



**CHATBOT REPERTORY: A SIMPLIFIED APPROACH TOWARDS
METHODOLOGICAL CASE TAKING & ANALYTICAL REPERTORISATION
BASED ON THE 'EXTREMITIES' CHAPTER OF BOGER BOENNINGHAUSEN'S
CHARACTERISTICS & REPERTORY**

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Chatbot Repertory: A Simplified Approach Towards Methodological Case Taking & Analytical Repertorisation Based on the 'Extremities' Chapter of Boger Boenninghausen's Characteristics & Repertory

ABSTRACT

This review explores the current state of homeopathic software, emphasizing the need for modernization and the integration of AI in homeopathy. It introduces an innovative solution—a chatbot repertory based on the 'Upper and Lower Extremities' chapter of Boger Boenninghausen's Characteristics & Repertory, designed to enhance case taking and analytical repertorisation using HTML, CSS, Python, and Django. The system addresses challenges in manual case-taking, automates data entry, improves diagnostic precision, and aims to streamline consultations for accessibility and efficiency.

KEYWORDS: Artificial Intelligence; B.B.C.R.; Chatbot; Homeopathy; Repertory.

INTRODUCTION

Homeopathic treatment, based on the Law of Similars, demands a meticulous correlation between a patient's symptoms and homeopathic drugs during consultations. The indispensable guidance provided by the Homeopathic Materia Medica and Repertory aids in this process [1,2]. The Homeopathic Materia Medica serves as an extensive repository of information about homeopathic medicines, while the Homeopathic Repertory organizes this vast information [3].

Despite its invaluable contribution to overcoming challenges posed by the expansive *Materia Medica*, the Homeopathic Repertory introduces complexities due to its fixed structure and intricate rules, particularly during manual searches. Homeopaths must comprehend its internal rules and overall structure to utilize it effectively without computer assistance [4]. Computer-Aided Repertory offers a solution by mitigating difficulties in manual searches through intelligent options based on symptom analysis. However, existing solutions primarily focus on easing the repertorisation process, with limited attention to the complexities of case-taking [1,5]. The persistent issue of time consumption in homeopathic practice during case-taking remains, despite the presence of tools like Kenbo and Organon 96. The manual input of information throughout the process hinders the efficiency these tools aim to provide. Advancements are needed to streamline the data entry phase and enhance overall efficiency. The rise of artificial intelligence (AI) is bringing transformation in various industries, including homeopathic medicine [6]. AI has the potential to revolutionize homeopathy by simplifying remedy selection through efficient analysis of patient data, saving time and enhancing therapeutic accuracy. The technology's ability to personalize treatment plans based on individual factors such as age, sex, and lifestyle will improve precision in healthcare. AI can also facilitate virtual consultations and telehealth, thereby expanding access to homeopathic advice. The collaboration between AI and homeopathy offers a pathway for a more efficient, accurate, and personalized healthcare approach [7].

Among the diverse applications of AI, chatbots are intelligent conversational computer programs that emulate human conversation naturally.

They are categorized into Rule-based and AI types. While Rule-based chatbots rely on pre-existing algorithms, limiting their adaptability, AI-based chatbots continuously learn and update themselves through machine-learning algorithms [8]. Chatbots find utility across various domains, ranging from education to entertainment [9]. In healthcare, they streamline practices, optimize resource utilization, and provide physicians with more available time. Users can submit health-related concerns, receive treatment advice, predict disease conditions, and access multilingual support, severity assessment, doctor's recommendations, follow-up checks, and comprehensive lifestyle guidance. Chatbots provide users with the advantage of consulting a physician 24/7 [10,11].

Although chatbots have made advancements in allopathy, their acceptance, in Homeopathy has been rather slow. Several factors contribute to this such as the presence of multiple repertories, the complex nature of the repertory, the prevailing inclination towards allopathy over Homeopathy, and the limited utilization of IT solutions in this field [9].

This article proposes a chatbot repertory grounded in the 'Upper Extremities and Lower Extremities' chapter of Boger Boenninghausen's *Characteristics & Repertory*, aiming to address existing gaps in this domain. The envisioned chatbot plays a crucial role in the precise differential diagnosis of symptoms, extracting relevant rubrics from the repertory, and assisting physicians by presenting a curated list of homeopathic medications during the final prescription process.

Boger Boenninghausen's *Characteristics & Repertory* (B.B.C.R.), authored by Boger, falls into the category of logical-utilitarian repertories. It follows the fundamental plan and structure outlined in the *Repertory of Antipsoric Medicines*. B.B.C.R. addresses the criticism of Boenninghausen's *Therapeutic Pocketbook* by rectifying the lack of differentiation between

general and particular modalities. The repertory consists of 53 chapters, each meticulously organized with rubrics starting with "In general," presenting complete symptoms. Within each chapter, a systematic order is maintained, with sensations listed alphabetically after location, and each location's conclusion marked by a horizontal line (****). Following this structure, Time, Aggravation, Amelioration, Concomitants, and Cross-references are presented. This unique organization contributes to B.B.C.R.'s significance in homeopathy, providing practitioners with a comprehensive and well-ordered reference for understanding symptoms and their modalities [12].

OBJECTIVE

The objective is to build a prototype for a chatbot based on 'Upper and Lower Extremities' chapter of B.B.C.R. This innovative approach aims to modernize computer repertories by incorporating cutting-edge technology. The primary goal is to streamline and improve the accuracy of case-taking and repertorisation processes, thereby increasing physician productivity and reducing time spent in case-taking. Additionally, the innovation aims to enhance accessibility to homeopathic consultations, enabling patients to receive advice and treatment without the need for physical visits. This proves beneficial for individuals in remote areas or facing limitations in accessing healthcare services.

LITERATURE REVIEW

Existing Software & Expert Systems in Homeopathy

1. KENTIAN, derived from Kent's Repertory, integrates an artificial intelligence system for automated analysis, evaluation, and miasmatic classification of symptoms, even when presented in a random order. It offers four repertorisation methods: Normal, artistic (by Kent), miasmatic, and Dr. R.P. Patel's expert system. Its advanced patient management system facilitates easy addition and organization of patient data, featuring search options by categories such as name, age, and chief complaint. The software supports the storage of up to six photographs per patient, allows the addition of patient history and investigation reports, and enables symptom entry by chapter, code, or search methods. With the inclusion of hotkeys, the software ensures convenient and quick access for physicians [13].
2. Organon 96 streamlines case-taking, data processing, and automated analysis, including miasmatic classification. It utilizes a Standardized Case Record System (S.C.R.) for precise recording, analysis, and synthesis. The software offers user-friendly repertorial programs on Kent, Boenninghausen, and Boger, with fast repertorisation based on syndrome and potential differential field (P.D.F.) methods. The S.C.R. system embodies the living demonstration of the first six aphorisms of the 'Organon of Medicine'. It also extracts essential evolutionary totality (E.E.T.) and diagnostic aspects. The systematic follow-up form allows for detailed interpretation, statistical analysis, and retrospective analysis [1,13]
3. Stimulare is a versatile case-taking and repertorisation software with a user-friendly case sheet allowing both typing and selection during case-taking. It facilitates quick repertorisation and offers customization of suggestions and databases. The software supports clinic information inclusion in printouts and enables easy sharing via MS Word or email. The repertory section provides three versions with powerful repertories like Kent, Boenninghausen, Boger, Phatak, Complete Repertory 2005, and Universalis Repertory 2005. The advanced search function allows simultaneous two-word searches and easy navigation. Stimulare

includes a research assistant, supports attachment of X-rays and investigations, and offers various functionalities such as rubric searches, combining, and eliminating. It serves as a centralized platform for practitioners to efficiently manage diverse aspects of their practice [13,14].

4. Computer Assisted Repertorial Analysis (CARA) is a comprehensive homeopathic software solution designed to aid practitioners in case analysis, repertorisation, and materia medica exploration. It offers a collection of standard repertories like Combined Repertory, Boericke's Repertory, and Phatak's Repertory, along with optional additions such as the renowned Complete Repertory. With access to 65 standard books and the flexibility to add others like Vermuelen and Sherr, CARA provides a vast knowledge base. The software allows simultaneous word searches across all repertories and materia medicas, supports theme-based searches, and enables the comparison of up to 10 remedies. The Combined repertory, incorporating Vithoukas' additions to Kent, enhances repertorisation capabilities. CARA's audio materia medica covers 100 remedies, adding an interactive dimension to learning. Simultaneous rubric searches streamline the process with 16,836 cross-references. Multimedia support includes insights from Sankaran, the ability to attach photos, and run videos, modernizing the learning experience. CASE TRACKER software with an auto-complete feature helps maintain all patients' records and follow-ups [1,13].

5. Mercurius is an all-in-one software, that seamlessly integrates repertory, materia medica, and a patient management system. It features a compensated repertory model for supported repertories, ensuring accuracy. The integrated materia medica is comprehensive, spellchecked, and corrected, providing superior searching capabilities with robust synonym support. With an unlimited number of desktops, users can assess cases from various perspectives. Mercurius enables the creation of new rubrics through symptom grouping, and it supports positive and negative filtering of remedies. Suitable for students and new practitioners, it includes essential repertories like Kent Final General Repertory, Boger Synoptic Key, Bogers General Analysis, and Card Index Repertory, as well as support for various repertories, including the advanced Repertorium Universale by Roger Zandvoort, and thousands of pages of materia medica [13, 15].

6. Rapid Aid to Drug Aided Research (RADAR) stands out for its exceptional knowledge-based expert system, seamlessly integrating the Complete Repertory and System Repertory. It employs four distinct inference techniques and offers different rubric analysis methods, providing users with a quick-reference keynote and a personalized materia medica database. Noteworthy features include the Concept section, Repertory View editor, and specialized modules by renowned homeopathic experts. The Winchip Patient Programme ensures seamless case development and treatment integration. The Encyclopaedia Homeopathica (EH) within RADAR is acclaimed as the world's largest multilingual homeopathic reference library with over 681 titles and 200,000+ pages of homeopathic literature, linking the repertory and materia medica. This connection enables direct case repertorisation from the materia medica and extraction of remedy cases from both contemporary and classical literature. It employs the Vithoukas Expert System (VES) for case analysis. The software's multimedia capabilities, including video clips and photos in rubrics, enhance the user experience. Its advanced version, Radar Opus distinguishes itself with an advanced rubric search based on specified concepts found in collections such as 'RADAR

concepts' and Fonseca and Hylton's Semi-logical Guide. The Semi-logical Guide proves valuable for translating patient language into repertory language, appealing to both students and experienced practitioners. Radar Opus enhances its capabilities with modules like Heiner Frei's Polarity Analysis and the Family Finder Module, supporting individualized case approaches while ensuring GDPR and HIPAA compliance [1,16,17].

7. Hompath Software stands as a versatile and comprehensive tool for homeopathic practitioners, offering over 14 modules for thorough patient management. It ensures a streamlined three-step patient registration, efficient Appointment Scheduler, and detailed symptom recording through functionalities like Classic Case Record and Quick Case Record. The Repertory component integrates 43 repertories, including the latest Complete Repertory 2022, featuring unique aspects like Quick Search and Advanced Search. Hompath's materia medica includes 112 books, 8,000+ cases, and multimedia features for immersive learning. The Library, with over 1,300 volumes and 8,700 articles, facilitates quick information retrieval. Remedy Information covers 3,400+ remedies, aiding efficient comparison and prescription confirmation. The software includes four Expert Systems for specialized case analysis, temperament evaluation, mental symptom derivation, and elemental theory derivation. It allows case analysis through various strategies and filters like Combine and Cross-repertorisation, Elimination Method, Weightage Repertorisation, Remedy Filters, Graph Filters, and Expert Filters. With a Cured Case Bank, Clinical Tips, and Keynotes, it enhances practical insights. Hompath supports rubric translation in 20 languages and 15 Indian languages, ensuring global accessibility for efficient patient management, case analysis, and evidence-based practice [18].

8. Complete Dynamics represents the pinnacle of excellence in both software engineering and homeopathic proficiency. Committed to upholding an impeccable track record, the software undergoes rigorous quality control, strictly adhering to a zero-tolerance policy for known issues. This commitment to perfection extends across a diverse range of supported platforms, encompassing Windows, Mac, Linux, iPhone, iPad, and Android, coupled with the added benefit of offline functionality. The integration of the Complete Repertory by Roger van Zandvoort, actively maintained and frequently updated, underscores the software's dedication to delivering the most comprehensive and advanced repertory in the field of homeopathy. The Analysis module in Complete Dynamics facilitates the examination of cases and the refinement of repertorisation results based on remedy sources. Users can utilize features like Find Field when uncertain about their search and Jump Field to quickly navigate to a specific rubric in the repertory. Accessible in 26 languages, Complete Dynamics caters to a global audience, ensuring inclusivity and support in various linguistic and cultural contexts. Employing a meticulous approach to documentation, Complete Dynamics provides over 300 manuals adapted to different computer types and languages, ensuring users have access to relevant and accurate information. This user-centric approach reinforces the software's commitment to excellence in both technological functionality and homeopathic application [19].

9. Mac Repertory stands out as an advanced and user-friendly homeopathy software, offering a comprehensive repertorisation tool with numerous analysis strategies. Available in two styles, Mac Repertory Pro and Mac Repertory Classic, both versions provide a robust platform for quick rubric selection, remedy insights, materia medica checks, research, and confident prescription decisions. Mac Repertory Pro offers users the choice of the Core Library

or the Full Library for flexibility in content and functionality. Mac Repertory Classic serves as an educational resource through extensive books and references. Mac Repertory's interface resembles a repertory book, incorporating over twenty repertories and 140,000 cross-references for ease of use. The software's analytical capabilities feature built-in mathematical strategies with clear graphs, aiding in identifying likely remedies, including small remedies and nosodes alongside polychrests. Key features include the "Elimination Tool" for cross-referencing remedies throughout the case and family dynamics categorizing remedies into 1,800 groups, from miasms to natural kingdoms. Mac Repertory supports research with the Concept Graph, facilitating remedy, group, and family comparisons. It facilitates rubric collection for analysis, incorporating up to ten collections from different perspectives and employing mind mapping for a clear thematic representation of case dynamics. Mac Repertory integrates materia medica references, accessible with a single click, allowing users to verify and validate remedy selections. Seamless communication is enabled by linking to original materia medica references and utilizing Reference Works to collect information from over 800 sources [1,13, 20].

10. Kenbo, a complete homeopathic solution not only simplifies the repertorisation process but also applies Hahnemann's concepts to clinical practice, emphasizing the processing and recording of case studies. Kenbo records patient symptoms directly, converting them into rubrics through various repertories. It systematically captures all aspects of patient history, aiding in a comprehensive evaluation. The software analyzes symptoms, considering causative, mental, physical, and particular aspects, creating acute and chronic totalities. It identifies dominant symptoms and suggests reportorial approaches like Kent's, Boenninghausen's/Boger's, or Regional based on miasmatic dominance. Kenbo recommends the most suitable remedy, along with potency and repetition frequency, managing treatment continuity. The program aligns with Kent's twelve observations and Hering's law for follow-up decisions. Kenbo is recommended for both newcomers and experienced homeopaths, guiding proper case-taking and introducing Hahnemannian miasmatic understanding [5]

11. Dynamic Homeopathic Software, built on the collective wisdom of its users, generates a continually evolving dynamic materia medica and repertory. These components are in constant development, drawing insights from a wealth of readily available clinical information. An internal 'engine' facilitates access to cases, repertorisation, and prescribed cures. The engine generates new entries for the dynamic repertory based on the data produced. Successful cases and the corresponding remedies are also processed through this system [21].

12. The System for Homeopathic Glaucoma Treatment (SEHO), the first alternative medicine-based expert system (ES), assists ophthalmologists in choosing the most effective treatment for glaucoma patients. It embraces a pluralist approach, aiding homeopaths in identifying medicines suitable for individual patients. Additionally, it provides insights into less effective alternative medications along with each one's corresponding patient symptoms [22].

13. The expert system utilizing neural-net technology overcomes the shortcomings of conventional repertorisation, where obtaining a single remedy in the final result is a common challenge [23].

14. The decision-tree method involves choosing several patients and utilizing their rubrics and outcomes for creating the decision tree. Unlike conventional methods, cases cannot be

chosen for decision tree creation due to Homeopathy's emphasis on individualization. Fuzzy set theory in an expert system proves to be an intriguing approach for handling the inaccurate representation of medical entities. This strategy diminishes the system's susceptibility to errors made by homeopaths, thereby fortifying its security. Considering Homeopathy's responsiveness to the terms articulated by patients, a Fuzzy Expert System substantially assists homeopaths in pinpointing the suitable remedy [24].

15. The Homeopathic Medical Diagnosis System, utilizing Multi-Agent System (MAS) technology, determines the patient's disease. Subsequently, after identifying the disease, it either formulates an appropriate prescription or recommends hospital admission in critical conditions [25].

See Table 1

PROPOSED SYSTEM ARCHITECTURE:

The proposed chatbot will be developed with a frontend built using HTML and CSS, allowing patients to input symptoms and medical history. Python, utilizing the Django framework, will serve as the backend to host the application. Modules for patients, case sheets, and doctors are distinct, ensuring a structured platform. This robust architecture ensures scalability and efficiency.

System Workflow:

1. User Registration: Patients initiate their interaction by signing up on the platform and creating a login account with essential details such as name, phone number, username, password, and address. [Figure1]
2. Case Sheet Creation: Upon successful login, patients are prompted to create a new case sheet to engage with the chatbot. The case sheet captures information about the patient's illness and related symptoms. Case sheets are visible to both doctors and the respective patients. While doctors can edit case sheets by adjusting sub-rubrics, they cannot completely change the patient's choices. Patients can modify their case sheets, but the system restricts the editing of a single entry to maintain logical coherence.
3. Questionnaire Interaction: The chatbot employs a user-friendly approach, presenting patients with a set of questions to gather relevant information. Sample questions include the duration of illness, severity, progress and location of complaint, sensations, and aggravating and ameliorating factors of complaint. Patients choose from pre-defined options, answering approximately 15 questions tailored to their specific illness. [Figure 2]
4. Automatic Case Sheet Saving: Once patients complete the questionnaire, the case sheet is automatically saved. The system ensures efficiency in data storage and retrieval.
5. Medicine Recommendation Algorithm: The chatbot utilizes an algorithm to analyze the case sheet and recommend medicines from the BCCR repertory. These medicines are ranked based on their importance and effectiveness, ranging from 1 to 5. This ranking ranges from 1 to 5, where Capital holds the fifth position, followed by Bold, Italic, Roman, and Roman with parentheses, corresponding to ranks 4, 3, 2, and 1, respectively. The ranking is stored in JSON format under respective rubrics.
6. Doctor Registration: Similar to patients, doctors sign up on the platform after a successful login. This step is crucial for accessing patient case sheets and participating in the prescription process. Doctors gain access to patient case sheets and the algorithm-suggested

medicines. They can make changes to the case sheet, including alterations to the list of suggested medicines. Options include selecting rubrics or specifying more detailed sub-rubrics.[Figure3a-3d]

7. Patient Module: Patients, upon logging in, can create, edit, and delete their case sheets. Their role is limited to case sheet management, and they don't have direct access to medicines prescribed by the chatbot. The system follows a tree structure, mandating specific selections once a case sheet is created for a particular organ.

8. Prescription and Logout: Doctors input additional information regarding the patient's sufferings, combining the chatbot's suggestion with their expertise to formulate the best-suited prescription. Once case sheets are analyzed, and medicines are prescribed, doctors can successfully logout from the system, completing the consultation process.

Patient-centric features enable easy case sheet management, allowing flexibility for doctors to review and edit. The system categorizes information based on body parts, automatically storing patient history and illness records in the database.

Backend development in Python with Django facilitates seamless application hosting. User registration ensures authorized access for patients and doctors. The algorithm ranks medicines based on relevance, streamlining the prescription process.[Figure 4]

DISCUSSION

In the realm of homeopathic consultations, physicians engage in thorough interviews with patients, exploring complaints that encompass physical symptoms, emotional aspects, and relevant medical history. The gathered information is meticulously documented, either electronically or in a register. Subsequently, the physician meticulously analyzes the case and makes use of repertories and materia medica to discern the most suitable remedy. [Figures 5 and 6]

Notably, only a few software options, such as Kentian and Stimulare, assist in data entry, with the majority focusing on supporting other facets of the analysis.

The proposed system brings significant advantages by automating the case-taking process, efficiently managing data, automating database entry, and facilitating user registration/validation through HTML, CSS, Python, and Django. This automation not only streamlines patient interaction and case recording but also mitigates the risk of overlooking crucial information, particularly when dealing with a large number of patients promptly. Furthermore, the system incorporates a decision tree algorithm, providing a cost-efficient and user-friendly platform for personalized patient-doctor interactions through a Chatbot. This innovative approach contributes to effective health management for users and alleviates the workload on doctors. The creation of easily accessible case sheets enables users to input symptoms seamlessly and maintain their health history. Operating 24/7, the system ensures convenient and accessible healthcare support from any location, fostering a smoother patient-doctor interaction and serving as a valuable tool for efficient and effective homeopathic consultations. In response to prevailing healthcare challenges and the existing demand-service gap, the proposed system utilizes natural language processing within a conversational application. This strategic approach allows for future expansion, accommodating a more extensive disease database and potential enhancements such as voice recognition. Further enhancements may involve making the system multilingual for broader accessibility and incorporating visual aids such as pictures of body parts and explanations of complex medical

terminology, aiming to enhance user-friendliness and facilitate ease of use.

Despite these advancements, integrating AI into homeopathy poses challenges. Concerns about over-reliance on AI at the expense of human judgment arise, given the holistic nature of homeopathic practice. While AI excels in analyzing symptoms, it cannot fully replicate the human touch and intuition integral to homeopathic care. Ethical and privacy concerns emerge with AI use in healthcare, particularly regarding data security and compliance with regulations. Ensuring responsible AI use in homeopathy necessitates careful consideration of patient confidentiality and privacy in alignment with data protection regulations [6].

CONCLUSION

The proposed chatbot's repertory will be both patient and physician-centric. It will evolve into a time-saving medical assistant for doctors, meticulously gathering case details, maintaining record confidentiality, and simplifying the selection of simillimum through quick and straightforward processes. This innovation has the potential to reduce the necessity for physical visits of patients for minor ailments, thereby increasing healthcare accessibility.

While the integration of AI in homeopathic medicine shows promise, addressing challenges and concerns is essential. It has the potential to enhance diagnostic accuracy, expedite remedy development, enable patient monitoring, and democratize access to homeopathic care. Balancing the benefits and challenges ensures that AI serves as a tool to enhance, rather than replace, the human touch in homeopathic practice.

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DISCLOSURE STATEMENT

The authors report there are no competing interests to declare.

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DATA AVAILABILITY STATEMENT

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TABLE: 1

Table 1: Existing Software in Homeopathy

SOF TWA RE	CASE TAKING FACILITY	CASE PROCESSING FACILITY	REPERTO RISATION	REFER ENCES	PATIE NT MANA GEME NT SYSTE M	LIMIT ATION	OTHE R FEAT URES
Kenti an [13, 26]	-3 methods for symptom entry. -Advanced search engine: for searching particular word - Unique hotkeys for viewing history and symptom classification during patient symptom entry.	-an AI system for automated analysis, evaluation, and miasmatic classification of symptoms, even when presented in a random order.	- Based on Kent's Repertory (6th American edition) by Dr. R. P. Patel: -Four repertorisation methods -Instant comparative study chart of four ways -Instant display of remedies with marks and percentage	-	- facilitates easy addition and organization of patient data, with category-based search - Stores up to 6 patient photos and includes features for adding patient history, investigation reports, and additional data.	- Limited repertorisation methods (four) - Restricted capacity for storing patient photographs	-upgraded to Windows 8 and 8.1. - allows you to add your new rubrics, sub-rubrics, own medicines - Backup/Restore Database (of newly added symptoms and
Organon 96 (Version2) [1,13, 27]	- contains S.C.R. system (an integrated approach to a case by Kent, Boenninghausen & Boger method) - Streamlines data entry with Appendable help menus and automated entries	Facility for : -symptom analysis and evaluation -identifying miasmatic background -extracting E.E.T. & diagnostic aspects.	- 3 repertorial programmes on Kent, Boenninghausen , Boger -fast repertorisation based on the repertorial syndrome, P.D.F. method.	-	- Systematic follow-up form for detailed interpretation, statistical analysis, and retrospective analysis -features for managing appointment	- Limited repertories -No facility to attach photos	-Backups to prevent loss of data in case of electricity failures -supported and workable with Windows 8/9/10

CHATBOT REPERTORY: A SIMPLIFIED APPROACH TOWARDS METHODOLOGICAL CASE TAKING & ANALYTICAL REPERTORISATION BASED ON THE 'EXTREMITIES' CHAPTER OF BOGER BOENNINGHAUSEN'S CHARACTERISTICS & REPERTORY

					diaries, fees, and dues.		
Stimulare (version 2.5.2) [13, 14]	-A modifiable case sheet that simplifies case-taking for homeopaths. - Customizable for efficient data entry, reducing typing efforts. - Allows direct inclusion of commonly used rubrics in the case sheet.	Enables assigning weight to rubrics.	- Repertories in 3 versions 1. Basic Version : Kent, Boenninghausen, Boger, Pathak, etc. 2. Professional Version: Includes Complete Repertory [basic] in addition to the repertories in the Basic version. 3. Complete Version: Boasts both Complete Repertory 2005 and Universalis Repertory 2005. -Allows searching for rubrics related to a specific remedy or subject. -Facilitates combining or eliminating rubrics.	- Different Repertories, Materia Medica, therapeutics, philosophy, and other medical books for reference	-facility to attach X-rays and investigations. - supports clinic information inclusion in printouts and enables easy sharing via MS Word or email. -can store an unlimited number of repertory charts (accessible during follow-up also)	-does not support underlining or color coding of significant points during case taking.	-Creates therapeutics based on repertory data. -Permits adding notes for rubrics or remedies. -Research Assistant to analyze all previous cases from therapeutic and Classical views.
CARA [1,13, 28]	- Case Tracker 2000: a time-saving auto-complete feature for common word entry	-4 analysis options based on underlining, prominence of a remedy in a rubric, rubric size, and remedy frequency. -an expert system provides a comprehensive analysis of cases by combining various strategies with an expert's perspective.	-Standard Repertories: Boericke repertory, B.B.C.R., Clarke repertory, Combined repertory, Phatak repertory, -Modern repertories (Optional) 1. Complete repertory version 4.5 2. Murphy	-More than 20,000 pages of homeopathic literature. - access to 65 standard books and the flexibility to add others	-Case tracker a)Assists in managing patient records and follow-up procedures. b) Locates any patient's case	- Handling patient and case information requires initiating a new file per visit, complicating the tracking	-100 audios of materia medica and colored photographs of remedies -supported on Windows and macOS - Versions : Standard, Professional, Lite

		<p>- Analysis of remedies based on their categorization into family, miasm, species, and the periodic table</p>	<p>repertory: 2nd edition -Feature of browsing between repertories, combining rubrics -Feature of easy search -16836 cross-references --36 different repertorisatio n strategies</p>	<p>like Vermuel en and Sherr, etc - provings of Scorpion , Hydroge n, Adamas, Brassica, etc.</p>	<p>efficientl y. c) Stores an extensiv e database of over 100,000 cases. - Patient and Case Management Charts consolidate patient informat ion, visit dates, and miscella neous notes in one place, along with the rubrics.</p>	<p>of case continui ty. Closing the current file before opening a new one adds comple xity.</p>	<p>-intuitive book tabs - comparison of remedies</p>
<p>Mercurius [13,15]</p>	-	<p>-unlimited number of symptoms for analysis -Unlimited desktops for evaluating a case from different points of view</p>	<p>- A distinctive compensated repertory model applicable to all supported repertories.(<u>C</u>omplete <u>R</u>epertory 2014, Kent's <u>F</u>inal <u>R</u>epertory with additions and corrections, B.B.C.R., Boenninghaus en's TPB, Boger's Synoptic key, Boger's General Analysis and Card Index Repertory <u>R</u>epertory of the <u>E</u>lements by</p>	<p>-Over 100 volumes of Materia Medica - 100,000 + pages of spellchec ked and corrected text -Almost 1,300 remedies with a fast search engine Synthetic Materia Medica lists all symptoms for a selected remedy</p>	<p>- consolid ates all relevant details, includin g diagnosi s, treatmen t, audio, video, photos, texts, and repertori sation. - The informat ion is meticulo usly analyzed , organize d, and kept confiden tial.</p>	<p>-No facility for aiding case-taking - Limited support of repertories.</p>	<p>-supported on Microsoft Windows 98, Microsoft Windows ME, Microsoft NT 4 SP4, Windows 2000, Windows XP or Windows Vista -Users can maintain separate databases for specific purposes, such as conducting provings.</p>

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			<p>Scholten</p> <p>-All Mercurius repertories list rubrics alphabetically, simplifying use without the need to learn specific structures.</p> <p>-positive and negative <u>filtering</u> of the remedies</p> <p>-creation of super rubrics</p>	<p>or group, facilitating sophisticated symptom comparison and remedy study.</p>	<p>-It is used for entering the data about the new patients.</p>		
<p>RADAR [1,16,17]</p>	--	<p>-Option to choose analysis module according to type of case: Ortega Miasmatic Modules for miasmatic cases; Heiner Frei's Polarity Analysis module for cases with many modalities; Vervarcke's Family Finder module For Kingdoms & families approach; , Degroote's Energetic Remedy Picture in Musculoskeletal Cases' Jeremy Sherr's Q Rep in a case with prominent themes. -Vithoukas Expert System for analysis</p>	<p>-Option to use the entire source repertory made to date.</p> <p>-Exclusive availability of Complete repertory and System repertory in one platform.</p> <p>-Over 80 Repertories.</p> <p>-Advanced rubric search based on specified concepts.</p> <p>-The Semi-logical Guide for translating patient language into repertory language.</p>	<p>-EH: The largest, most reliable, and structured homeopathic reference library.</p> <p>-Direct connection between repertory and materia medica for repertorizing cases directly from the materia medica.</p> <p>-Over 1,600 Materia Medica and documents.</p>	<p>- WINCH IP: Patient database program</p> <p>- Robust patient management system with secure data storage, personalized symptom grading, prescription history tracking, remedy response evaluation using the Glasgow scale, efficient file retrieval, diverse file format attachment, statistical analysis,</p>	<p>- Potential complexity for beginners due to a wide range of features.</p> <p>- The expense could pose a constraint for certain practitioners.</p>	<p>- The software supports multiple languages, with documents in 12 languages and a translation tool.</p> <p>-Clifical: for Setting up your Homeopathic research</p> <p>-supported on both Windows and Mac – macOS 10.14 Mojave and higher</p>

					invoicing, and a secure Congress mode for confidential case presentations.		
Homopath [18]	- detailed symptom recording through functionalities like Classic Case Record, Full Case Record, and Quick Case Record.	-features four Expert Systems: Acute Expert System, Tempraz Expert System, Seigal Expert System, and Element Theory Expert System. -These systems offer specialized approaches to case analysis, temperament evaluation, mental symptom derivation, and element theory analysis.	integrates 43 repertories, including the latest Complete Repertory 2022, featuring unique aspects like Quick Search and Advanced Search. - The Repertorization feature simplifies case analysis, aided by intuitive search options and strategic filters like Combine and Cross-repertorisation, Elimination Method, Weightage Repertorisation, Remedy Filters, Graph Filters, and Expert Filters	Materia Medica includes 112 books, 8,000+ cases, and multimedia features for immersive learning. - The Library, with over 1,300 volumes and 8,700 articles, facilitates quick information retrieval. -Remedy Information of about 3,400+ remedies -more than 14 modules	- manages patients and their case history and follow-up data. -One can create new patients, capture complaints, enter prescription details, and view & print reports all in one.. -- Backup & Restore feature Efficient Appointment Scheduler.	The large number of versions might be confusing for users. - Potential for feature redundancy across different versions. - -runs on Microsoft Windows 7, Windows XP, and Windows Vista (32-bit or 64-bit editions) -The doctor 24*7- an online clinic with many facilities for repertorisation and prescribing Homoeopathic medicine to any patient from anywhere in the world.	It provides a facility for the translation of rubrics in 20 different languages apart from 15 Indian languages. -available in multiple versions
Complete Dynamics [19]	-	Analysis module – for analysis of cases and filtering repertorisation results based on remedy source.	-Complete repertory And 14 other repertories(optional) -The index	- Different modules like the Book module,	Case module – create and organize your	-limited repertories -lacks features to help	supports: - Windows, - Mac, - Linux, - iPhone & iPad,

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		-Bentley: Homeopathic Facial Analysis	<p>module For quick access to chapters of the book</p> <p>-Find Field – Used when you're uncertain about what you're searching for.</p> <p>Jump Field – Swiftly navigate to a specific rubric in the repertory.</p>	<p>Materia Medica module – for differential diagnosis of remedies and symptoms</p> <p>- Nambison: Cured Cases & Disease Templates</p> <p>-about 16 materia medica & Yasgur's Homeopathic Dictionary and Holistic Health Reference</p>	patient's case files.	during case-taking	<p>- Android. No internet is required!</p> <p>- Accessible in 26 languages</p> <p>- Most flexible licensing.</p>
Mac Repertory [1,13, 20]		<p>-A pre-existing set of mathematical strategies is integrated with clear graphs to illuminate the most likely remedies during case analysis.</p> <p>--Can create Eliminative and crossed rubrics</p> <p>-can restrict attention to only a certain class of remedies</p> <p>-allows to do analysis based on natural families.</p>	<p>-more than 20 repertories</p> <p>- ten collections of rubrics: each represents a different point of view,</p> <p>- offers the choice between browsing and computer-assisted search.</p> <p>-Edit the repertory option</p> <p>- view repertory in 2 languages simultaneously</p> <p>-8 repertorisation strategies</p>	<p>-huge library of Materia medicas</p> <p>Search for specific words with one keystroke.</p> <p>-140,000 cross-references</p> <p>- Reference Works consolidates remedies from over 800 materia medica</p>	-Manila folder concept	- Individual patient files containing information like case notes, rubric information, graphs, diagnoses, therapy details, etc. Text highlighting in a variety	<p>- two styles: Mac Repertory Pro & MacRepertory Classic</p> <p>- multilingual</p>

			- Multiple graph styles for visualizing data		of different styles.		
Kenbo [5]	-Symptoms are recorded directly as a complete symptom - Instant conversion of symptoms into rubrics.	-creates acute and chronic totality -identifies the dominant and fundamental miasm. -Symptom evaluation is done by considering causative, mental, physical, and specific symptoms. -identifies the different phases of a chronic case	- option of quick repertorisation from 5 available repertories- Kent repertory, Boger/Boeninghausen repertory, Boeninghausen TPB, Boericke's repertory, A-Z alphabetical repertory - identifies the dominant symptom type in a case, recommends specific repertorial approaches based on this dominance, and suggests the most appropriate remedy with corresponding potency and frequency of repetition.		-enables printing of reports, certificates, and order sheets, tracks appointments, and manages follow-ups based on Kent's 12 Observations and Hering's Law.	-limited repertories	
Dynamic Homeopathic Software [21]			-Web-based repertorisation program -generates a dynamic repertory that is continuously shaped and gains its value from all the clinical; data online -only dynamic	- generates an ongoing dynamic material medica -Helps us to induce lots of information from the vast online clinical			

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			repertory is influenced and changed by the clinical data	data like effective remedies as well as potencies for a pathology.			
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FIGURES



Figure 1: User interface for Signup/Login

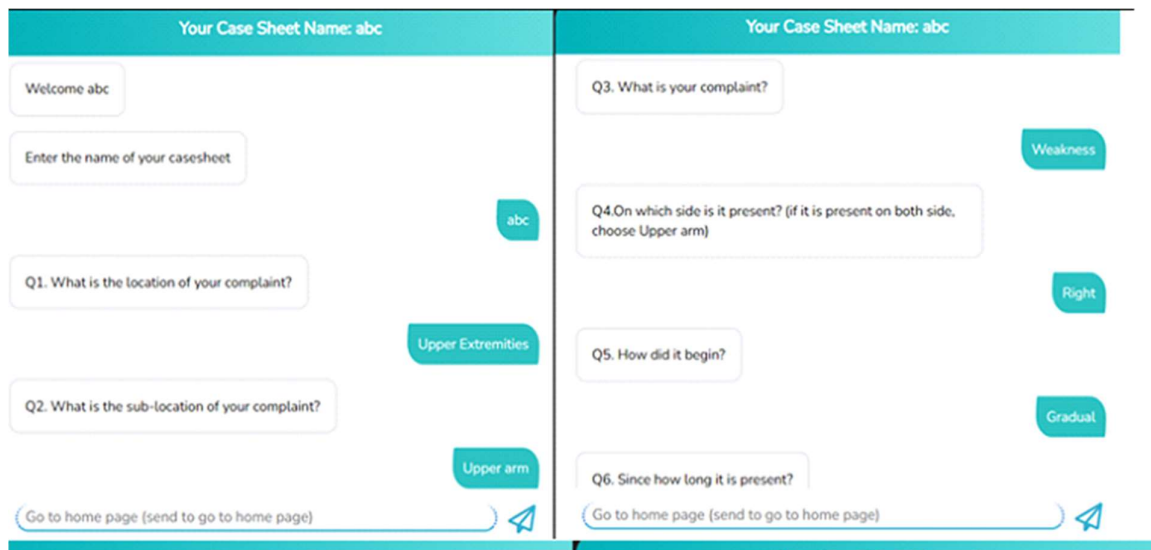


Figure 2: Graphical User Interface for the proposed system

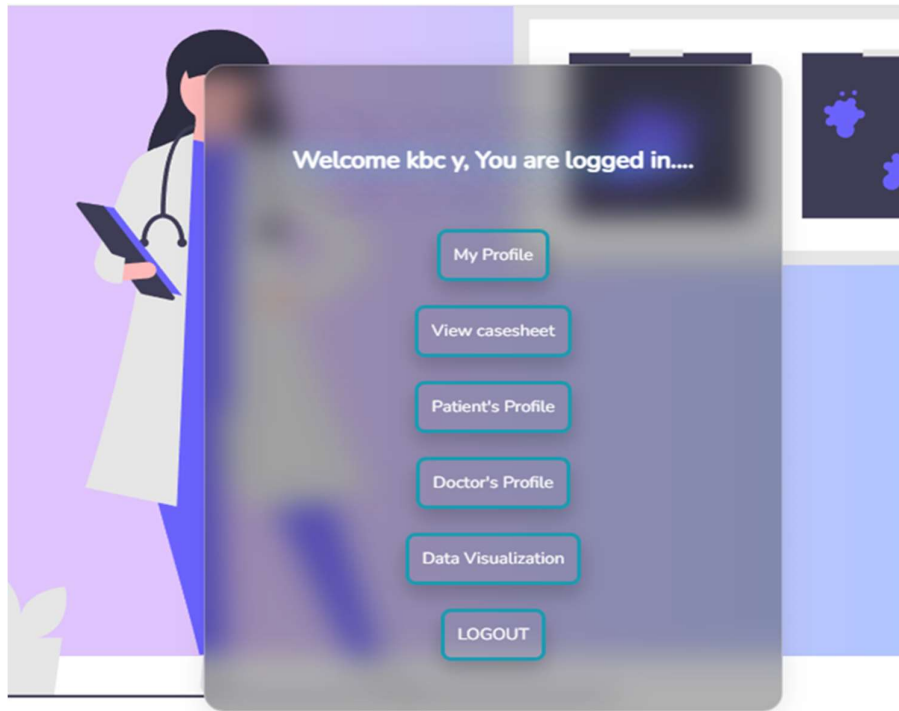


Figure 3a: Physician screen after log-in

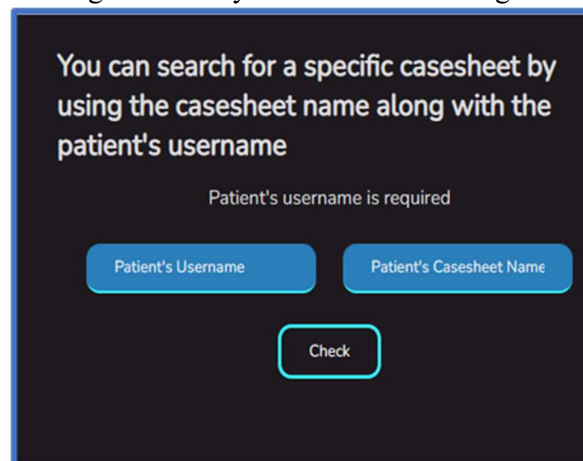


Figure 3b: Physician screen for searching a particular case sheet

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Casesheet name: ac2

Q1. What is the location of your complaint?	Upper Extremities
Q2. What is the sub-location of your complaint?	Shoulder
Q3. What is your complaint?	Pain
Q4. On which side is it present? (if it is present on both side, choose Shoulder)	Shoulder
Q5. How did it begin?	Gradual
Q6. Since how long it is present?	Years
Q7. Is there any history of trauma preceding its onset?	No
Q8. How do you describe its severity?	Mild
Q10. What term can best describe the pain?	Pain, simple->Shoulder
Q26. At what time of day it increases?	None of the above
Q27. What factors increase it?	<input checked="" type="checkbox"/> Raising arms <input checked="" type="checkbox"/> Stretching out limb <input checked="" type="checkbox"/> Winter, in
Q28. What factors decrease it?	<input checked="" type="checkbox"/> Pressure, external <input checked="" type="checkbox"/> Rubbing
Q29. Are there any other symptoms?	None of the above

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Figure 3c: Output Screenshot of options selected by the patient being displayed to the physician

Medicine	Scores
Cupr.	12
Caust.	11
Ph-ac.	11
Spig.	11
Acon.	10
Agn.	10

Figure 3d: Output Screenshot of medicine in the repertorial result being displayed to the physician

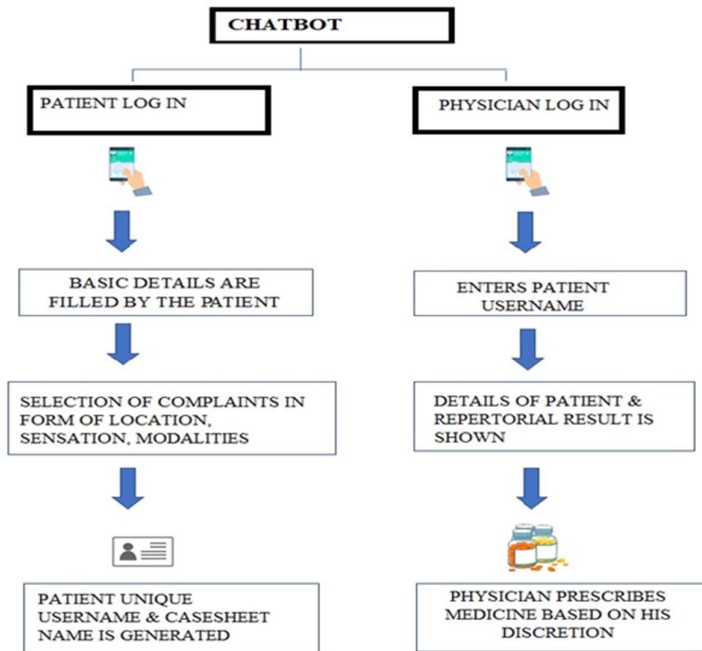


Figure 4: System flow

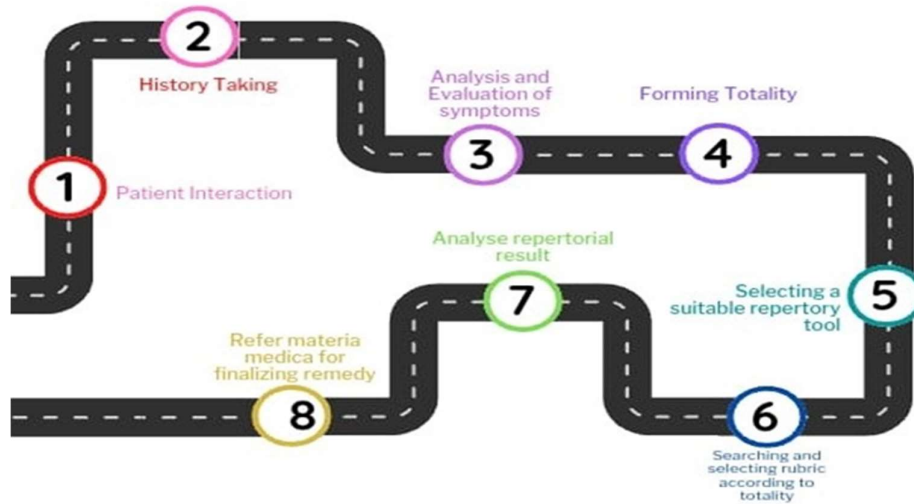


Figure 5: Process of Remedy selection in Homoeopathic consultation

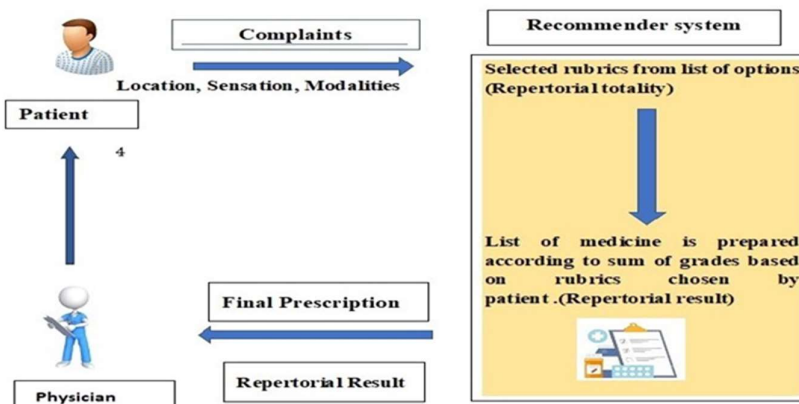


Figure 6: Proposed System design

Figure Captions List:

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Figure 3c: Output Screenshot of options selected by the patient being displayed to the physician

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