



Development of a Clinical Guideline for Suicide Prevention in Psychiatric Patients Based on the ADAPTE Methodology

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Objective Suicide is a significant public health issue, with South Korea having the highest suicide rate among Organisation for Economic Cooperation and Development countries. This study aimed to develop clinical guidelines for suicide prevention in psychiatric patients in Korea using the ADAPTE methodology.

Methods The development process involved a comprehensive review of literature, expert consultations, and consensus-building using the Nominal Group Technique and Delphi method. The guidelines focus on evidence-based psychiatric treatments, including both pharmacological and non-pharmacological approaches, tailored to the Korean context. Key findings underscoring the need for standardized treatment protocols for patients with major psychiatric disorders, including bipolar disorder, major depressive disorder, and schizophrenia.

Results The guidelines incorporate treatments like lithium, clozapine, atypical antipsychotics, electroconvulsive therapy, and cognitive behavioral therapy, which have shown effectiveness in suicide prevention. Applicability and acceptability within Korea's healthcare system were addressed, ensuring feasibility given the country's medical insurance coverage and accessibility. The guidelines were validated through expert reviews and Delphi rounds, achieving consensus on the final recommendations.

Conclusion The developed guidelines provide a structured, evidence-based approach to reducing suicide rates among psychiatric patients in Korea. Future research will focus on expanding these guidelines to include screening protocols for high-risk groups.

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Keywords Suicide prevention; Suicide; Clinical guidelines; ADAPTE; Guideline.

INTRODUCTION

Suicide is a serious public health problem that causes ap-

proximately 0.8 million deaths every year worldwide,¹ and South Korea had the highest suicide death rate among Organisation for Economic Cooperation and Development

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member countries in 2022.² Suicide is an important medical and social problem in Korea. According to a suicide survey conducted by the Ministry of Health and Welfare in 2018, 18.5% of the Korean population has thought about suicide, and 2.4% have actually attempted suicide.³ Suicide ranks sixth among the causes of suicide death among Koreans in 2022, and ranks first among the causes of death among those in their teens, 20s, and 30s.⁴ Previous research conducted in Korea estimated that annual suicides result in socioeconomic costs of up to 3.0856 trillion won.⁵ Suicide can be said to be a very important medical and social problem in Korea.

Meanwhile, many of those classified as high risk for suicide have mental illness. As a result of previous psychological autopsy studies, it was reported that more than 90% of all suicide deaths suffered from mental illness.⁶ Although there are conflicting prospective studies, bipolar disorder, major depressive disorder, and schizophrenia are generally considered to have the highest risk of suicide among major mental disorders.⁷ Therefore, providing evidence-based psychiatric treatment for these major mental disorders is essential to reduce the high suicide rate in Korea.

When treating people at high risk of suicide, failure to provide evidence-based medical treatment can lead to various risks, such as insufficient treatment response or increased suicide risk.⁸ If evidence-based medical care is not secured, there is a possibility that psychosocial stress and coexisting mental disorders in high-risk groups for suicide may be inappropriately managed, which may further worsen the risk of suicide.⁹ Additionally, failure to utilize evidence-based approaches to address suicide may result in missed opportunities for early intervention and prevention.¹⁰ However, in actual clinical practice, treatment to prevent suicide in psychiatric patients is sometimes based on the clinician's personal experience or values rather than evidence-based treatment. To solve these problems, the development of evidence-based treatment guidelines is necessary.

The impact of individual psychiatric treatment on suicide risk in major mental disorders is a complex issue in reality.¹¹⁻¹⁴ In particular, studies on changes in suicide risk during antidepressant treatment are inconclusive and sometimes contradictory.¹⁴⁻¹⁹ In addition to antidepressants, studies using real-world data have shown contradictory results for other psychiatric drugs as well.²⁰⁻²⁸ As a result, in actual clinical practice, the treatment of doctors of psychiatric patients at high risk of suicide are not standardized and can largely be dependent on the clinicians' individual experiences and values.

Various evidence-based treatment guidelines have been developed overseas to reduce the risk of suicide in psychiatric patients. However, there are still no standard treatment guidelines for psychiatric treatment to reduce suicide in psychiatric

patients in Korea. Accordingly, our research team developed evidence-based clinical practice guidelines to recommend treatments for psychiatric patients to reduce suicide that are appropriate for the circumstances of Korea, ultimately contributing to the reduction of suicide risk in Korea.

The goal of this study is to review the latest guidelines on treatments to reduce suicide risk for psychiatric medical staff treating patients with psychiatric disorders, and to develop and disseminate evidence-based clinical practice guidelines appropriate for domestic circumstances. The clinical practice guidelines target patients with psychiatric disorders among those who require management of suicide risk, and include both psychiatric pharmacological treatment and non-pharmacological treatment for adults and children. Doctors who treat psychiatric patients at various medical institutions in Korea, including private clinics, hospitals, and university hospitals, were considered as expected users of the treatment guidelines.

METHOD

Forming a development group

This clinical practice guideline was developed mainly by the participating researchers of The Korean Cohort for the Model Predicting a Suicide and Suicide-related Behavior (K-COMPASS),²⁹ a national research project conducted under the sponsorship of the National Center for Mental Health under the Ministry of Health and Welfare of the Republic of Korea. The development committee of this clinical practice guideline was composed of researchers from K-COMPASS, and was overseen by professors of psychiatry and preventive medicine, who led the development methodology. The development committee developed key questions (KQs), searched the literature, evaluated the retrieved literature, and developed draft recommendations. In cooperation with the external advisory committee, development committee were responsible for improving the completeness of the treatment guidelines and ensuring that opinion gathering through Delphi was carried out. Meanwhile, psychiatry specialists working at university hospitals, hospitals, and private clinics participated in the advisory committee of this research. They participated in Delphi rounds regarding the KQs developed by development committee and contributed to reaching a consensus. It was confirmed that there was no external influence, including from the government and public institutions, throughout the treatment guideline development process. Members of the development committee signed a conflict of interest declaration before developing and consulting on the guidelines. This conflict of interest declaration included whether there was a commercial interest related to the practice guideline. All authors have confirmed that they have no conflicts of interest.

Determination of development method, scope of treatment guideline, and KQs

Several guidelines for psychiatric treatment to reduce suicide risk have been developed overseas, but as of 2024, none have been developed domestically. The development committee decided to accept and adapt treatment guidelines developed overseas. In this paper, the research team described the process of selecting and applying existing guidelines for suicide risk groups based on the ADAPTE methodology³⁰ and the Korean Medical Association's Clinical Practice Guidelines Acceptance and Adaptation Manual³¹ developed based on the ADAPTE.

The ADAPTE methodology provides a systematic approach for adapting existing clinical practice guidelines to a local context, ensuring that they are relevant and applicable to the specific healthcare environment. This methodology involves three main phases: setup, adaptation, and finalization. During the setup phase, the need for adaptation is established, a guideline adaptation team is formed, and the scope and purpose of the guidelines are defined. The adaptation phase involves identifying and retrieving existing guidelines, assessing their quality using the AGREE II instrument,³² and deciding on necessary adaptations to fit the local context. This includes modifying recommendations to address local healthcare practices, cultural factors, and resource availability. Finally, in the finalization phase, the adapted guideline is drafted, validated through expert reviews and consensus methods such as the Nominal Group Technique (NGT) and Delphi method, and prepared for implementation.

For this practice guideline, the development committee developed KQs according to the Patient, Intervention, Comparison, Outcome format. In this process, a total of eight working-level meetings of the development committee were held

starting on July 3, 2023. A total of 4 KQs were developed at the beginning of development, and these were subdivided into 33 questions (23 questions for drug treatment, 10 questions for non-drug treatment), and finally compressed into 10 questions (6 questions for drug treatment, 4 questions for non-drug treatment).

Search and selection of treatment guidelines

We searched domestic and international databases such as PubMed, Cochrane, Ovid-Medline, EMBASE, KoreaMed, Guideline International Network, National Institute of Health and Care Excellence, and Korea Medical Citation Index at the Chung-Ang University Medical Library. A search strategy was developed and applied for each search data source using "Mental disorder AND Suicide AND therapy AND guideline" as the basic index word. Among these, the working committee excluded documents that were duplicated or met the exclusion criteria. The inclusion criteria were evidence-based practice guidelines containing information on the quality of evidence and strength of recommendations, practice guidelines addressing pharmacological and non-pharmacological treatment of mental health, and practice guidelines written in English or Korean. Exclusion criteria included clinical guidelines written by a single author who lacks representation, clinical guidelines published without references, clinical guidelines targeting only specific population groups (e.g., children, adolescents or the elderly), and clinical guidelines dealing with intentional self-harm other than suicide (Table 1).

Evaluation of treatment guidelines

The quality of the treatment guidelines was evaluated using the AGREE II tool.³² Four people in the development committee evaluated each treatment guideline, and if there was a dif-

Table 1. Inclusion and exclusion criteria for the selection of the treatment guidelines

	Inclusion criteria	Exclusion criteria
1	Evidence-based practice guidelines that include information on the quality of evidence and strength of recommendations - When the level of evidence and recommendation grade are indicated - When recommendations and evidence are linked Latest version guidelines if any revisions are available	When it is not an evidence-based guideline - No indication of recommendation level or grade - Recommendations and evidence are not linked
2	Practice guidelines covering pharmacological and non-pharmacological treatments	When the disease being treated is not suicide Treatment guidelines for intentional self-harm rather than suicide Guidelines for specific populations (children, adolescents, older adults, etc.)
3	If the intended users of the guideline are physicians	If the intended users are nurses, patients, or the general public
4	Treatment guidelines written in English or Korean	Treatment guidelines not in English or Korean Treatment guidelines by a single author or published without references

ference in scores of more than 4 points for the same item between evaluators, a reexamination process was performed. Treatment guidelines that received a score of 60% or higher in the stringency area of development in the AGREE II evaluation were selected.

To assess the recency of the selected practice guidelines, we checked the publication year of the practice guideline and the date when the latest evidence was searched. If the development committee judged that individual KQs needed to be updated, the latest literature published until February 2024 was additionally searched and reflected in the guidelines.

In order to evaluate the acceptability and applicability of the treatment guidelines, Korea's health insurance system, treatment accessibility, and medical culture were considered as well. The selected treatment guidelines were generally found to have no problems in terms of acceptability and applicability. Moreover, the development committee performed additional judgement for each recommendation whether it was acceptable or applicable to the medical environment in Korea.

Preparation and approval of recommendations

Level of evidence and recommendation grade system

The level of evidence and recommendation grade of this practice guideline were determined by referring to the “Evidence-based guideline for depression in primary care” developed by the Korean Academy of Medical Sciences in 2022.³³

The level of evidence and recommendation grade are presented in Table 2.

Process of deriving recommendations

The working committee drafted recommendations based on KQs from the selected practice guidelines. The development committee adopted an approach using the NGT to review the recommendations of the practice guidelines. NGT is a formal decision-making technique that structures interactions within a group.³⁴ A working-level meeting consisting of eight people conducted a consensus process for each recommendation. Each participant spoke in turn about his or her thoughts, and after a short discussion, the level of agreement was assessed. If a consensus of 70% or more was reached, the decision was made to accept the recommendation. Recommendations that required modification, as needed, were revised through the informal consent of the working committee and then changed through approval by the entire development committee.

Preparation and approval of draft treatment guidelines

Based on the recommendations approved by the development committee, the working committee drafted the treatment guidelines. The treatment guideline consists of a summary, introduction, target population and users, development method, and treatment guideline. The development committee reviewed the form and content of the draft in detail and

Table 2. Level of evidence in the literature and recommendation grade

Definition	
Level of evidence	
A	When the basis for deriving the recommendations is clear One or more randomized clinical trials, systematic reviews, or meta-analyses
B	When the basis for deriving the recommendations is reliable One or more non-randomized clinical studies, such as well-conducted case-control or cohort studies
C	When there is a basis for deriving a recommendation; however, it is not reliable Low-level relevant evidence, such as cross-sectional studies and case reports
D	When the basis for deriving recommendations is the consensus of the expert committee
Recommendation grade	
I	When the level of evidence and benefit are clear, and feasibility, acceptability, or utilization of the recommendation in primary care settings is high When the level of evidence is high, and the risks compared with the benefits are clear
IIa	When the level of evidence and benefits are reliable, and feasibility, acceptability, or utilization of the recommendations in primary care settings is high or average
IIb	When the level of evidence and benefits are unreliable; however, the feasibility, acceptability, or utilization of recommendations in primary care settings is high or average
-	When the level of evidence is unreliable, risks relative to the benefits are high, and feasibility, acceptability, or utilization of recommendations in primary care settings is low

Adapted from Korean Academy of Medical Sciences. Evidence-based guideline for depression in primary care. 2022.³³

approved it.

Guideline confirmation and review process

A review committee consisting of 11 psychiatric specialists in Korea reviewed and finalized the draft guideline using the Delphi method. A draft of the guideline was circulated via email, along with the development method for this guideline and the evidence for each KQ and recommendation. The first Delphi round aimed to gather expert opinions on the initial draft and to identify areas requiring modifications or disagreements. In the second Delphi round, the revised recommendations were presented to achieve further consensus. A consensus was reached when more than 70% agreement was obtained for each question. If disagreements arose, they were resolved through further discussion and literature review. In some cases, intervention by mediators was used to facilitate agreement. After a total of two Delphi rounds, the treatment guidelines were finalized, and the feedback opinions were reflected and approved by the development committee.

RESULTS

Search and selection of previous treatment guidelines

A total of 4,825 articles were identified from PubMed, EMBASE, Psycinfo, Cochrane library, and Guideline International Network through database searches based on index words. Among these, 121 overlapping documents and 1,355 documents that did not fit the publication type (letter, abstract, re-

view, editorial, response report, and technical note), had single author, or was about other topics than suicide were excluded. The development committee applied the inclusion and exclusion criteria to the remaining 3,349 documents. A total of four treatment guidelines were selected, including VA/DoD Clinical Practice Guideline: the assessment and management of patients at risk of suicide (hereinafter referred to as VA/DoD clinical guideline), published by the U.S. Department of Veterans Affairs in 2024,³⁵ American Psychiatric Association (APA) Practice Guideline for the Assessment and Treatment of Patients with Suicidal Behaviors (hereinafter referred to as APA practice guideline) published by the APA in 2004,³⁶ Clinical Practice Guideline for the Prevention and Treatment of Suicidal Behaviors (hereinafter referred to as Spanish practice guidelines) published by the Spanish Ministry of Health in 2020³⁷ and the Brazilian Psychiatric Association guidelines for the management of suicidal behavior (hereinafter referred to as Brazilian practice guidelines) issued by the Brazilian Psychiatric Association in 2021 (Figure 1).^{38,39}

Evaluation of previous treatment guidelines

Quality evaluation results of treatment guidelines using the AGREE II evaluation tool.

The AGREE II tool was applied to the four selected guidelines for evaluation, and “Spain, 2020,” “Brazil, 2021,” and “VA/DoD, 2024” were selected for acceptance and development. The average AGREE II scores of the four reviewers of the four

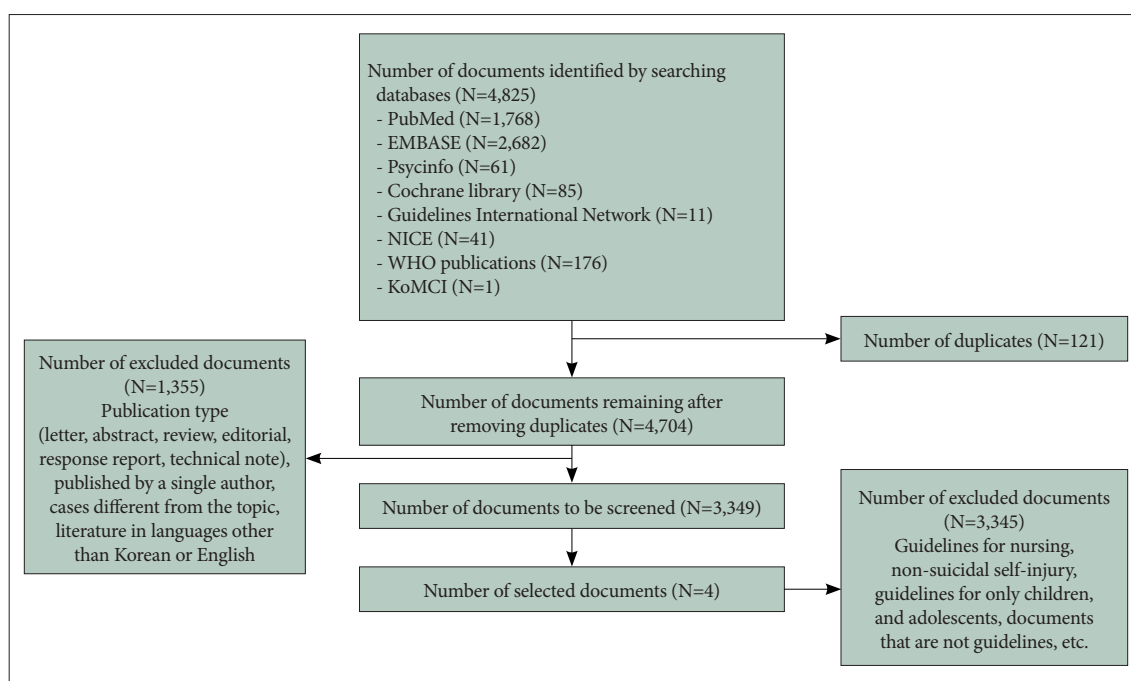


Figure 1. The PRISMA flow. NICE, National Institute of Health and Care Excellence; WHO, World Health Organization; KoMCI, Korea Medical Citation Index; PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

evaluated practice guidelines are listed in Table 3. The three selected treatment guidelines all scored more than 60% in the evaluation score for the stringency of development.

Assessing the up-to-dateness of treatment guidelines

To evaluate the up-to-dateness of the three treatment guidelines selected through AGREE II, additional literature up to February 2024 was searched for each KQ. However, KQ2, KQ4, KQ9, and KQ10 were covered in the VA/DoD, 2024 prac-

tice guideline, and since a sufficiently up-to-date literature search was performed in this practice guideline, no additional up-to-date literature search was performed. In addition, the results discovered through new literature search on KQ not covered by VA/DoD, 2024 are presented in the Table 4.

Evaluation of treatment guidelines' contents

We evaluated whether the previously developed treatment guidelines sufficiently included the contents of the newly de-

Table 3. AGREE-II evaluation results for the screened treatment guidelines

	VA/DoD	APA	Brazil	Spain
Domain 1. Scope and purpose				
1) The overall objective(s) of the guideline is (are) specifically described	5	3	3	6
2) The health question(s) covered by the guideline is (are) specifically described	6	3	3	6
3) The population (patients, public, etc.) to whom the guideline is meant to apply is specifically described	5	5	5	6
Domain 2. Stakeholder involvement				
4) The guideline development group includes individuals from all the relevant professional groups	6	3	3	6
5) The views and preferences of the target population (patients, public, etc.) have been sought	5	3	3	3
6) The target users of the guideline are clearly defined	4	3	3	5
Domain 3. Rigour of development				
7) Systematic methods were used to search for evidence	6	6	6	6
8) The criteria for selecting the evidence are clearly described	5	3	6	6
9) The strengths and limitations of the body of evidence are clearly described	5	3	6	6
10) The methods for formulating the recommendations are clearly described	6	3	6	6
11) The health benefits, side effects, and risks have been considered in formulating the recommendations	6	5	6	6
12) There is an explicit link between the recommendations and the supporting evidence	6	3	6	6
13) The guideline has been externally reviewed by experts prior to its publication	3	3	2	6
14) A procedure for updating the guideline is provided	5	1	2	5
Domain 4. Clarity of presentation				
15) The recommendations are specific and unambiguous	5	4	5	5
16) The different options for management of the condition or health issue are clearly presented	5	5	4	5
17) Key recommendations are easily identifiable	6	2	6	6
18) The guideline describes facilitators and barriers to its application	5	3	5	6
19) The guideline provides advice and/or tools on how the recommendations can be put into practice	7	1	6	6
20) The potential resource implications of applying the recommendations have been considered	2	3	3	3
21) The guideline presents monitoring and/or auditing criteria	2	3	3	3
Domain 5. Editorial independence				
22) The views of the funding body have not influenced the content of the guideline	5	5	6	6
23) Competing interests of guideline development group members have been recorded and addressed	2	5	6	6
Overall guideline assessment				
24) Rate the overall quality of this guideline	5	2	5	6
25) I would recommend this guideline for use	Yes	No	Yes	Yes

Table 4. Assessment of the recency of the treatment guidelines

VA/DoD Clinical Practice Guidelines		
1) Are you aware of any new evidence relevant to this clinical practice guidelines statement?	Yes	No √
If so, please provide a reference to this new evidence.		
2) Is there any new evidence to invalidate any of the recommendations comprising the guidelines?	Yes	No √
If so, please indicate which recommendations are in need of updating and provide the reference for this new evidence.		
3) Are there any plans to update the guideline in the near future?	Yes	No √
If so, when?		
4) When was the clinical practice guideline last update? What is the citation for the latest version?		
2024		
Brazilian Psychiatric Association Guidelines for the Management of Suicidal Behavior		
1) Are you aware of any new evidence relevant to this clinical practice guidelines statement?	Yes √	No
If so, please provide a reference to this new evidence.		
- Wilkinson ST, Trujillo Diaz D, Rupp ZW, Kidambi A, Ramirez KL, Flores JM, et al. Pharmacological and somatic treatment effects on suicide in adults: a systematic review and meta-analysis. <i>Depress Anxiety</i> 2022;39:100-112. - Solmi M, Murru A, Pacchiarotti I, Undurraga J, Veronese N, Fornaro M, et al. Safety, tolerability, and risks associated with first- and second-generation antipsychotics: a state-of-the-art clinical review. <i>Ther Clin Risk Manag</i> 2017;13:757-777. - Huang X, Harris LM, Funsch KM, Fox KR, Ribeiro JD. Efficacy of psychotropic medications on suicide and self-injury: a meta-analysis of randomized controlled trials. <i>Transl Psychiatry</i> 2022;12:400.		
2) Is there any new evidence to invalidate any of the recommendations comprising the guidelines?	Yes √	No
If so, please indicate which recommendations are in need of updating and provide the reference for this new evidence.		
- Wilkinson ST, Trujillo Diaz D, Rupp ZW, Kidambi A, Ramirez KL, Flores JM, et al. Pharmacological and somatic treatment effects on suicide in adults: a systematic review and meta-analysis. <i>Depress Anxiety</i> 2022;39:100-112. - Stoffers-Winterling JM, Storebø OJ, Pereira Ribeiro J, Kongerslev MT, Völm BA, Mattivi JT, et al. Pharmacological interventions for people with borderline personality disorder. <i>Cochrane Database Syst Rev</i> 2022;11:CD012956.		
3) Are there any plans to update the guideline in the near future?	Yes	No √
If so, when?		
4) When was the clinical practice guideline last update? What is the citation for the latest version?		
2021		
Clinical Practice Guideline for the Prevention and Treatment of Suicidal Behaviour (Spain)		
1) Are you aware of any new evidence relevant to this clinical practice guidelines statement?	Yes √	No
If so, please provide a reference to this new evidence.		
- Wilkinson ST, Trujillo Diaz D, Rupp ZW, Kidambi A, Ramirez KL, Flores JM, et al. Pharmacological and somatic treatment effects on suicide in adults: a systematic review and meta-analysis. <i>Depress Anxiety</i> 2022;39:100-112. - Solmi M, Murru A, Pacchiarotti I, Undurraga J, Veronese N, Fornaro M, et al. Safety, tolerability, and risks associated with first- and second-generation antipsychotics: a state-of-the-art clinical review. <i>Ther Clin Risk Manag</i> 2017;13:757-777. - Huang X, Harris LM, Funsch KM, Fox KR, Ribeiro JD. Efficacy of psychotropic medications on suicide and self-injury: a meta-analysis of randomized controlled trials. <i>Transl Psychiatry</i> 2022;12:400. - Kucuker MU, Almorsy AG, Sonmez AI, Ligezka AN, Doruk Camsari D, Lewis CP, et al. A systematic review of neuromodulation treatment effects on suicidality. <i>Front Hum Neurosci</i> 2021;15:660926.		

Table 4. Assessment of the recency of the treatment guidelines (continued)

- Rhee TG, Shim SR, Forester BP, Nierenberg AA, McIntyre RS, Papakostas GI, et al. Efficacy and safety of ketamine vs electroconvulsive therapy among patients With major depressive episode: a systematic review and meta-analysis. JAMA Psychiatry 2022;79:1162-1172. - de A Simoes Moreira D, Gauer LE, Teixeira G, Fonseca da Silva AC, Cavalcanti S, Quevedo J. Efficacy and adverse effects of ketamine versus electroconvulsive therapy for major depressive disorder: a systematic review and meta-analysis. J Affect Disord 2023;330:227-238. - Cipolla S, Catapano P, Messina M, Pezzella P, Giordano GM. Safety of electroconvulsive therapy (ECT) in pregnancy: a systematic review of case reports and case series. Arch Womens Ment Health 2024;27:157-178.		
2) Is there any new evidence to invalidate any of the recommendations comprising the guidelines?	Yes √	No
If so, please indicate which recommendations are in need of updating and provide the reference for this new evidence.		
- Wilkinson ST, Trujillo Diaz D, Rupp ZW, Kidambi A, Ramirez KL, Flores JM, et al. Pharmacological and somatic treatment effects on suicide in adults: a systematic review and meta-analysis. Depress Anxiety 2022;39:100-112. - Stoffers-Winterling JM, Storebø OJ, Pereira Ribeiro J, Kongerslev MT, Völm BA, Mattivi JT, et al. Pharmacological interventions for people with borderline personality disorder. Cochrane Database Syst Rev 2022;11:CD012956. - Stromme MF, Mellesdal LS, Bartz-Johannesen CA, Kroken RA, Krogenes ML, Mehlum L, et al. Use of benzodiazepines and antipsychotic drugs are inversely associated with acute readmission risk in schizophrenia. J Clin Psychopharmacol 2022;42:37-42. - Demesmaeker A, Chazard E, Vaiva G, Amad A. A pharmacoepidemiological study of the association of suicide reattempt risk with psychotropic drug exposure. J Psychiatr Res 2021;138:256-263.		
3) Are there any plans to update the guideline in the near future?	Yes √	No
If so, when? September, 2025		
4) When was the clinical practice guideline last update? What is the citation for the latest version?		
September, 2021		

veloped treatment guidelines. It was confirmed that all 10 KQs could be addressed through the three treatment guidelines. The 10 KQs and the scope covered by each practice guideline are presented in Table 5.

Evaluation of acceptability and applicability of recommendations

As a result of evaluating the overall acceptability and applicability of the treatment guidelines, it was found that all treatment guidelines generally had no problems in terms of acceptability and applicability. In addition, for each recommendation, the development committee additionally judged whether it could be accepted and applied to the medical environment of Korea. These standards include health insurance coverage of individual treatments and the results of research on the treatment method performed in Korea. Among these, the recommendation of carbamazepine for borderline personality disorder in the draft of KQ3 was evaluated as not appropriate for the medical situation in Korea. Additional domestic studies that matched the content of the core questions were searched in KQ1, KQ7, KQ9, and KQ10, and the results of these studies were consistent with the recommendations of the previous treatment guidelines. For other KQs, no related domestic re-

search was identified.

Making and approving recommendations

Preparation and modification of recommendations

The working committee drafted recommendations based on KQs from the selected practice guidelines. In the prepared draft, recommendations were modified or excluded based on the recency, domestic acceptability, and applicability of individual recommendations through NGT consensus at the development committee. In the case of KQ3, the original Spanish guideline included a recommendation for the use of carbamazepine in patients with borderline personality disorder. However, in the 2022 Cochrane Review, based on data from 4 clinical trials and 14 databases conducted until February 2022, when individual drug ingredients were analyzed in patients with borderline personality disorder, there were no medications that were shown to be effective.⁴⁰ In addition, carbamazepine has side effects such as bone marrow suppression and requires continuous monitoring such as blood concentration and blood cell tests, so it is a drug that is not often used clinically these days in Korea. It was decided, through consensus of the development committee, not to specifically recommend

Table 5. Contents of the developed key questions and recommendations of the corresponding prior treatment guidelines

Key question	VA/DoD	Brazil	Spain
KQ1. Under what circumstances should antidepressants be actively considered for suicide prevention?		SSRI: Adults with depression (level of evidence: 1); close monitoring in the first 30 days of use, especially in adolescents	It is recommended to used preferentially treatment with antidepressants from the group of selective serotonin reuptake inhibitors in adults with major depression presenting suicidal ideation (A) Patients over 60 years with major depression and suicidal behaviour are recommended to have monitoring continued over time with the use of combination therapy (selective serotonin reuptake inhibitors+interpersonal therapy) (A) In adolescents with major depression and suicidal ideation, the use of combination therapy (fluoxetine+CBT) is recommended (A) In patients with bipolar disorder and suicidal ideation, the use of antidepressants alone is not recommended unless accompanied by a mood stabiliser (C) Lithium treatment is recommended in adult patients with bipolar disorder who have suicidal behaviour, due to its mood stabilising effect and potential for anti-suicidal action (A) In adult patients with major depression and recent suicidal behaviour, a combination of lithium and antidepressant treatment is recommended to be assessed (A) For anticonvulsant treatment of borderline personality disorder, carbamazepine is recommended as the first choice drug to control the risk of suicidal behaviour (C) In patients with bipolar disorder and suicide risk requiring anticonvulsant therapy, continuous treatment with valproic acid or carbamazepine is recommended (C)
KQ2. Under what circumstances should Lithium be actively considered for suicide prevention?	There is insufficient evidence to recommend for or against lithium to reduce the risk of suicide or suicide attempts for patients with mood disorders (neither for or against)	Bipolar disorder (level of evidence: 1)	
KQ3. Under what circumstances should anticonvulsants be actively considered for suicide prevention?		Major depressive disorder (level of evidence: 1)	

Table 5. Contents of the developed key questions and recommendations of the corresponding prior treatment guidelines (continued)

Key question	VA/DoD	Brazil	Spain
KQ4. Under what circumstances should clozapine be actively considered for suicide prevention?	We suggest clozapine to reduce the risk of suicide attempts for patients with schizophrenia or schizoaffective disorder and either suicidal ideation or a history of suicide attempt(s) (weak for)	Schizophrenia and schizophrenia-like psychoses (level of evidence: 1)	To reduce the risk of suicidal behaviour, the use of clozapine is recommended in the treatment of adult patients diagnosed with schizophrenia or schizoaffective disorder at high risk of suicidal behaviour (A)
KQ5. Under what circumstances should antipsychotics other than clozapine be actively considered for suicide prevention?		Olanzapine: schizophrenia, schizoaffective, or schizophreniform disorder (level of evidence: 4) Risperidone: schizophrenia, schizoaffective, or schizophreniform disorder (level of evidence: 4) Quetiapine: bipolar depression (level of evidence: 4); adjunct to lithium. Aripiprazole: depression with psychotic symptom (level of evidence: 5)	
KQ6. Under what circumstances should anti-anxiety medications be actively considered for suicide prevention?			The use of anxiolytic agents at the start of treatment with antidepressants in patients with major depression and suicidal ideation who also experience anxiety or agitation is recommended (D: CPG)
KQ7. In what cases should electroconvulsive therapy be actively considered in high-risk groups for suicide?			Electroconvulsive therapy is recommended in patients with severe major depression where there is a need for a rapid response due to the presence of high suicidal intent (C) Electroconvulsive therapy is also indicated in adolescents with severe, major and persistent depression, with behaviours that endanger their lives, or those who do not respond to other treatments (D: CPG)
KQ8. Under what circumstances should dynamic psychotherapy be actively considered for suicide prevention?		Borderline personality disorder (level of evidence: 2)	In general, psychotherapeutic treatments of a cognitive-behavioural type are recommended for patients with suicidal behaviour on a weekly basis, at least at the beginning of the treatment (B)

Table 5. Contents of the developed key questions and recommendations of the corresponding prior treatment guidelines (continued)

Key question	VA/DoD	Brazil	Spain
KQ9. Under what circumstances should CBT be actively considered for suicide prevention?	We suggest CBT-based psychotherapy focused on suicide prevention to reduce the risk of suicide attempts in patients with a history of suicidal behavior within the past six months (weak for) We suggest offering CBT (including problem solving-based psychotherapies) focused on suicide prevention to reduce suicidal ideation for patients with a history of self-directed violence (weak for)	Adolescents (level of evidence: 3) Suicidal ideation and behavior in adults (level of evidence: 3) Suicidal behavior in depression (level of evidence: 3) Suicidal attempts and self-harm in adolescents (level of evidence: 3) Borderline personality disorder (level of evidence: 3)	Psychotherapy should always be directed at some specific aspect of the suicidal spectrum (suicidal ideation, hopelessness, self-harm or other forms of suicidal behaviour) (B) Individual cognitive-behavioural sessions are recommended for adults with suicidal ideation or behaviour, although the inclusion of group sessions as an adjunct to individual treatment can be assessed (B) Specific psychotherapeutic treatment is recommended in adolescents: DBT in borderline personality disorder and CBT in major depression (B) In adolescents with major depression and suicidal ideation, the use of combination therapy (fluoxetine+CBT) is recommended (A) Although other psychotherapeutic techniques could be evaluated, DBT must be considered preferential in adults diagnosed with borderline personality disorder (B) Specific psychotherapeutic treatment is recommended in adolescents: DBT in borderline personality disorder and CBT in major depression (B) A: at least one meta-analysis, systematic review or clinical trial rated as 1++ directly applicable to the target population of the guide; or a body of evidence consisting of studies rated as 1+ and showing overall consistency of results B: a body of evidence consisting of studies rated as 2++, directly applicable to the target population of the guide and showing overall consistency of results; or evidence extrapolated from studies rated as 1++ or 1+
KQ10. Under what circumstances should DBT be actively considered for suicide prevention?	There is insufficient evidence to recommend for or against offering DBT to reduce suicidal ideation and the risk of suicide attempts or suicide (neither for or against)	Suicidal attempts and self-harm in adolescents (level of evidence: 3) Borderline personality disorder (level of evidence: 3)	Although other psychotherapeutic techniques could be evaluated, DBT must be considered preferential in adults diagnosed with borderline personality disorder (B) Specific psychotherapeutic treatment is recommended in adolescents: DBT in borderline personality disorder and CBT in major depression (B)
Levels and grades	Generally, a “Strong” recommendation indicates a high confidence in the quality of the available scientific evidence, a clear difference in magnitude between the benefits and harms of an intervention, similar patient or provider values and preferences, and understood influence of other implications (e.g., resource use, feasibility). Generally, if the Work Group has less confidence after the assessment across these domains and believes that additional evidence may change the recommendation, it assigns a “Weak” recommendation	Please refer to: OCEBM Levels of Evidence Working Group *. “The Oxford 2011 Levels of Evidence”	

Table 5. Contents of the developed key questions and recommendations of the corresponding prior treatment guidelines (continued)

Key question	VA/DoD	Brazil	Spain
	It is important to note that the GRADE terminology used to indicate the assessment across the four domains (i.e., “Strong” versus “Weak”) should not be confused with the clinical importance of the recommendation. A “Weak” recommendation may still be important to the clinical care of a patient at risk for suicide. Occasionally, instances may occur when the Work Group feels there is insufficient evidence to make a recommendation for or against a particular therapy or preventive measure. This can occur when there is an absence of studies on a particular topic that met evidence review inclusion criteria, studies included in the evidence review report conflicting results, or studies included in the evidence review report inconclusive results regarding the desirable and undesirable outcomes. Using these elements, the grade of each recommendation is presented as part of a continuum: • Strong for (or “We recommend offering this option...”) • Weak for (or “We suggest offering this option...”) • No recommendation for or against (or “There is insufficient evidence...”) • Weak against (or “We suggest not offering this option...”) • Strong against (or “We recommend against offering this option...”)		C: a body of evidence consisting of studies rated as 2+ directly applicable to the target population of the guide and showing overall consistency of results; or evidence extrapolated from studies rated as 2++ D: evidence level 3 or 4; or evidence extrapolated from studies rated as 2+. The recommendations adapted from a CPG are indicated with the CPG

*OCEBM Table of Evidence Working Group: Jeremy Howick, Iain Chalmers (James Lind Library), Paul Glasziou, Trish Greenhalgh, Carl Heneghan, Alessandro Liberati, Ivan Moschetti, Bob Phillips, Hazel Thornton, Olive Goddard, and Mary Hodgkinson (<http://www.cebm.net/index.aspx?o=5653>). SSRI, selective serotonin reuptake inhibitor; CBT, cognitive-behavioral therapy; CPG, clinical practice guideline; DBT, dialectical behavior therapy; OCEBM, Oxford Centre for Evidence-Based Medicine

Table 6. Key questions and recommendations of the finally approved treatment guideline

	Key questions	Recommendations	Recommendation grade	Level of evidence
Pharmacologic treatment	KQ1. Under what circumstances should antidepressants be actively considered for suicide prevention?	Recommendation 1. Selective serotonin receptor blockers (SSRIs) can be used for adults with major depressive disorder. Recommendation 2. Combination therapy of fluoxetine and CBT can be performed for adolescents with major depressive disorder. Careful monitoring should be performed along with treatment. Recommendation 3. Antidepressant treatment is not recommended for adults with bipolar disorder.	A	Ila
	KQ2. Under what circumstances should lithium be actively considered for suicide prevention?	Recommendation 4. Lithium can be used in adults with bipolar disorder.	B	Ila
	KQ3. Under what circumstances should anticonvulsants be actively considered for suicide prevention?	Recommendation 5. Lithium and antidepressant combined treatment can be performed for adults with major depressive disorder.	B	Ila
	KQ4. Under what circumstances should Clozapine be actively considered for suicide prevention?	Recommendation 6. When administering anticonvulsants to adults with bipolar disorder, valproate, carbamazepine, or lamotrigine can be used.	A	I
	KQ5. Under what circumstances should antipsychotics other than clozapine be actively considered for suicide prevention?	Recommendation 7. Clozapine can be used for adults with schizophrenia or schizoaffective disorder.	A	I
	KQ6. Under what circumstances should anti-anxiety medications be actively considered for suicide prevention?	Recommendation 8. Second-generation antipsychotics, including olanzapine and risperidone, can be used for adults with schizophrenia and schizoaffective disorder.	B	Ila
	KQ7. In what cases should electroconvulsive therapy be actively considered in high-risk groups for suicide?	Recommendation 9. Quetiapine can be used in combination with lithium for adults with bipolar disorder. Recommendation 10. Aripiprazole can be used in combination with antidepressants for adults with major depressive disorder accompanied by psychotic symptoms.	A	I
	KQ8. Under what circumstances should dynamic psychotherapy be actively considered for suicide prevention?	Recommendation 11. If anxiety or agitation symptoms occur in adults with major depressive disorder, antidepressants and anti-anxiety medications can be used together at the start of treatment.	D	IIfb
	KQ9. Under what circumstances should CBT be actively considered for suicide prevention?	Recommendation 12. Electroconvulsive therapy can be used for adults with bipolar disorder, major depressive disorder, schizophrenia, and schizoaffective disorder. Recommendation 13. Electroconvulsive therapy is recommended when there is difficulty in drug treatment owing to older adults, pregnant women, Parkinson's disease, drug side effects, etc., or when a rapid response to treatment is required owing to life is at risk due to food refusal.	A	I
	KQ10. Under what circumstances should DBT be actively considered for suicide prevention?	Recommendation 14. Dynamic psychotherapy can be used for adults with borderline personality disorder. A thorough pre-evaluation should be performed before starting treatment.	C	IIfb
Non-pharmacologic treatment		Recommendation 15. Individual CBT treatment can be performed for adults at high risk for suicide.	B	Ila
		Recommendation 2. Combination therapy of fluoxetine and CBT can be performed for adolescents with major depressive disorder. Careful monitoring should occur along with treatment.	A	I
SSRI, selective serotonin reuptake inhibitor; CBT, cognitive-behavioral therapy; DBT, dialectical behavior therapy		Recommendation 16. DBT can be performed for adults with borderline personality disorder.	A	Ila

anticonvulsants for personality disorders, including borderline personality disorder. In addition, the Spanish practice guidelines recommended the use of carbamazepine and valproate in bipolar disorder; and in addition to valproate and carbamazepine, the development committee decided to additionally recommend lamotrigine, which is actively used in clinical practice in Korea. In the case of KQ5, according to a meta-analysis of randomized clinical trial (RCT) studies published in 2022, when evaluating suicide-related risks including suicidal thoughts, suicide attempts, and suicide deaths in the high-risk suicide group, the use of first-generation antipsychotic drugs was associated with a high suicide-related risk (5.44; 95% confidence interval [CI] 1.47–20.00), while second-generation antipsychotics were associated with a lower risk of suicide (0.80; 95% CI 0.74–0.86).⁴¹ The guidelines were revised to recommend overall use of second-generation antipsychotics, not just olanzapine and risperidone, preferentially over first-generation antipsychotics. The recommendations, including the modifications, was then approved by the development committee and referred to the external advisory committee's Delphi round.

External review and approval of recommendations

Among the recommendations submitted to the Delphi round, recommendation 3 for KQ1, recommendation 5 for KQ2, and recommendation 15 for KQ 9 did not pass the first Delphi round. Recommendation 3 was “Antidepressant treatment is not recommended for adults diagnosed with bipolar disorder and at high risk for suicide”. There were opinions that it was difficult to distinguish between bipolar disorder and major depressive disorder in private clinic. Recommendation 5 was “Lithium and antidepressant combined treatment can be administered to adults at high risk of suicide diagnosed with major depressive disorder.” There was an opinion about the risk of overdose on lithium for suicide purposes. Recommendation 15 was “Individual cognitive behavioral therapy (CBT) can be performed in adults at high risk for suicide.” There was an opinion that CBT is a treatment that requires a lot of human and time resources and is not appropriate for a rapid therapeutic approach in the patients with acute risk for suicide. Reflecting these opinions, the development team added the risks and prevention measures of lithium overdose in recommendation 5, and clinical considerations on the sessions and time of CBT and human and temporal resource consumption in recommendation 15. These changes were supplemented by including them in the main text of the guidelines distributed in booklet form, rather than to individual recommendations. Afterwards, the entire recommendations were approved in the second Delphi round. The final approved KQs and treatment recommendations are shown in Table 6.

DISCUSSION

In this study, foreign treatment guidelines were adapted and modified according to scientific methodology to develop evidence-based treatment guidelines for pharmacological and non-pharmacologic treatment for psychiatric patients in Korea. Through this, clinicians were recommended to treat high-risk groups for suicide appropriate to the Korean sociocultural environment. According to the results of our research team's search during the development of the treatment guideline, this study is the first that chose the adaptation method among the previous clinical guidelines to prevent suicide in psychiatric patients.

Suicide is a phenomenon that occurs due to the interaction of various psychobiological and social factors, and it is necessary to utilize individual treatment guidelines that take into account the sociocultural environment of each country. In particular, Korea has the highest level of suicide rate in the world, with a very high elderly suicide rate and a less skewed gender ratio between men and women. Since the 1997 financial crisis, economic difficulties such as unemployment, academic pressure, and cultural difficulties such as isolation of the elderly have contributed significantly to suicide.^{42–46} Therefore, it is more important to develop treatment guidelines that reflect these characteristics. However, in the search conducted by this research team, there were very few studies including RCTs, systematic reviews, and meta-analyses that addressed the suicide prevention effect of psychiatric treatment in Korea.^{47–49} Therefore, it may be an efficient method to adapt treatment guidelines developed overseas with sufficient scientific evidence to fit the Korean situation.

The Korean guidelines for suicide prevention in psychiatric patients were developed by adapting and modifying the guidelines from the United States (VA/DoD), Spain, and Brazil. This adaptation process has several strengths: 1) reviewing the contents of other guidelines ensured that the Korean guidelines are built upon a solid foundation of existing evidence and best practices from around the world, 2) modifying the content to fit the Korean medical reality made the guidelines more relevant and practical for implementation within the local healthcare system, and 3) supplementing any areas lacking in up-to-dateness ensured that the guidelines reflect the most recent advancements in suicide prevention research.

Foreign guidelines provide a comprehensive approach to suicide risk assessment, psychological treatment, and pharmacological interventions. In contrast, the Korean guidelines place more emphasis on tailoring these interventions to the Korean healthcare system and cultural context, ensuring the applicability and effectiveness of evidence-based interventions

for high-risk groups within Korea's unique medical and cultural framework. This includes considerations of healthcare accessibility and insurance coverage in Korea, which differ significantly from other countries.

The treatments recommended with the highest recommendation grade and level of evidence in this guideline were lithium, clozapine, atypical antipsychotic, electroconvulsive therapy (ECT), and CBT. In the Brazilian guidelines, selective serotonin reuptake inhibitors, lithium, and clozapine, and in the Spanish guidelines, antidepressants, clozapine, lithium, and ECT were recommended as treatments with the recommendation grade. In the VA/DoD guidelines, no treatment was recommended at the highest grade. Because our guideline synthesized the literature referenced in previous guidelines, more sufficient literature evidence was obtained for individual treatment recommendation, and through this, a larger number of treatments were recommended at the highest level.

In the case of lithium, the Brazil and Spain guidelines recommended it at the highest level, and the VA/DoD treatment guidelines also recommended use at a low level until the 2019 edition, but from the 2024 revision, the use of lithium is neither recommended nor denied. This is because two meta-analyses published in 2022 gave conflicting results on the effects of lithium.^{41,50} However, the suicide prevention effect of lithium has been continuously emphasized in previous papers.⁵¹⁻⁵³ It also received wide approval in the Delphi consensus among Korean experts. It is not enough to deny the repeatedly reported effect of lithium on preventing suicide in patients with mood disorders, based on only one meta-analysis published in 2022.

In the case of dialectical behavior therapy (DBT), the treatment guidelines in Brazil and Spain recommended its use in adolescents with borderline personality disorder and a history of suicide attempts and self-harm, but the VA/DoD treatment guidelines changed their position from recommending its use in 2019 and did not recommend or object to DBT in 2024. This is because systematic literature reviews published in 2019 and 2021 failed to show evidence that DBT is effective when compared to treatment as usual or psychotherapy.^{54,55} However, both of these analyzes have a limitation in comparing DBT with other treatments that are effective in preventing suicide. Other previous studies on the effectiveness of DBT support the use of DBT in these groups.⁵⁶⁻⁵⁹

In this guideline, the applicability and acceptability of each recommendation in the Korean environment were evaluated. Here, accessibility, including the inclusion of health insurance and the cost of treatment, was evaluated as important. However, since Korea's medical accessibility is excellent and citizens can use medical services at relatively low prices through the national health insurance system,⁶⁰ the actual recommendations

were not rejected or modified for economic reasons. If additional clinical guidelines are made for those with suicide risk and poor access to medical care, or if medical accessibility worsens or medical costs increase due to changes in the medical system in Korea in the future, the current recommendations may be excluded or modified in the future.

The external advisors who evaluated the clinical usability of this guideline included psychiatrists in private clinics, public health centers, secondary and university hospitals. This was intended to verify the acceptability of these guidelines across various healthcare institutions providing care for high-risk suicide groups. In clinical practice in Korea, treatment for psychiatric disorders is sometimes provided in departments other than psychiatry, but most treatment for patients at risk of suicide is provided in psychiatry. In the future, if doctors from other departments become involved in the treatment of high-risk groups for suicide due to changes in the medical environment in Korea, there is a possibility that doctors from other departments may participate as advisory committee members along with psychiatrists for additional revisions to the guidelines.

There are several limitations in the development process of this treatment guideline. First, it does not include information for screening high-risk groups for suicide, which may lead to confusion about which people this treatment guideline should apply to. However, even people who are not classified as high-risk for suicide by well-made algorithms may attempt suicide,^{61,62} and psychiatric patients have a higher suicide risk than the general population, so it is fundamental to make evidence-based clinical measures to prevent suicide risk in all psychiatric patients.^{63,64} We plan to expand the scope of the treatment guideline to include screening for high-risk groups for suicide in the future. Second, although we selected guidelines published within the last 5 years, some of the literature cited in these guidelines was published as long as 20 years ago. Fortunately, the VA/DoD treatment guidelines announced in 2024 were judged to be sufficiently up-to-date at this point. We additionally conducted a review of the recency of recommendations not covered in the VA/DoD practice guidelines.

To ensure the effective implementation of these guidelines in clinical practice, future efforts should focus on developing comprehensive training programs for healthcare providers, integrating the guidelines into existing electronic medical record systems, regularly monitoring and evaluating the guidelines' impact on clinical practice and patient outcomes, and implementing specific measures to ensure effective utilization of the guidelines. Additionally, pilot programs could be conducted to refine these strategies and ensure their practicality before wider implementation.

Furthermore, future research should investigate the long-term effectiveness of these guidelines and their applicability to

other regions and populations. This would involve longitudinal studies to assess the sustained impact of the guidelines on suicide prevention and examining how these guidelines can be adapted for different cultural and healthcare settings. Such research will help to validate the generalizability and robustness of the guidelines, ensuring that they can be effectively implemented in diverse contexts. Additionally, it is worth considering not only clinical studies to confirm the reduction in suicidal ideation or suicide rates among patients treated in hospitals and clinics, but also evaluating the effect on reducing suicide rates at the community level through interrupted time series analysis.

In conclusion, this study aimed to reduce the high suicide rate in Korea by developing evidence-based treatment guidelines that encompass pharmacological and non-pharmacological treatment for psychiatric patients. To this end, foreign treatment guidelines were adapted and modified according to scientific methodology and applied to domestic circumstances. Ultimately, various treatments including lithium, clozapine, atypical antipsychotics, ECT, and CBT were recommended, and the applicability of the guidelines was improved through the experience and consensus of clinicians. This study sought to maximize the effectiveness of suicide prevention for psychiatric patients by presenting evidence-based suicide prevention guidelines that reflect the special socio-cultural environment of Korea, a country with a high risk of suicide worldwide. In the future, we plan to further supplement the treatment guidelines through additional research, such as screening for high-risk groups for suicide.

Availability of Data and Material

All data generated or analyzed during the study are included in this published article.

Conflicts of Interest

C. Hyung Keun Park and Se-Hoon Shim, a contributing editors of the *Psychiatry Investigation*, were not involved in the editorial evaluation or decision to publish this article. All remaining authors have declared no conflicts of interest.

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