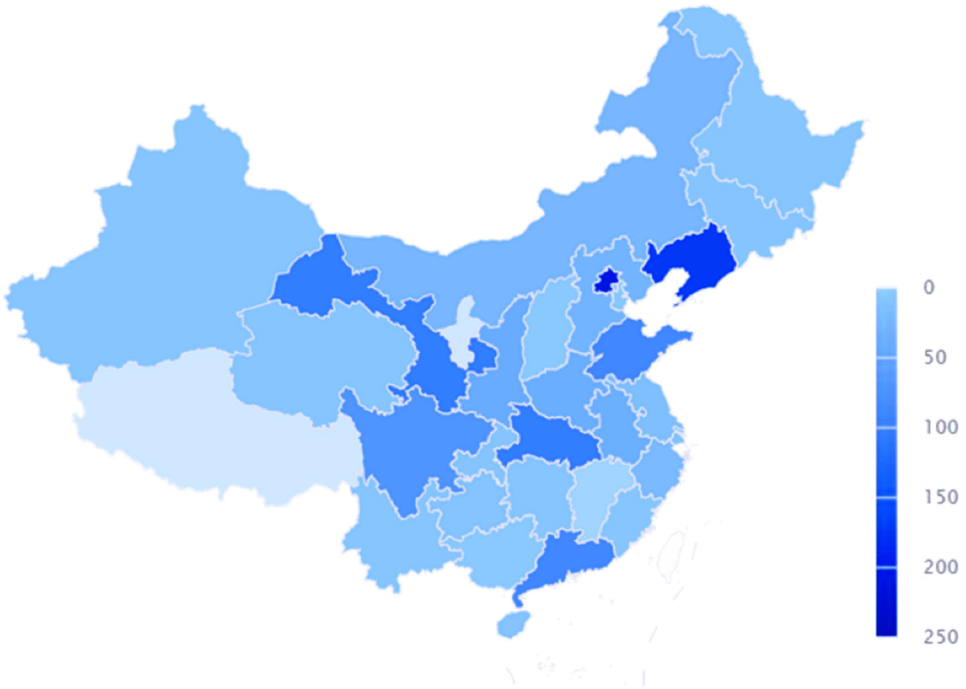

Figure 1 Geographical distribution of our survey in China.

Results

Survey Response

A total of 1191 clinical healthcare professionals took part, comprising 759 doctors and 422 nurses. These participants were drawn from 32 provinces, and a total of 1181 valid questionnaires were received. Among these respondents, 673 were affiliated with general or comprehensive hospitals, 476 were associated with specialized hospitals, and 32 were connected to community hospitals. Moreover, 555 participants were engaged in the field of neurology, 495 in psychiatry, 47 in internal medicine, and 84 in other medical practice sites (Figure 1).

Comparison of Diagnostic Examinations for BPSD Between Neurologists and Psychiatrists

The neurologists exhibited higher awareness rates of dedicated tools such as neuropsychiatric inventory (NPI) (49.55%), NPI questionnaire (NPI-Q) (36.94%) and Behavioral Pathology in Alzheimer's Disease Rating Scale (BEHAVE-AD) (58.92%). In diagnostic test, the neurologists exhibited higher awareness rates of diagnostic tests such as Magnetic Resonance Imaging (MRI) (89.44%), blood tests (67.94%), lumbar puncture (34.24%), clinical scales (87.2%). Additionally, neurologists displayed more interests in biomarkers to assist in diagnosis (86.65%). On the other hand, staff from the psychiatry exhibited relatively lower awareness rates of the aforementioned diagnostic procedures (Table 1).

Comparison of Symptoms Perception and Identification for BPSD Between Neurologists and Psychiatrists

BPSD was deemed common and importance in the neurologists and psychiatrists (88.09% vs 82.15%, 94.76% vs 92.17%) (Figure 2). There was significant difference in the report of specific symptoms of BPSD between neurologists and psychiatrists, such as agitation/aggression, delusion, depression, irritability/ lability, nighttime behavioral disturbances and apathy. Specifically, the rates reported by psychiatrists for agitation/aggression and delusions were higher, 83.43% and 80.4%, respectively ($p<0.05$). However, the rates reported by neurologists for symptoms of depression,

Table 1 Some Differences Between Neurology and Psychiatry Staffs (Values are Expressed as Percentages)

	Neurology (n=555)	Psychiatry (n=495)	*p* value
How do you evaluate BPSD?			
Clinical evaluation	93.15	92.73	0.788
Information by caregivers	72.97	78.59	0.034
Dedicated tools	58.02	56.36	0.589
Which assessment tool do you use?			
NPI	49.55	37.98	<0.001
NPI- Q	36.94	33.54	0.25
BEHAVE-AD	58.92	55.56	0.271
Others	20.18	30.51	<0.001
Do you usually treat apathy?			
Yes	47.83	55.92	0.009
No	52.17	44.08	
Do you think AChEIs are effective for BPSD?			
Yes	82.49	87.65	0.02
No	17.51	12.35	
Do you think memantine is effective for BPSD?			
Yes	89.53	72.26	<0.001
No	10.47	27.74	
What are the most frequent adverse event to antipsychotics?			
Parkinsonism	91.52	96.07	0.003
Confusion/sedation	72.02	73.29	0.647
Cardiac	67.51	67.7	0.947
Cognitive	51.44	63.98	<0.001
Endocrine	38.81	69.15	<0.001
Paradoxical effect	46.93	50.93	0.199
What are the most frequent adverse event to antidepressants?			
Gastrointestinal tract	85.56	91.3	0.004
Weight and Metabolism	70.76	62.11	0.003
Cardiac	66.79	71.84	0.079
Urinary	39.35	44.51	0.093
Sexual	47.47	63.98	<0.001
Ataxia	36.82	32.71	0.166
Confusion/sedation	49.82	33.54	<0.001
Paradoxical effect	45.49	31.47	<0.001
What are the most frequent adverse event to benzodiazepines?			
Ataxia	48.74	75.78	<0.001
Confusion/sedation	78.34	78.3	0.707
Paradoxical effect	31.41	46.58	<0.001
Tolerance and dependence	79.06	81.78	0.272
Do you usually prescribe drugs for BPSD in monotherapy or in polytherapy?			
Monotherapy	16.46	22.96	0.008
Polytherapy	83.54	77.04	
Do you use non-pharmacological treatments for BPSD?			
Yes	72.15	76.36	0.124
No	27.85	23.64	

(*Continued*)

Table 1 (Continued).

	Neurology (n=555)	Psychiatry (n=495)	*p* value
Which non-pharmacological treatments do you use?			
Neuromodulation therapy	51.18	66.32	<0.001
Occupational therapy	35.8	54.02	<0.001
Cognitive stimulation	43.58	47.07	0.261
Validation	14.65	21.13	0.006
Gentle care	45.75	53.97	0.008
Person centered care	43.04	40.38	0.388
Motor therapy	40.87	55.23	<0.001
Counseling	62.93	47.49	<0.001
Music therapy	33.63	39.75	0.042
Diet	28.57	28.24	0.907
Traditional Chinese medicine	33.82	26.57	0.012
Would you use BPSD Diagnostic examinations?			
Yes	79.42	77.66	0.495
No	20.58	22.34	
Which diagnostic examination do you use?			
MRI	89.44	80	<0.001
CT	41.71	63.19	<0.001
FDG-PET	24.41	26.81	0.381
EEG	53.55	53.83	0.929
Blood tests such as blood routine biochemical thyroid function, etc.	67.94	47.45	<0.001
Lumbar puncture	34.24	9.79	<0.001
Would you be interested in clinical scale specific for BPSD?			
Yes	87.2	86.32	0.68
No	12.8	13.68	
Would you be interested in biomarkers specific for BPSD?			
Yes	86.65	85.31	0.189
No	13.35	16.27	

irritability/lability, nighttime behavioral disturbances and apathy were higher, 76.94%, 85.23%, 84.14% and 67.3%, respectively (vs 65.66%, 68.08%, 77.98%, and 59.8% in the psychiatry department) ($p<0.05$) (Table 2).

Comparison of Treatment Choice Options for BPSD Between Neurologists and Psychiatrists

In terms of treatment options, antipsychotics were frequently used for aggression, with higher rates in psychiatry (68.78%) compared to neurology (43.98%). Similarly, they were the primary choice for agitation in both fields, with considerable utilization in psychiatry (61.7%). Anxiety treatment predominantly involved anti-depressants, used at rates of 40.79% in neurology and 42.47% in psychiatry, while benzodiazepines were significant in psychiatry (47.85%). In cases of apathy, neurology relied heavily on anti-depressants (44.93%), whereas psychiatry used atypical antipsychotics (23.94%). Depression treatment was dominated by anti-depressants in both specialties, with 86.43% in neurology and 91.49% in psychiatry. For nutrition disorders, non-pharmacological interventions were emphasized in both fields (63.52% in neurology and 63.3% in psychiatry). In psychosis management, atypical antipsychotics were most prevalent in psychiatry (84.57%). Nighttime behavior disturbances were primarily treated with benzodiazepines in both disciplines (64.04% in neurology and 64.02% in psychiatry) (Table 3). Regarding the effect of Ginkgo biloba extract in treating BPSD, our findings indicate a similar pattern among different departments, who shared the view that Ginkgo biloba extract treatment could be advantageous (Figure 3).

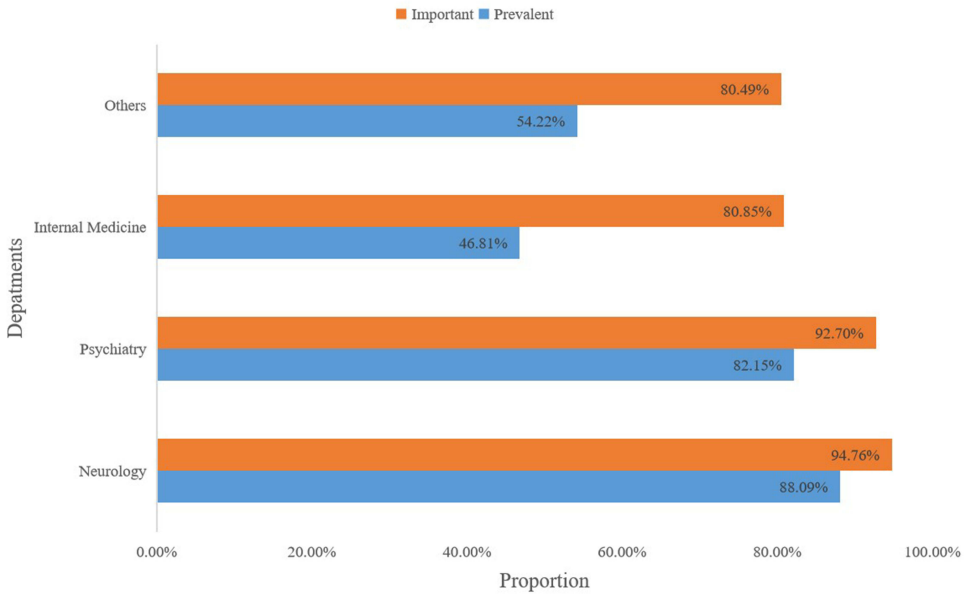

Figure 2 Comparison of different opinions among different departments on the prevalence and importance of BPSD.

Discussion

In our present study, our survey revealed the majorities of respondents recognized the importance of BPSD and acknowledged the prevalence in clinical practice. There were apparent differences in the perception of BPSD between neurologists and psychiatrists, encompassing variances in symptoms recognition, diagnostic approaches, and treatment strategies. Our notable discovery was the insufficient adoption of non-pharmacological interventions in China, accompanied by the prevalent overuse of antipsychotics and benzodiazepine medications.

In China, individuals with dementia predominantly consult neurologists, largely influenced by concerns related to social stigma and cultural distinctions.[13] This difference may account for the observed dissimilarities in how BPSD symptoms are recognized by medical professionals in different departments. Furthermore, our study revealed significant differences in the recognition of various BPSD symptoms between doctors and nurses, which underscore the need for enhanced cooperation and a more comprehensive approach to identify BPSD syndromes within healthcare teams.

Table 2 The Report of Common Symptoms and the Primary Reason for Consultation Between Neurology and Psychiatry Staffs

Symptoms	Common Symptoms			Primary Reason for Consultation		
	Neurology (n=555)	Psychiatry (n=495)	*p* value	Neurology (n=555)	Psychiatry (n=495)	*p* value
Agitation/Aggression	431(77.66)	413(83.43)	0.019	352(63.42)	386(77.98)	<0.001
Delusions	415(74.77)	398(80.4)	0.029	348(62.7)	318(64.24)	0.605
Hallucinations	444(80)	381(76.97)	0.232	388(69.91)	360(72.73)	0.314
Depression	427(76.94)	325(65.66)	<0.001	324(58.38)	208(42.02)	<0.001
Anxiety	414(74.59)	362(73.13)	0.590	323(58.2)	282(56.97)	0.688
Irritability/ Lability	473(85.23)	337(68.08)	<0.001	380(68.47)	367(74.14)	0.043
Nighttime Behavior Disturbances	467(84.14)	386(77.98)	0.011	408(73.51)	350(70.71)	0.311
Disinhibition	260(46.85)	207(41.82)	0.102	193(34.77)	171(34.55)	0.938
Aberrant Motor Behavior	374(67.39)	347(70.1)	0.344	271(48.83)	297(60)	<0.001
Apathy	374(67.39)	296(59.8)	0.011	214(38.56)	154(31.11)	0.012
Appetite/ Eating Disturbances	305(54.95)	270(54.55)	0.894	177(31.89)	143(28.89)	0.291

Table 3 A Comparison of First Choice Treatment Options for BPSD Between Neurologists and Psychiatrists

		Anti-Depressants	Atypical Antipsychotics	Typical Antipsychotics	Benzo-Diazepines	Anti-Epileptics	Dopaminergic	Non-pharmacological Interventions
Aggression	Neurology	6.13	43.98	28.67	13.57	2.19	1.31	2.84
	Psychiatry	1.06	68.78	6.35	7.94	6.35	0.53	7.94
Agitation	Neurology	5.47	35.67	22.76	25.60	5.25	0.88	2.41
	Psychiatry	0.53	61.7	5.85	12.23	12.77	1.06	4.26
Anxiety	Neurology	40.79	15.79	7.02	27.85	1.10	0.88	5.26
	Psychiatry	42.47	4.3	0.54	47.85	0.54	0	3.76
Apathy	Neurology	44.93	13.22	2.64	0.44	1.1	15.42	16.52
	Psychiatry	32.45	23.94	3.19	0.53	0	16.49	15.43
Depression	Neurology	86.43	5.91	1.53	1.31	0.66	1.09	2.19
	Psychiatry	91.49	1.6	0.53	1.06	0.53	0	1.06
Nutrition disorders	Neurology	10.77	5.27	1.1	1.1	0.22	1.98	63.52
	Psychiatry	7.98	6.38	1.06	0.53	0	1.06	63.3
Psychosis	Neurology	6.39	54.41	28.19	3.74	0.44	0.66	4.41
	Psychiatry	2.66	84.57	7.98	0.53	0	0.53	2.66
Nighttime Behavior Disturbances	Neurology	10.53	8.99	2.41	64.04	0.22	1.10	7.02
	Psychiatry	4.23	14.81	1.06	64.02	0	0	12.7

Notes: Data are expressed as percentages (Neurology: n. 457; Psychiatry: n. 188).

In addition to the above symptoms perception of BPSD, our study also uncovered variations in diagnostic approaches and treatment preferences for BPSD between neurologists and psychiatrists. In China, most neurologists practice in general hospitals and lack experience in prescribing psychiatric medications. As a result, when patients exhibit symptoms of BPSD, neurologists often recommend they seek assistance from psychiatrists. Conversely, psychiatrists tend to rely more on mental assessments rather than objective relevant examinations. This divergence highlights the need to reform the management model of BPSD, emphasizing the imperative integration of multidisciplinary collaboration for effective management of BPSD between the two departments in the future.

Regarding the treatment of BPSD internationally, non-pharmacological interventions are typically recommended as the first-line approach.[14,15] However, our study revealed that a notable percentage of neurology (27.8%) and psychiatry staff (23.6%) would not choose non-pharmacological interventions. Particularly for symptoms related to psychosis, fewer

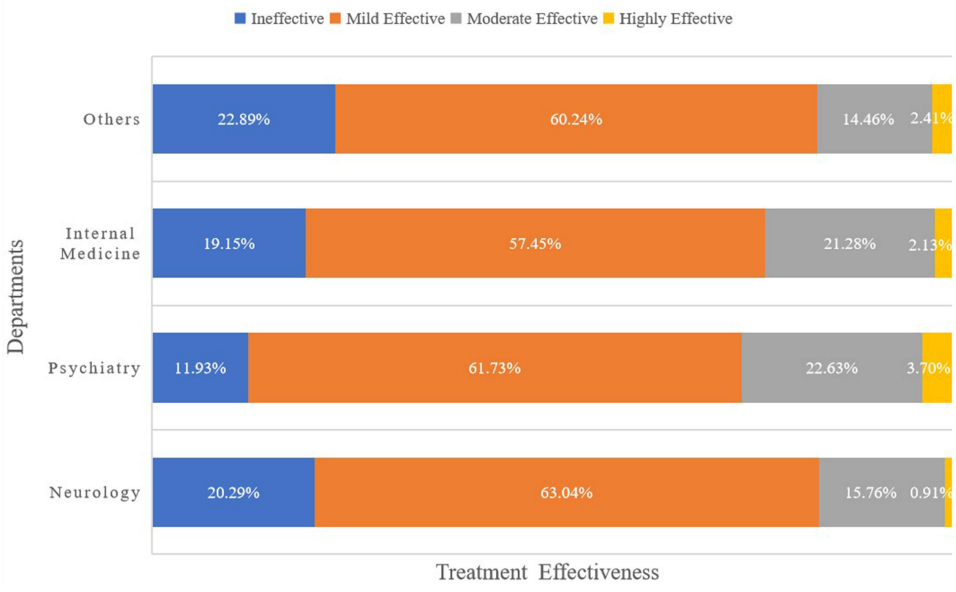

Figure 3 A comparison of the understanding of Ginkgo biloba extract treatment for BPSD among different departments.

than 5% of the respondents favored non-pharmacological interventions. Several factors may account for the under-utilization of non-pharmacological strategies. Firstly, the quality of supporting evidence is not consistently high.[16] Dementia guidelines often lack consensus on specific recommendations. Secondly, there is a shortage of well-trained personnel, limited awareness of the efficacy of these approaches, varying opinions and preferences among staff, and a desire for rapid relief for BPSD symptoms.[17,18] Despite the above limitations, non-pharmacological approaches, which typically have fewer side effects, continue to be recommended as the primary treatment for BPSD.[3] Our results underscore the urgent need for the development of specific guidelines and practice recommendations for non-pharmacological interventions protocols in the future.

In some cases, antipsychotics and other psychiatric medications are also necessary to r mitigate the risk of violence, improve the quality of life and reduce the disease burden. This is especially pertinent for patients experiencing dangerous agitation, psychosis, and severe distress. In our study, for aggression and agitation, more than half of neurologist and psychiatrist preferred antipsychotics, and a few even chose typical antipsychotics. Concerns about overuse of antipsychotics have prompted legislative efforts to restrict their prescribing in some countries and the black box warnings issued by the Food and Drug Administration.[19,20] However, these guidelines and warnings have had little impact on clinical practice in many countries.[21,22] A meta-analysis comparing the effectiveness and safety of different atypical antipsychotics in the treatment of BPSD indicated that a single, most effective and safe treatment option does not exist.[23] A recent study proposes three algorithms for BPSD in emergent, urgent, and non-urgent settings and offer specific medication recommendations and flowcharts for each scenario.[9] Despite these efforts, there is still a lack of guidelines and detailed recommendations regarding the diverse etiologies of dementia and the selection of antipsychotics. In complex clinical settings, pharmacological treatments remain challenging and requires more specific and detailed guidance. Moreover, it would be important to determine whether certain drugs are more effective for different etiologies of dementia, and whether monotherapy or polytherapy is more beneficial. Our study indicates the need to develop specific practice recommendations that clarify for each type of BPSD the choice of drug, dosage and duration of use in the future study.

In our study, nearly one-third of the medical staff expressed a preference for traditional Chinese medicine, including herbal remedies and acupuncture. Prior studies from both China and Japan have demonstrated the effectiveness of traditional Chinese medicine Yi-Gan San/Yokukansan[24,25] and Tianzhi granule[26] could alleviate symptoms of BPSD. A recent systematic review and meta-analysis showed acupuncture yielded significant benefits.[27] Another recent meta-analysis demonstrated that a 22–24-week treatment with Ginkgo biloba extract EGb 761® improved BPSD and reduced caregiver distress.[28] Taken together, there is a growing belief that the traditional Chinese medicine has a potential to offer a promising treatment for BPSD, with the added benefit of its theoretical system and reduced side effects.[29]

Our study boasts several strengths. Firstly, it provides valuable insights into the perception, recognition, treatment options, and management of BPSD, as well as observed side effects, in a comprehensive study conducted in China medical community. To the best of our knowledge, this survey represents the most extensive samples size to date for investigating the perception and the treatment strategies for BPSD in China. Secondly, our findings could be of great importance to enhance our understanding of BPSD and to improve the management and treatment of it in China. Thirdly, it offers crucial guidance for the direction of future improvement for BPSD management within the Chinese healthcare system.

Despite these strengths, this study also has some limitations. Firstly, due to the need for a high response rate, we were unable to include a detailed inquiry about aspects such as medication dosage, duration of treatment, special medication choice, tools used to in different stages or types of dementia and the underlying etiology. The patient groups seen by neurologists and psychiatrists may have different etiologies, which have impacts on the profiles of BPSD.[30–32] This may be part of the reasons for the difference in their views on BPSD. Future research needs to supplement these information to provide a more comprehensive view. Secondly, this survey was conducted online, which may impact the validity and effectiveness of the findings as compared to in person survey. The reliance on clinicians' impressions means that we did not acquire quantitative data about BPSD. Thirdly, the varying number of respondents from different provinces and regions may confound the interpretation of the results. A larger sample size in underrepresented areas could have made the results more objective and accurate. Due to the uneven economic and medical care levels in different regions, this disproportion is almost inevitable Forth, some care settings were not included or underrepresented such as the homecare,

geriatric wards, and long-term care facilities. Fifth, as a multicenter national survey in China, our data were most descriptive and lacking rationale just as standard clinical studies.

Conclusions

In conclusion, our study in China herein sheds light on the various facets of BPSD, including perception, recognition, treatment options, management and observed side effects. These findings hold significant importance in enhancing our understanding of the characteristics of BPSD and can contribute to improved management and treatment of BPSD in China. The study also provided valuable evidences that can help to harmonize BPSD management and offers recommendation for clinicians. By doing so, we can work towards reducing the global burden of dementia, not only in China and but worldwide, in the future.

Ethical Approval and Consent to Participate

Ethics approval and consent to participate All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Declaration of Helsinki and its later amendments, and the study protocol was approved by the Ethics Committee of the Sixth Hospital of Peking University. Participants provided written informed consent before being interviewed. Confidentiality and privacy were maintained throughout the research process.

Author Contributions

All authors contributed significantly to the study conception, study design, execution, data acquisition, analysis and interpretation, and drafting of the article. The authors participated in revising and critically reviewing the article and provided final approval of the version to be published. All authors have agreed on the journal submission and have committed to being accountable for all aspects of the work.

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Disclosure

The authors declare no competing interests in this work.

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