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A Feasibility Study of the RESP-8 Tool: Enhancing Pharmacist-Led Triage for Upper Respiratory Tract Infections

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Abstract: Background: Upper respiratory tract infections (URTIs) are a major public health concern due to their high incidence and potential for complications. Pharmacists often serve as the first point of contact for patients with URTIs. This study aims to develop and evaluate the RESP-8 tool to assist pharmacists in determining the need for medical evaluation. **Methods:** This prospective interventional cohort study was conducted over six months (October 2023 to March 2024) in community pharmacies. Participants included adults aged 18 years and older presenting with URTI symptoms. Pharmacists used the RESP-8 tool, which comprises eight criteria to assess the need for medical referral. Data on medical history, symptom duration, and progression were recorded. The primary outcome was the feasibility of implementing the RESP-8 tool. Secondary outcomes included the accuracy of the tool, the percentage of patients recommended for medical evaluation, and compliance with these recommendations. **Results:** A total of 64 participants were included, with an average age of 55.7 years. Pharmacists recommended medical evaluation for 75% (48/64) of patients using the RESP-8 tool. Among these, 70.83% (34/48) complied with the recommendation. The tool demonstrated high accuracy in identifying patients needing further medical evaluation, with only two noted errors. All compliant patients received appropriate treatment without complications. The tool was easy to implement, taking less than 5 minutes per patient. **Discussion:** The RESP-8 tool effectively guided pharmacists in recommending medical evaluations for URTI patients. The high compliance rate indicates patient trust in pharmacists' guidance. While the study's small sample size limits generalizability, the results are promising. Future studies with larger populations are necessary to validate these findings and further refine the tool. **Conclusion:** The RESP-8 tool shows potential in enhancing pharmacists' ability to make informed decisions about medical referrals for URTIs, ultimately improving patient outcomes and optimizing healthcare resource management.

Keywords: Upper respiratory tract infections; URTI; pharmacists; RESP-8 tool; medical evaluation; public health

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Introduction

Upper respiratory tract infections (URTIs) are a significant concern for public health due to their high incidence and the potential for complications if not properly managed [1–3]. These infectionsoften present with overlapping symptoms such as fever, cough, nasal congestion, and sore throat [4,5]. While most URTIs are viral in origin and self-limiting, bacterial infections can occur and may require antibiotic treatment [1,6]. Current guidelines emphasize the importance of appropriate management of URTIs [4,7], while previous studies have shown that pharmacist-led interventions can effectively improve patient outcomes [8,9].

Pharmacists play a critical role in the healthcare system, often serving as the first point of contact for patients with URTIs [10,11]. By equipping pharmacists with a reliable tool to assess the need for medical referrals, this study seeks to enhance their ability to make informed decisions, ultimately improving patient outcomes. This is particularly important in the post-COVID-19 era, where symptoms such as loss of taste or smell have become red flags for potential severe infections [12–14].The primary objective of this study is to develop and evaluate a tool designed for pharmacists to help determine the need for medical assessment based on specific criteria. This tool aims to assist pharmacists in identifying patients who require further medical evaluation, thereby optimizing patient care and reducing the burden on primary healthcare facilities.

In Greece, the role of community pharmacists in primary healthcare is not clearly defined. The landscape around offering consultation services is certainly lagging compared to other countries since, until recently, pharmacists were not allowed to offer any type of clinical service. The recent COVID-19 pandemic has resulted legislation that allows for services, such as performing point of care testing for SARS CoV2, to be offered in this setting. While vaccinations for SARS CoV-2 are performed in the hospital setting, pharmacists were also recently allowed to prescribe and administer influenza vaccinations, as part of an effort to keep vaccination rates high. Taking this into consideration, we developed the RESP-8 algorithm in a effort to demonstrate that community pharmacists can work with primary care physicians to develop, validate, and deliver high quality clinical services.

Methods

Study Design

This was a prospective interventional cohort study conducted over a period of six months (October 2023 to March 2024), focusing on evaluating the need for medical evaluation in patients presenting with symptoms of URTIs at community pharmacies.

Participants

- **Inclusion Criteria**: Participants included adults aged 18 years and older presenting with symptoms of URTIs, such as fever, nasal congestion, rhinorrhea, sore throat, and cough.
- **Exclusion Criteria**: Participants were excluded if they were under 18 years old.

Intervention

The intervention involved the use of a decision-making tool by pharmacists to assess the need for medical evaluation based on specific criteria. The participating pharmacists evaluated each case based on a set of 8 criteria. If one (or more) of these criteria were met, then a recommendation for medical evaluation was made. If none of the criteria were met, then the pharmacist was allowed to recommend symptomatic treatment along with close monitoring. The RESP-8 criteria were:

1. Presence of any symptom other than fever, nasal congestion, rhinorrhea, sore throat, and cough.
2. Presence of only one symptom.
3. Symptoms lasting more than seven days.
4. Intensity of symptoms causing significant discomfort.

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5. High-risk patients, such as those with underlying chronic conditions or immunocompromised states.
6. Presence of high-grade fever or absence of fever.
7. Sore throat without cough.
8. Symptoms that improve (usually at 3-5 days) and then get worse.

Data Collection

Medical history and details of symptoms and their duration were recorded for each participant at the initial presentation. Participants were monitored every daily to track symptom progression and any need for medical evaluation. Follow-up was done every day until symptoms resolved.

Outcomes

The primary outcome was to evaluate the feasibility of implementing such a tool in the daily routine of community pharmacists. Secondary outcomes included the accuracy of the tool in predicting the need for medical evaluation, the percentage of patients that received a recommendation for medical evaluation, and the percentage of patients that complied with that recommendation.

Ethical Considerations

The study protocol was approved by the Bioethics Committee of the Aristotele University of Thessaloniki, Greece (registration number: 1/07.11.2023). Written informed consent was obtained from all participants. The study was conducted in accordance with the Declaration of Helsinki.

Results

Study Population

A total of 64 patients participated in the study. The average age of the participants was 55.7 years, with a notable 45.31% of the cases involving patients over the age of 60.The percentage of patients above 60 years old was significant, since age alone (>60 years old) constitutes a high-risk criterion.

Recommendations for Medical Evaluation

Pharmacists, using the RESP-8 tool, recommended medical evaluation for 48 patients (75%) based on predefined criteria. Of these, 70.83% (34 out of 48) complied with the recommendation and sought medical evaluation. The remaining 29.17% (14 out of 48) did not comply with the recommendation, primarily attributing their decision to the mild nature of their symptoms.

Accuracy and Errors

The tool demonstrated a high accuracy rate in identifying patients who required further medical evaluation. However, two notable errors were identified during the study. In these cases, pharmacists failed to recommend medical evaluation for patients who presented with only one symptom, despite this being a trigger for referral according to the RESP-8 criteria.

Treatment and Complications

All patients who adhered to the pharmacists' recommendations and sought medical evaluation received antibiotic and/or antiviral therapy from their physicians. This could serve as an indirect indicator of the appropriateness of the recommendation for medical evaluation. Importantly, no complications were reported among these patients, indicating effective management and treatment following the use of the tool.

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Time Element

The study observed that the majority of patients who were recommended for medical evaluation complied with the advice, highlighting the trust and adherence to pharmacists' guidance. The participating pharmacists indicated that the process was easy to implement and did not take more than 5 minutes to execute.

Limitations

While the results are promising, the study's small sample size poses a limitation, potentially affecting the generalizability of the findings. Additionally, there may have been a selection bias in the cases included in the study, which could influence the outcomes. These limitations would probably influence the compliance rate to the recommendation. However, we expect the percentage rate of the actual referrals to be quite reliable, since this was based on objectively assessing the eightcriteria andshould therefore not be affected by these limitations.

Discussion

Acute upper respiratory tract infections are usually mild, self-limiting infections. However, the rate of complications in the general population includes approximately 5-10% developing pneumonia[15,16], 20-30% of children experiencing otitis media [17,18], and 0.5-2% of cases resulting in sinusitis [2]. These complications significantly impact public health, particularly in vulnerable populations such as young children, the elderly, and those with underlying health conditions.

Our study results show that the RESP-8 tool was effective in guiding pharmacists to recommend medical evaluations. The cautious approach in defining the eight criteria resulted in a high recommendation rate of 75%, with 70.83% of those patients complying with the referral. This high compliance rate underscores the trust that patients place in pharmacists' guidance.

Importantly, no complications were reported among patients who followed the pharmacists' recommendations and received further medical evaluation, indirectly indicating the appropriateness of these referrals. This suggests that the RESP-8 tool can enhance patient care by ensuring that high-risk patients are identified and treated promptly, potentially reducing the burden on healthcare systems.

The study highlights the potential of community pharmacies to play a crucial role in the early identification and referral of complicated URTI cases. Given the safe nature of most URTIs and the large number of cases that community pharmacies handle, pharmacists are well-positioned to use tools like RESP-8 to improve patient outcomes.

Moving forward, we plan to conduct a larger scale study during the 2024-2025 winter season to gain a more comprehensive understanding of the algorithm's effectiveness. Additionally, we will explore the implementation of a monitoring algorithm to guide pharmacists in managing patients who do not comply with the recommendation for medical evaluation.

In conclusion, the RESP-8 tool shows great promise in assisting pharmacists to make informed decisions about the need for medical referrals in patients with URTIs. By integrating such tools into routine practice, community pharmacies can significantly contribute to the optimization of patient care and the efficient management of healthcare resources.

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