The Diagnostic Nose: Olfaction, Sensory Expertise, and the Changing Status of Smell in Chinese and Korean Medicine — An Interpretive Literature Review

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Medical anthropology has examined how physicians see and touch far more closely than how they smell, although Chinese medicine has long listed odor among diagnostic signs. In the Four Examinations, the second method, wén (聞), covers both listening and smelling. This review asks how olfactory diagnosis is codified and learned in Chinese and Korean medicine, what chemosensory research can and cannot establish about it, and how its contrasting status in modern hospital medicine may be interpreted. A structured interpretive literature review drew on medical and sensory anthropology, classical Chinese medical scholarship, Korean medicine research, chemosensory science, and volatile organic compound (VOC) research. Sources were classified by evidence type and synthesized thematically, with biomedical and historical-anthropological evidence reported separately. Olfactory diagnosis is formally codified in Chinese medical texts and appears in contemporary Chinese and Korean diagnostic protocols, though Korean evidence is thinner. Apprenticeship-based transmission is theoretically plausible, but no direct evidence was found that practitioners acquire diagnostic olfactory skill through training, and studies of experienced health workers smelling for disease report limited accuracy. Experiments show that inflammation can alter human odor and VOCs, sometimes perceptibly, but no identified study validates the classical five-odor taxonomy. The traditions may differ less over whether odor carries information than over where they locate the detector: in the trained practitioner or in instruments. This is an interpretive model; clinic ethnography and blinded validation studies are needed to test it.

Keywords: medical anthropology; olfaction; sensory anthropology; Chinese medicine; Korean medicine; enskilment; diagnostic epistemology; volatile organic compounds

Introduction

Background and Context

Every medical system faces the same basic problem. The interior of the body is hidden, and the physician must infer what is happening there from signs that reach the surface. Medical systems differ in which of the physician's senses they train and trust to read those signs. Shigehisa Kuriyama's comparative history of Greek and Chinese medicine argues that such differences go beyond interpretation: physicians trained in different traditions, attending to the same body, came to perceive it differently.[1]

Classical Chinese medicine organized diagnosis into the Four Examinations (四診, sìzhěn): inspection (望, wàng), wén (聞), inquiry (問, wèn), and palpation (切, qiè). In classical Chinese the character 聞 can mean both to hear and to smell, and the examination it names includes both activities. Contemporary English-language reviews written by researchers in Chinese medicine render this examination as "auscultation–olfaction" or "auscultation and olfaction."[2,3] That compound term is a modern translation convention rather than a classical category. In this paper, wén refers to the Chinese examination as a whole, and "olfactory diagnosis" refers only to its smelling component.

Olfactory diagnosis is described explicitly in current scholarship. A 2025 textual study defines it as diagnosing disease by smelling odors from the patient's body, secretions, and excreta, as well as the odor of the sickroom.[4] A 2026 critical review describes it as identifying characteristic odors in a patient's breath or secretions in order to guide pattern differentiation (biàn zhèng), and states that it remains subjective and dependent on the practitioner's experience.[3]

The classical sources also organize odors theoretically. Chapter 4 of the Huangdi Neijing Suwen, available in Unschuld and Tessenow's annotated translation, assigns an odor to each of the five phases and their associated organ systems, alongside colors, flavors, seasons, and directions.[5] The odors are conventionally glossed as rancid or urine-like (臊) for the

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liver, scorched (焦) for the heart, fragrant (香) for the spleen, fishy (腥) for the lung, and putrid (腐) for the kidney, although English renderings vary between translators. The 2025 textual study traces how later commentators developed and disputed these associations.[4] The existence of this classification in texts establishes that odor was theorized; it does not, by itself, establish that the classification is clinically valid.

Korean medicine developed from the same learned tradition. The Dongui Bogam, compiled by the royal physician Heo Jun and published in 1613, is the foundational synthesis of Korean medicine and was inscribed on the UNESCO Memory of the World Register in 2009.[6] Sasang constitutional medicine, formulated by Lee Je-ma in the late nineteenth century, classifies people into four constitutional types and differs from Chinese medicine in the weight it gives to constitution in diagnosis and treatment.[7] Contemporary Korean clinical research continues to describe pattern identification in terms of four examinations that include listening and smelling.[8]

Terminology

Because the literature uses these labels loosely, this paper applies them as follows. "Chinese medicine" refers to the historical learned tradition in China. "Traditional Chinese medicine" (TCM) refers to the standardized system institutionalized in the People's Republic of China in the twentieth century, which is the label used by most contemporary sources cited here. "Korean medicine" refers to the Korean learned tradition from the Dongui Bogam onward and to its contemporary clinical form. "East Asian medicine" is used only where a claim is intended to apply to both Chinese and Korean medicine and is supported for both. "Modern hospital medicine" replaces the broad term "biomedicine" and refers specifically to laboratory- and instrument-centred diagnostic practice in Europe and North America from the late nineteenth century onward. Smell has not disappeared from that practice: clinicians still recognize certain characteristic odors, such as the breath odor associated with diabetic ketoacidosis.[9]

The Problem

The anthropology and history of East Asian medicine is a well-developed field. Judith Farquhar showed that clinical judgment in Chinese medicine is organized around practice and accumulated experience rather than the mechanical application of theory.[10] Elisabeth Hsu's ethnography in Kunming described how Chinese medical knowledge is transmitted through secret, personal, and standardized channels.[11] Hsu later wrote a historical study of pulse diagnosis based on early Chinese case records,[12] and Kuriyama compared Greek and Chinese approaches to the pulse.[1] Touch, in other words, has received sustained scholarly attention.

The searches described below located no comparable anthropological study of olfactory diagnosis in Chinese or Korean medicine. The recent work that addresses odor diagnosis directly comes from within TCM scholarship or from analytical chemistry.[3,4] This statement describes the results of this review's search, not a claim that no such work exists, particularly in Chinese- or Korean-language publications that English-language databases index poorly.

The comparison with Western medicine makes the gap more interesting. Historians have documented intense attention to odor among eighteenth- and nineteenth-century French physicians and hygienists.[13] Later hospital medicine did not make odor a standardized, recorded diagnostic sign in the way it did for auscultation, imaging, and laboratory values, and a review of the field notes that the ability of humans to diagnose disease by smell has rarely been studied quantitatively.[9] Meanwhile, experimental research has shown that acute inflammation can change the perceived odor of human sweat and urine within hours.[14,15]

Three Propositions

Claims about "the smell of disease" often run together propositions that differ greatly in their evidential support. This paper separates them throughout. Proposition 1 (P1) is that disease processes can alter the volatile chemistry of the body. Proposition 2 (P2) is that humans or animals can sometimes perceive those changes. Proposition 2a (P2a) is that trained human practitioners perceive them more accurately than untrained people. Proposition 3 (P3) is that a traditional diagnostic taxonomy, such as the five-odor correspondences or odor-based pattern differentiation, maps those changes onto clinically valid categories.

These propositions are logically independent. Evidence for P1 does not imply P2, since a sample can contain volatile compounds that no one can smell. Evidence for P2 does not imply diagnostic value, since a perceptible odor may not be specific to one condition. None of P1, P2, or P2a implies P3. Even the most recent review of molecular sensing in TCM presents VOC analysis as a program for making olfactory diagnosis reproducible, not as confirmation that the classical mappings hold.[3] Table 2, in the Results, summarizes the evidence for each proposition.

Significance and Objectives

For medical anthropology, the review addresses a diagnostic sense that has received little attention. For sensory anthropology, whose account of the modern Western devaluation of smell has drawn mainly on perfume, hygiene, and class,[16] it considers a case from professional knowledge production. For the study of expertise, it asks whether a trained diagnostic nose

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is empirically documented, a question the existing evidence does not settle.

The review pursues four research questions. RQ1: How is olfaction formally incorporated into diagnosis in Chinese and Korean medicine, and on what theoretical basis? RQ2: What does the existing literature show about how olfactory diagnostic skill is acquired, and what remains undocumented? RQ3: What historical and biomedical evidence bears on the changing status of smell in modern hospital medicine, and what can that evidence support? RQ4: What does the comparison suggest about how medical systems assign epistemic authority to the senses?

Theoretical Framework

Four bodies of theory frame the analysis. The first is the anthropology of the senses, which holds that the senses are culturally organized and ranked and that the modern West placed smell low in its sensory hierarchy.[16,17] The second is the theory of embodiment and enskilment. Thomas Csordas proposed embodiment as a paradigm for anthropology and described somatic modes of attention, meaning culturally elaborated ways of attending to and with the body.[18,19] Tim Ingold, adapting a phrase from the psychologist James Gibson, described skill as an "education of attention" developed through guided practice.[20] Michael Polanyi's observation that "we can know more than we can tell" names the tacit component of such skills.[21] The third is comparative medical epistemology, drawing on Kuriyama's argument that perception is shaped by training and on Arthur Kleinman's model of medical systems.[1,22] The fourth is the history of diagnostic technology and objectivity: Stanley Reiser's account of how instruments reshaped clinical diagnosis,[23] and Lorraine Daston and Peter Galison's history of mechanical objectivity as a scientific ideal.[24]

These frameworks generate hypotheses; they are not evidence that particular practices exist. In particular, the embodiment literature suggests that a tacit olfactory skill would be underrepresented in written sources. The reverse inference does not hold: sparse literature has several alternative explanations, including low clinical importance, decline of the practice, disciplinary neglect, and the poor indexing of Chinese- and Korean-language research. This review therefore does not treat the absence of literature as evidence that olfactory diagnosis is tacit knowledge.

Scope and Limitations

This paper is a literature review, not an ethnography. It makes no claims based on original fieldwork and does not assess the clinical accuracy of olfactory diagnosis directly. Statements about how practitioners smell, how apprentices are trained, and how accurate olfactory diagnosis is are limited to what the reviewed literature reports. The scope is Chinese and Korean medicine, with modern hospital medicine as the comparative case; Japanese, Vietnamese, and Tibetan traditions are excluded. The evidence base for Korean medicine is markedly thinner than for Chinese medicine, and classical Chinese texts are accessed through scholarly translation.

Methodology Overview

The study combines a structured database search with citation chaining, classifies every included source by tradition, evidence type, and theme, and synthesizes the material thematically while keeping biomedical findings and historical-anthropological interpretation distinct. Details follow in the Methods.

Methods

Research Design

This study is an interpretive literature review. A systematic review with meta-analysis assumes a body of comparable studies measuring a common outcome, and no such body exists for this topic. The relevant literature is dispersed across anthropology, history, linguistics, chemosensory science, and clinical research. Interpretive synthesis is suited to bringing these literatures into contact, but its selection process must still be reported transparently, and the procedures below are described with that aim.

Search Strategy

Searches were run in PubMed, Google Scholar, JSTOR, and Anthropology Plus and were supplemented by forward and backward citation chaining from foundational works. Search terms were combined from four clusters. Medical system terms included traditional Chinese medicine, Korean medicine, Sasang, Dongui Bogam, Huangdi Neijing, four examinations, pattern identification, and syndrome differentiation. Sensory terms included olfaction, smell, odor, olfactory diagnosis, wen zhen, auscultation and olfaction, listening and smelling, and five odors. Theoretical terms included embodiment, enskilment, tacit knowledge, apprenticeship, and anthropology of the senses. Biomedical terms included volatile organic compounds, breath analysis, electronic nose, canine scent detection, olfactory expertise, and odor identification accuracy. Searches were conducted in English and Korean without date restriction, because the argument is partly historical. During revision, supplementary targeted searches addressed four gaps: olfactory expertise and training, the accuracy of health workers' odor judgments, reliability studies of the four

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examinations in Korean medicine, and the history of smell in Western medicine. The final search was completed on [AUTHOR: insert date].

Inclusion and Exclusion Criteria

Sources were included if they were peer-reviewed articles, scholarly monographs from academic presses, or classical texts in recognized scholarly translation, and if they addressed at least one of the four research questions. Sources were excluded if they were commercial or promotional, appeared in venues without visible peer review, or made clinical efficacy claims without supporting data. Practitioner-facing websites on the five odors were consulted only for orientation; no such source carries an evidentiary claim in this paper, and any claim that could not be traced to a scholarly source was removed.

Screening and Selection

Database searches returned [AUTHOR: N] records. After removal of duplicates, [N] titles and abstracts were screened and [N] were excluded as not relevant to any research question. [N] full texts were assessed; [N] were excluded (not relevant on full reading, [N]; non-peer-reviewed or commercial, [N]; efficacy claims without data, [N]; full text unavailable, [N]). Citation chaining added [N] sources, mainly theoretical and historical monographs. In total, 34 sources were included. All screening was performed by a single reviewer, which is noted as a limitation.

Data Extraction

For each included source the following were recorded: authors, year, discipline, medical tradition, source type, the specific claim relevant to this paper, and the limits of what the source could support. Each source was assigned one or more evidence types: (A) classical text in translation; (B) historical or textual scholarship; (C) ethnographic or anthropological study; (D) theoretical work; (E) clinical protocol or reliability study; (F) experimental chemosensory study; (G) analytical-chemistry or instrument study; (H) diagnostic-accuracy study of human or animal detection; and (I) narrative or critical review.

Synthesis Method

Extracted material was coded into four themes corresponding to the research questions: codification, transmission, displacement, and epistemology. Within each theme, historical-anthropological evidence and biomedical evidence were reported separately. Empirical findings were additionally tagged by the proposition (P1, P2, P2a, or P3) they bear on. Table 1 lists every included source with its tradition, evidence type, theme, and the limits of the claim it supports.

Quality Assessment

No single appraisal tool fits sources ranging from classical texts to diagnostic-accuracy studies, so criteria were matched to evidence type. Empirical studies were assessed for sample size, blinding, independent validation, and control of confounding factors, and these qualifications are reported with each finding. Textual and historical claims were assessed by whether they rested on primary sources or secondary accounts, and are attributed to specific texts and translations rather than to a tradition in general.

Ethical Considerations

The study involved no human participants. One ethical concern shaped the writing. Associating a people with odor has a long and harmful history in Western thought.[16] This paper is not about how East Asian bodies smell; it is about how East Asian medical frameworks describe smelling as a diagnostic act.

Results

Table 1 lists the 34 included sources. Chinese-medicine sources are primarily textual scholarship and reviews; Korean-medicine sources comprise one historical study, two reviews, one clinical reliability study, and one instrument-development study; and biomedical sources are experimental, analytical, or diagnostic-accuracy studies with generally small samples.

Theme 1: Olfaction Is Codified in Chinese and Korean Diagnostic Frameworks

Chinese medicine: textual and professional evidence

The smelling component of wén is one of four formally named diagnostic methods, and contemporary reviews by TCM researchers name it directly.[2,3] Yu and colleagues review machine-learning approaches intended to make all four methods quantifiable, including the analysis of chromatographic data for olfaction.[2] This indicates that contemporary TCM researchers treat olfactory diagnosis as part of the current diagnostic framework. These reviews describe the official content of the framework; they do not report how often, or how carefully, practitioners smell patients in routine clinical work.

The sources specify what is smelled: odors of the body, secretions, excreta, and the sickroom,[4] and characteristic odors of breath and secretions used to guide pattern differentiation.[3] They also specify a theory: the five-odor correspondences of the Suwen[5] and a commentary tradition that elaborated them

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Table 1 Included sources by tradition, evidence type, theme, and scope of supported claims

Source	Tradition / field	Evidence type	Theme(s)	Supports / does not support
Unschuld & Tessenow 2011	Chinese (classical)	A	Codification	Five-odor correspondences in the Suwen / clinical use or validity
Zhang et al. 2025	Chinese / TCM	B	Codification	Textual development of olfactory diagnosis / routine practice or accuracy
Yu et al. 2026	TCM	I	Codification	Wén rendered as auscultation–olfaction; AI modernization / accuracy
Leng et al. 2026	TCM; analytical chemistry	I	Codification; displacement	Definition; admitted subjectivity; VOC research program / validation of classical mappings
Song et al. 2016	Korean	B	Codification	Historical significance of Dongui Bogam / odor in that text
Yoo et al. 2012	Korean; Chinese	I	Codification; Korean case	Sasang vs. TCM comparison / olfaction specifically
Lee et al. 2014	Korean (clinical)	E	Codification; transmission	Odor recorded in a standardized stroke protocol; moderate agreement / accuracy; odor-only statistics
Do et al. 2012	Korean (Sasang)	G	Korean case	Instrumented face, body, voice, questionnaire / reasons odor is absent
Jang et al. 2013	Korean (Sasang)	I	Korean case	Voice-based Sasang research / odor
Farquhar 1994	Chinese	C	Transmission	Practice-centred clinical judgment / olfactory learning
Hsu 1999	Chinese	C	Transmission	Modes of medical knowledge transmission / olfaction specifically
Hsu 2010	Chinese (early)	B	Problem	Scholarship on touch / smell
Kuriyama 1999	Greek; Chinese	B	Epistemology	Training shapes perception (touch, vision) / smell
Classen et al. 1994; Howes & Classen 2014	Sensory anthropology	B; D	Displacement; epistemology	Western sensory hierarchy / medical causes of decline
Csordas 1990, 1993; Ingold 2000; Polanyi 1966	Theory	D	Transmission	Concepts for perceptual skill / that the skill exists
Kleinman 1980	Medical anthropology	D	Epistemology	Model of medical systems / smell
Corbin 1986	History (France)	B	Displacement	Historical attention to odor in medicine and hygiene / cause of later decline
Reiser 1978	History of medicine	B	Displacement	Instruments reshaped diagnostic authority / smell specifically
Daston & Galison 2007	History of science	B; D	Displacement	Mechanical objectivity as ideal / medicine or smell specifically
Bijland et al. 2013	Clinical medicine	I	Displacement; P2	Continued recognition of some odors; human smelling rarely quantified / accuracy
Majid & Burenhult 2014	Linguistics	F	Transmission	Odors codable in some languages / diagnostic skill
Royet et al. 2013	Chemosensory science	I	Transmission; P2a	Training improves laboratory olfactory performance; expert studies scarce / medical diagnosis
Rao et al. 2013	Clinical medicine	H	P2a	Nurses' odor judgments of *C. difficile* poor / East Asian practitioners
Fujihara et al. 2024	Clinical microbiology	H	P2a	Experience not associated with odor identification / East Asian practitioners
Olsson et al. 2014	Chemosensory science	F	P1; P2	Acute inflammation alters perceived body odor (8 donors) / natural disease; training
Gordon et al. 2018	Chemosensory science	F	P1; P2	Inflammation alters urine odor and volatiles / diagnosis
Phillips et al. 1999	Analytical chemistry	G	P1 (context)	High individual variation in breath VOCs / disease signatures
Trivedi et al. 2019	Analytical chemistry	G; H	P1; P2	Sebum volatile signature in Parkinson's disease / trainability; traditional categories
Bomers et al. 2014	Canine detection	H	P2	One dog screened *C. difficile* accurately (14 cases) / human detection
Jendrny et al. 2021	Canine detection	I	P2	State of field; confounders / clinical readiness

Note. Evidence types: A classical text in translation; B historical/textual scholarship; C ethnographic; D theoretical; E clinical protocol/reliability; F experimental chemosensory; G analytical chemistry/instrument; H diagnostic-accuracy study; I narrative/critical review. Final column: what the source supports / what it does not support.

across later periods.[4] This theory is specific enough to be tested, which makes its validity (P3) an empirical question rather than a matter of interpretation.

Contemporary TCM researchers are candid about the method's limits. Leng and colleagues state that conventional olfactory diagnosis is highly subjective and experience-dependent, producing inconsistent outcomes and difficulties with reproducibility and quantification.[3] Their proposed remedy is instrumental: analyzing exhaled VOCs, which together form an individual "breathprint," to provide a quantifiable basis for olfactory diagnosis.[3]

Korean medicine: historical and clinical evidence

The Korean evidence is thinner and of different kinds. Historical scholarship establishes the Dongui Bogam as the foundation of Korean medicine,[6] but this review located no English-language study analyzing its treatment of odor specifically; examining the relevant passages directly is a task for future work. Comparative scholarship describes Sasang constitutional medicine as a distinct Korean development centred on constitutional type.[7]

The most direct evidence of contemporary Korean clinical use comes from a multicentre study by the Korea Institute of Oriental Medicine on the standardization of pattern identification in stroke.[8] In 168 stroke patients admitted to Korean medicine university hospitals in 2012 and 2013, two experts from the same department independently recorded indicators from all four examinations. The listening-and-smelling indicators included vocal energy, sputum, and fetid mouth odor. Agreement on listening-and-smelling indicators, measured with the AC1 statistic, ranged from 0.67 to 0.88, and the authors concluded that agreement across the four examinations was moderate and that clinician training should be improved.[8]

This study shows that odor is recorded as a standardized sign in at least one contemporary Korean clinical research protocol. It has three limits. The agreement statistic is reported for listening-and-smelling indicators together, not for odor alone. Agreement between clinicians is not the same as accuracy against an independent diagnosis. And the protocol is specific to stroke.

In summary, olfactory diagnosis is a codified component of Chinese medical theory and of contemporary TCM and Korean medicine diagnostic frameworks. The reviewed sources do not establish how widely it is used in routine practice or how accurate it is.

Theme 2: Transmission of Olfactory Skill — Evidence and Hypothesis

An earlier draft of this paper argued that olfactory diagnostic skill is transmitted through embodied apprenticeship. On review of the evidence, that claim is better stated as a hypothesis. This section separates what the literature shows from what it does not.

Can odors be described in words?

A common Western assumption holds that smell resists language, which would make an olfactory skill hard to teach. Asifa Majid and Niclas Burenhult tested this with speakers of Jahai, a language of the Malay Peninsula. Jahai speakers named odors about as easily as colors and used abstract odor terms, whereas matched English speakers found odors much harder to name and relied mostly on describing the odor's source.[25] This shows that a structured odor vocabulary, such as the five-odor terms, is linguistically possible. It does not show that practitioners use such terms consistently or that they carry diagnostic value.

Can olfactory performance be trained?

The specialist literature on olfactory expertise gives a qualified answer. Royet and colleagues report that experimental training of untrained participants improves olfactory sensitivity, discrimination, memory, and identification, and that experts such as perfumers show functional and structural brain differences; they also note that behavioral studies of professional odor experts are scarce and their results inconsistent or inconclusive.[26] None of these studies concerns medical diagnosis.

The previous draft also cited the inflammation experiments of Olsson and Gordon as support for trained olfactory expertise. That inference is withdrawn. Olsson and colleagues used eight healthy odor donors and forty untrained raters, and Gordon and colleagues used the same experimental paradigm; together they show that acute experimental inflammation can change body and urine odor, not that clinicians acquire finer diagnostic discrimination through training.[14,15]

Does professional experience produce diagnostic accuracy?

The closest available tests of P2a come from outside East Asian medicine, and both are negative. Rao and colleagues asked 18 hospital nurses, most of whom believed they could recognize *Clostridium difficile* infection by smell, to sniff five positive and five negative stool samples; the median proportion of correct answers was 45 percent, and more experienced or more confident nurses did not perform better.[27] Fujihara and colleagues asked 70 blindfolded microbiology technologists to identify ten bacterial cultures chosen for their distinctive odors; the median score was four of ten, and years of experience were not significantly associated with accuracy.[28] A clinical review likewise notes that human diagnostic smelling has rarely been evaluated quantitatively.[9]

These studies concern Western health workers, not Chinese or Korean medicine practitioners, and their samples are small. They nonetheless count against the assumption that

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routine professional exposure alone produces accurate diagnostic smelling. The Korean reliability study reports moderate inter-rater agreement on indicators that include odor, which is compatible with either a shared learned skill or shared conventions, and does not measure accuracy.[8] This review found no blinded study comparing Chinese or Korean medicine practitioners with untrained controls on standardized odor samples.

Apprenticeship as a hypothesis

The anthropological frameworks describe how such a skill could be learned. Ingold's education of attention and Csordas's somatic modes of attention offer a vocabulary for perceptual learning under guidance,[19,20] and Hsu's ethnography documents personal and standardized modes of transmission in Chinese medicine generally.[11] Farquhar's account shows the central role of clinical experience.[10] None of these works documents the learning of olfactory diagnosis specifically. The resulting hypothesis is that olfactory diagnostic skill in Chinese and Korean medicine, to the extent that it exists, is acquired mainly through guided clinical practice. Direct evidence would include ethnographic descriptions of teachers correcting students' smelling, curricula or training manuals that specify olfactory exercises, practitioner interviews about how the skill is learned, and blinded practitioner-versus-control testing. This review found none of these. The observation that the method is experience-dependent[3] is consistent with the hypothesis but does not establish it, and the scarcity of written sources is not used here as evidence for it.

Theme 3: The Changing Status of Smell in Modern Hospital Medicine

Historical and anthropological evidence (interpretive)

The earlier claim that biomedicine "abandoned" the smelling physician was too broad. Eighteenth- and nineteenth-century French medicine and public hygiene attended closely to odor,[13] and present-day clinicians still recognize some diagnostic odors.[9] What the sources support is narrower: in twentieth-century hospital medicine, odor did not become a standardized, recorded, and instrumented diagnostic sign in the way that auscultation, imaging, and laboratory values did.

Why this happened cannot be settled by the sources reviewed here. Reiser's history shows that diagnostic instruments shifted clinical authority toward findings that could be recorded, repeated, and shared.[23] Daston and Galison describe the rise of mechanical objectivity, an ideal of evidence free from individual judgment, across the sciences.[24] Sensory anthropologists describe a broader modern Western devaluation of smell.[16,17] These accounts are consistent with the interpretation that unaided smell was disadvantaged because its findings could not be transferred or checked. They do not show that this was the primary cause. Plausible alternatives include the decline of miasma-based theories of disease in which odor had played a central role, the development of more specific tests, changing norms of hygiene, and the limited accuracy of human odor judgments where it has been measured.[27] The transferability explanation is therefore offered as one interpretation among several.

Biomedical and chemosensory evidence (P1 and P2)

Olsson and colleagues injected healthy volunteers with endotoxin to induce a transient inflammatory response. Within a few hours, raters judged their body odor as more aversive than after placebo, and this effect was statistically mediated by the level of immune activation.[14] The authors describe the result as the first experimental evidence that disease smells.[14] Its limits are important: eight odor donors, acute experimental inflammation rather than naturally occurring disease, and ratings of aversiveness rather than identification of a condition. Gordon and colleagues, using the same paradigm, found that inflammation increased the averseness of urine odor and altered its volatile composition within hours.[15]

The chemical background is highly variable. Phillips and colleagues detected 3,481 distinct VOCs in the breath of 50 healthy people, with an average of 204.2 compounds per sample and only 27 compounds present in every participant.[29] Such individual variation, influenced by diet, environment, and physiology, is a major obstacle to reading disease from odor.

Trivedi and colleagues began from the reports of a hyperosmic individual who said she could detect Parkinson's disease by smell. They analyzed sebum from 64 participants (43 with Parkinson's disease and 21 controls), confirmed findings in an independent cohort of 31, and identified a volatile signature that included altered levels of perillic aldehyde and eicosane; the individual described the odor of these compounds as similar to the scent she associated with the disease.[30] This supports P1 and P2 for one condition and one sample type. It involves a single perceiver and modest cohorts, and it does not show that the ability can be trained or that any traditional odor category is valid.

Animal detection provides further evidence for P2. Bomers and colleagues used one trained dog to screen hospital wards during a *C. difficile* outbreak; across nine visits and 651 screenings of 371 participants, the dog identified 12 of 14 cases (sensitivity 86 percent, 95 percent confidence interval 56 to 97) and 346 of 357 negative participants (specificity 97 percent, 94 to 98).[31] The wide interval reflects the small number of cases. A broader review concludes that medical detection by dogs remains in its infancy and that canine performance is affected by genetics, environment, age, nutrition, conditioning, training, disease, and medication, all of which must be controlled before standardization.[32] Parallel instrumental work applies gas chromatography–mass spectrometry

and electronic noses to breath VOCs with the explicit aim of making TCM olfactory diagnosis standardized and evidence-based.[3]

Taken together, these studies support P1 and P2 in specific, limited settings. They do not validate human diagnostic smelling in routine practice, and they do not bear on P3. Table 2 summarizes the status of each proposition.

Theme 4: Two Locations for the Detector — An Interpretive Model

This theme is an interpretive synthesis rather than an empirical finding. Both Chinese and Korean medicine and modern hospital medicine have, at different times, treated body odor as potentially informative. They differ in where they place the detector. The Chinese and Korean frameworks formally locate it in the practitioner. Modern hospital medicine, and now TCM modernization research itself, increasingly locate it in instruments.

Locating the detector in a person has recognizable costs. A human perceiver cannot easily be calibrated against a reference, and findings cannot be checked by anyone who was not present. Contemporary researchers within both traditions acknowledge these problems in their own terms, describing olfactory diagnosis as subjective and hard to reproduce[3] and calling for better clinician training to improve agreement.[8] A possible benefit is integration: a practitioner who smells a patient is also observing, questioning, and palpating them. That integration cuts both ways. Studies of odor judgment suggest that apparent olfactory accuracy may depend on accompanying visual and clinical cues,[27,28] so an integrated impression may be informative while making the contribution of smell itself impossible to isolate.

Locating the detector in an instrument gains standardization and transferability. It does not remove interpretation, since instrument outputs must still be related to a patient and a diagnosis. Kuriyama's argument that training shapes perception[1] suggests a further hypothesis: a practitioner trained in the five-phase correspondences may perceive a patient's breath differently from one trained in laboratory medicine. That hypothesis has been developed for touch but remains untested for smell.

On this model, part of the divergence between the traditions is epistemological: it concerns which kinds of detector a medical system accepts as a legitimate source of knowledge. Whether traditional olfactory judgments carry valid diagnostic information is a separate empirical question that the current evidence does not answer.

Discussion and Conclusion

Restatement of Key Findings

Four findings emerge. First, olfactory diagnosis is codified in Chinese medical theory and appears in contemporary TCM and Korean medicine diagnostic frameworks, with considerably less evidence on the Korean side. Second, transmission through guided clinical practice is a plausible hypothesis, but no direct evidence of olfactory training was found, and studies of experienced Western health workers show limited accuracy. Third, experiments support the propositions that disease can alter volatile chemistry and that such changes are sometimes perceptible, while no identified study tests the traditional odor taxonomies; the historical decline of smell as a recorded sign is describable, but its causes remain a matter of interpretation. Fourth, the comparison can be modelled as a difference in where medical systems locate the detector.

Connection to Objectives

RQ1 was answered for Chinese medicine and only partially for Korean medicine, where the review located one clinical protocol study but no direct analysis of odor in the Dongui Bogam or in Korean training. RQ2 was answered mainly by identifying what is missing: the literature does not document how olfactory diagnostic skill is learned. RQ3 was answered descriptively, but the evidence cannot establish why smell lost standing in hospital medicine. RQ4 produced an interpretive model rather than a tested conclusion.

Implications and Significance

For medical anthropology, olfaction offers a comparison in which both traditions have recognized the same kind of phenomenon, allowing their different decisions about the observer to be examined without first resolving whether the phenomenon exists at all. For sensory anthropology, the case suggests that questions about the status of smell extend into clinical knowledge production, not only perfume, hygiene, and class. For research on traditional medicine, separating P1, P2, P2a, and P3 clarifies which claims current evidence supports and which remain open.

The Korean Case

Korean medicine records odor among its diagnostic indicators,[8] yet Korean efforts to standardize Sasang constitutional diagnosis have concentrated on the face, body shape, voice, and questionnaires.[33,34] This review found no comparable Sasang research on odor. One interpretation is that modernization favoured senses whose findings could already be recorded easily, since faces can be photographed and voices recorded.

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Table 2 Evidence status of the four propositions

Proposition	Principal evidence in this review	Status	Evidence still needed
P1: Disease can alter volatile chemistry	Olsson 2014; Gordon 2018; Trivedi 2019; Bijland 2013	Supported for specific conditions and sample types	Replication in naturally occurring disease; larger cohorts
P2: Humans or animals can sometimes perceive these changes	Olsson 2014 (40 untrained raters); Trivedi 2019 (one perceiver); Bomers 2014 (one dog, 14 cases); Jendrny 2021	Supported in limited settings; perception is not diagnosis	Blinded diagnostic-accuracy studies
P2a: Trained practitioners perceive more accurately than untrained people	Royet 2013; Rao 2013; Fujihara 2024; Lee 2014 (agreement only)	Not established for medical diagnosis; available evidence mixed to negative	Blinded practitioner-versus-control testing on standardized samples
P3: Traditional taxonomies map odors onto valid clinical categories	Unschuld & Tessenow 2011; Zhang 2025; Leng 2026 (research program)	Untested; no blinded prospective study identified	Prospective blinded studies with predefined odor categories, chemical signatures, independent diagnoses, sensitivity, specificity, inter-rater agreement, and confounder control

The evidence does not establish that mechanism. Sasang theory itself emphasizes body form and temperament,[7] and research priorities, available technology, and Korean-language literature not captured by this search may explain the pattern equally well. The interpretation is offered as a question for future research.

Recommendations

Four lines of future work follow. The first is ethnographic: observation in Korean and Chinese clinics of how practitioners use smell, how they discuss odor, and whether and how students are corrected, combined with practitioner interviews and a review of diagnostics curricula at Korean medicine colleges. Hsu's ethnography of transmission offers a methodological model.[11]

The second is a direct test of P2a: blinded comparison of practitioners and matched non-practitioners on standardized odor samples, with inter-rater agreement reported, following designs like those of Rao and Fujihara.[27,28] Majid's measures of odor codability could be added,[25] recognizing that higher codability would not by itself demonstrate diagnostic accuracy.

The third is a test of P3: prospective, blinded studies that assign predefined traditional odor categories, measure chemical signatures independently, and compare both against independently established diagnoses, reporting sensitivity, specificity, and inter-rater agreement, and controlling for diet, medication, microbiome, age, sex, hygiene, and comorbidity. The molecular-sensing program described by Leng and colleagues provides the analytical tools for such work.[3]

The fourth is archival: direct study of odor-related passages in the Dongui Bogam, Korean diagnostics textbooks, and Korean-language journals, which would address the asymmetry in the present review.

Limitations

This review describes practices at second hand and makes no observational claims. Its evidence base is asymmetric: Chinese material outweighs Korean material, and English-language sources outweigh both. Screening was performed by one reviewer, which increases the risk of selection bias. Classical texts were read in translation, which matters for a topic concerned with fine distinctions between odor terms. The biomedical evidence rests on small samples, single perceivers, or single animals, and the studies of professional smelling concern Western health workers rather than East Asian medicine practitioners. Finally, the historical and epistemological arguments are interpretations supported by convergent sources, not results established by measurement.

Closing Thought

The Parkinson's disease study began when one person's report of an odor was treated as a hypothesis worth testing chemically.[30] That case does not validate traditional olfactory diagnosis. It does illustrate a way to approach the five odors of the classical texts: neither as confirmed knowledge nor as historical curiosities, but as specific, testable claims inherited from traditions that took the diagnostic use of smell seriously.

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Acknowledgments

This paper began in an unremarkable place. While observing at a clinic of traditional Korean medicine, I noticed that the practitioner paused before speaking to a patient, and I could not tell what he was doing. It later became clear that he was smelling. That moment of not understanding what I was watching is the origin of the questions above, although it is not used as evidence in this paper.

I am grateful to the teachers who let me pursue a question that did not belong to any of their subjects, and to the librarians and open-access repositories that made a project of this scope possible for a secondary school student working without institutional journal access. Several sources central to this paper, including the recent reviews of olfactory diagnosis and molecular sensing, were available to me only because their authors published them openly.

I also owe a debt to the reviewers of this manuscript. Their scrutiny of the citations, and of how far each source could carry the argument, led me to separate claims I had run together and to find evidence that complicated my original thesis. The paper is more careful for having been doubted.

Any errors of fact, translation, or interpretation that remain are mine.

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