**Summary:**

This paper includes an effective intervention for management of Blood pressure which is the Self-monitoring blood pressure (SMBP) which is rising as a common practice in primary care settings in the UK. SMBP is a technique in which patients take their blood pressure on their own and without being supervised by any health practitioners in either primary or secondary health facility. SMBP has been accepted as an effective method of assessing the blood pressure of hypertension patients and even for diagnosing them as well eliminating bias that is brought about by the white coat syndrome whereby the patients tend to have high BP when being checked by a doctor as compared to the normal BP they may have outside the doctors’ chamber. Knowledge Translation (KT) concept is used where the findings of researches are applied into the practice of clinical health and policy or in performing health intervention to improve the result. The Four Stages of Knowledge Translation including; discovery, translation, dissemination and change are also highlighted here. The Knowledge Translation to Action [KTA] model is also mentioned which is a cyclic model used in majority of healthcare systems to enable conversion from knowledge to practice. The strengths and weakness of this paper was also stated. Cochrane Database of Systematic Reviews (CDSR) is the gold standard for trustworthy and reliable healthcare information based on the best evidence. The Cochrane Database of Systematic Reviews was not googled but was obtained from the University of West London (UWL) online library. The selected Systematic Review was by Doogue et al., (2021) conducting ‘Self‐monitoring for improving control of blood pressure in patients with hypertension’. The reason for selecting this review is that it describes our intervention and target population, and delivers short and pragmatically useful results, as all reviewed studies are Randomized Controlled Trails that meet the inclusion criteria. According to the CASP framework an assessment on the selected paper in relation to the observed ontology, epistemology, and methodology was completed. A systematic review uses high level of evidence to RCTs in order to confirm the effectiveness of SBPM in hypertension control and in optimizing clinical outcomes, medication adherence, and quality of life in comparison to simple OBPM or no BPM at all. The findings were also emphasized on. For the purpose of executing a systematic review of the evidence in practice, some of the below mentioned from the Clinical Practice Guidelines (CPG) and Patient Decision Aids (PDAs) can be helpful. The kind of tool to choose depends on the target population and since this is demands a patient centred approach and the intention is to engage patients in the decision process, PDAs are more relevant and are selected. The evidence on the current self-blood pressure monitoring (SBPM) was appraised with the SUNDAE appraisal tool which was applied to the Patient Decision Aid (PDA) guideline. The various barriers discussed in the paper were also provided. Consequently, by concentrating on the evidence derived from trials or systematic reviews, as documented in this paper, the study expands the current systematic body of knowledge suggesting SMBP as a viable, inexpensive, and patient-centered resource for enhancing hypertension outcomes.

# **1. Background**

Blood pressure often known as hypertension can cause complications of the heart conditions and other associated illnesses such as heart attacks or even strokes (NHS, 2024). Self-monitoring blood pressure (SMBP) is rising as a common practice in primary care settings in the UK; however, there is limited theoretical understanding of why hypertensive patients monitor their blood pressure (Grant et al., 2015). The main intervention being proposed for the case of hypertension control in the context of the NHS healthcare environment is SMBP. To support patients in monitoring their own blood pressure and share the results with their GP practice, more than 220000 blood pressure monitors have been delivered since October 2020 across England. (NHS, 2023a). SMBP supports the diagnosis and management of hypertension from outside the clinic to ensure sustainability of care for the vulnerable groups (NHS, 2023b).

The study is needed for several reasons such as Enhancing Hypertension Management, Financial Efficiency, and Filling Clinical Knowledge Holes for a more accurate view of a patient’s blood pressure to prevent over- or under-treatment (Roy, 2021).

The target population encompasses; Adults with Diagnosed Hypertension and Patients in Remote or Underserved Areas.

SMBP can be incorporated into the practice of nursing associates by offering information regarding the proper use of home blood pressure monitors, helping patients with recording and reporting of the readings, and assisting the patients in understanding the findings (Maves, 2024).

# **2. PICO for SMBP Intervention**

* **Clinical Question**

"In adults with diagnosed hypertension, does self-monitoring of blood pressure (SMBP), compared to clinic-based blood pressure monitoring, lead to better blood pressure control and reduced cardiovascular events?"

* **Why is PICO Used?**

The National Institute for Health and Care Excellence (2024) considered PICO (population, intervention, comparator, and outcome) approach.as a good template for framing questions about interventions. Systematically and effectively, PICO helps to form a concise clinical question for the research (Eriksen and Frandsen, 2019).

In order to evaluate a systematic review of quantitative studies of SMBP, **that compare treatments** or interventions, **PICO** is the most appropriate framework instead of PEO or SPIDER (Cochrane library, 2024).

Here's the PICO for SMBP:

|  |  |
| --- | --- |
| P (Population): | Adults with diagnosed hypertension, including those with uncontrolled or poorly managed blood pressure, or patients with limited access to frequent healthcare visits. |
| I (Intervention) | Self-Monitoring of Blood Pressure (SMBP) with telemonitoring and healthcare provider follow-up |
| C (Comparison) | Standard clinic-based blood pressure monitoring without SMBP. |
| O (Outcome) | Improved blood pressure control (measured by reduced systolic and diastolic BP) and reduced cardiovascular events (e.g., heart attack, stroke). |

* **Search Strategy**

Medical and healthcare databases such as PubMed, Cochrane Library, CINAHL, and Embase were reviewed to choose a database. The database selected was Cochrane Library. The only time-based limitation was the start date for database searches, which was 2020 onwards while no geographical limits were applied.

# **3. Framework for evidence translation:**

Knowledge Translation (KT) is the use of research findings for the practice of clinical health and policy or for use in health interventions to enhance the results as defined by Gagliardi et al., 2015). It was also mentioned that it’s the means the integration of the knowledge, which has been produced in practice and that has been obtained as the result of the further studies

Esmail et al., (2021) described the Four Stages of Knowledge Translation as discovery, translation, dissemination and change.

**Discovery**

This stage can be mostly regarded as the generation of knowledge being represented by clinical trials, systematic reviews, or basic science.

**Translation**

In this stage, the research findings are applied to clinics or practice. The emphasis is made on the further application of the obtained findings.

**Dissemination**

The final stage is the dissemination of the new knowledge among the targeted stakeholders such as physicians, legislators, and clients.

**Change**

The last process is concerned with the application of knowledge translated in the local context, in practice. It refers to embracing or modifying practices regarding or according to the findings.

**KTA framework:**

Of the various models employed in KT, the KTA framework is chosen for this project and is perhaps one of the most popular in tracking the transformation of knowledge from creation all the way to utilization in practice (Sudsawad, 2020).

* **Knowledge Creation:**

This component aims at producing new research findings. It includes Knowledge acquisition, integration, where two or more pieces of work are integrated together to form a cohesive view and finally knowledge application where guidelines and educational materials are produced (Moore et al., 2022).

* **Action Cycle:**

This component relates to procuring the knowledge and applying it in real life situations. Action cycle is cyclical and may encompass steps such as problem identification, knowledge transfer, evaluation of change constraints and evaluation of impact (Weaver et al., 2022).

# **4. Appraisal of Evidence translation framework**

The Knowledge Translation to Action [KTA] model is one that is applied in most healthcare systems to facilitate the move from evidence to practice (Moore et al., 2020). It is also stated that KTA involves the concept of a ‘cycle’, which means that the actual application of knowledge is continuous cycle that has to be re-evaluated and adjusted regularly since neither patients’ needs, nor clinicians’ practices remain static in the context of healthcare. The KTA framework is appropriate for translating evidence into practice because it is highly adaptable and ensures that knowledge is not only produced but also applied and evaluated. (Torres, Mendes and Barbieri-Figueiredo, 2023).

|  |  |
| --- | --- |
| **Strengths** | **Weaknesses** |
| * The KTA framework covers the entire process from knowledge creation to action. * The framework allows for adaptation of the evidence to local contexts. * The cycle ensures that interventions are continually adjusted based on feedback. * The framework encourages collaboration between researchers, healthcare providers, and other stakeholders. | * Implementing the KTA framework requires significant time, resources, and personnel. * The framework is detailed and involves multiple stages, which may complicate its application * The success of the KTA framework depends heavily on the organizational culture |

**Research Evidence in Knowledge Creation**

In the KTA framework, knowledge is generated through research evidence. It involves reflecting on the intervention and strategy that is to be adopted to identify the best practices and make decisions (Moore et al., 2020).

# **5. Database Search Strategy**

The Cochrane Database of Systematic Reviews (CDSR) is one of the most respected and authoritative resources for high-quality, evidence-based healthcare information ‌(Cochrane library, 2024).  It is part of the broader Cochrane Library, which is used because it includes a collection of databases dedicated to improving healthcare decision-making by providing well-researched, reliable, and up-to-date evidence (Doogue et al., 2021).

**Access of Database:**

The Cochrane Database of Systematic Reviews was accessed through the University of West London (UWL) online library rather than using Google. Using the UWL library instead of guarantees you’re accessing verified, comprehensive information without paywalls, supporting better academic research and clinical decisions.

The steps were

1. Log in to the UWL Portal with student credentials.
2. Navigate to the UWL Library
3. Access Online Resources
4. Find Cochrane Library
5. Log in with UWL Credentials
6. Use the Cochrane Library

**Keywords and Search Terms:**

Telemonitoring

Home Blood Pressure Monitoring

Clinical Monitoring

**Boolean Operators:**

Hypertension OR High Blood Pressure

Self-Monitoring of Blood Pressure OR SMBP

Blood Pressure Control OR Cardiovascular Outcomes

Patient Engagement OR Medication Adherence

Hypertension AND Self-Monitoring of Blood Pressure AND Blood Pressure Control.

**Inclusion and Exclusion Criteria**

|  |  |
| --- | --- |
| **Inclusion Criteria** | **Exclusion Criteria** |
| * Studies that focus on a adults with hypertension. * Studies assessing SMBP * Systematic Reviews * Studies measuring relevant outcomes (e.g., blood pressure control, cardiovascular events). * May include all languages and both published/unpublished trials. | * Non-randomized studies, observational studies, or those not meeting quality standards. * Studies focusing on different populations (e.g., patients with gestational hypertension) * Studies not examining the primary intervention of interest. * Excluding studies in languages not accessible to reviewers |

**Systematic Review Chosen:**

The Systematic Review chosen was by Doogue et al., (2021) with the title ‘Self‐monitoring for improving control of blood pressure in patients with hypertension’. This review was chosen as it highlights our intervention and target population while also providing concise results as the studies reviewed are Randomized Controlled Trails along with fulfilling the inclusion criteria. By covering recent studies and applying broad inclusion criteria (e.g., not limiting by region or language), the review ensures comprehensive coverage of the topic.

# **6. Sytematic Review Evidence and Quality Appraisal**

Another key feature of systematic reviews is that they abstract data from many studies, which makes them very useful in research because they give an overall picture of the evidence available on a particular question (NHS England, 2019).

Using the CASP (Critical Appraisal Skills Programme) framework (Long et al., 2020), here's an analysis of the ontology, epistemology, and methodology in the given text related to hypertension and self-blood pressure monitoring (SBPM):

**1. Ontology**

By examining the specific elements in the CASP approach, one can understand that the emphasis is on biological variables (BP) in association with cardiology events. A

**2. Epistemology**

In this instance, the epistemological viewpoint is positivistic in asserting that only RCTs can deliver knowledge that makes a necessary generalization. The knowledge on which the review mainly depends is obtained from RCTs, Systematic Reviews, and meta-analyses.

**3. Methodology**

The methodology involves the application of very huge data analysis with an examination of bias to give more accurate conclusions which conform to CASP’s principles of well-organized, strong and easy to follow series of analysis. Due to the presence of confidence intervals and weighted mean differences, the results obtained in the studies are accurate, meaning that the differences are indeed statistically significant and therefore generalizable.

# **7. Summary of the evidence from Systematic Reviews:**

This systematic review applies high-level evidence to RCTs to establish the efficacy of SBPM in hypertension management and its ability to enhance clinical outcomes, compliance to medications, and quality of life as compared to simply OBPM (Office Blood Pressure Monitoring) or no BPM (Blood Pressure Monitoring) at all. Two authors involved in conducting the screening for each study, data extraction process, and risk of bias assessment using the Cochrane Risk of Bias tool.

The results suggest that the use of SBPM may be slightly better than the use of OBPM to manage blood pressure which answers our clinical question about the efficacy of SBPM over OBPM and BPM in clinicals generally.

# **8. Tools to Disseminate the Translated Evidence**

Sharing refers to the act of communicating research findings and information to other people so that results from studies can be put into practice which is known as disseminating of evidence (Chapman, 2020). It is also stated that it aims to facilitate the use of research evidence to make changes for better practices, policies and therefore, the results in health care and other areas.

Therefore, as it has been shown by the present paper, the use of evidence in sharing does not only aim at enhancing the quality of care but also at patient engagement in the system. To implement a systematic review of the evidence in practice, the following resources from the Clinical Practice Guidelines (CPG) (Murad, 2017), and Patient Decision Aids (PDAs) can be of help (Pacheco-Brousseau, 2021).

The selection between these tools depends on the target population and as the case is patient centred and the aim is to involve patients in the decision making, PDAs are more useful, hence it was selected.

# **9. Patient Decision Aids**

Using the SUNDAE (Structured, Unbiased, Novel, Direct, Applicable, Empirical) appraisal tool the Patient Decision Aid (PDA) guideline for the evidence on the current self-blood pressure monitoring (SBPM) (Hoffman et al., 2018).

S: Structured

The paper is comprehensive in listing out the inclusion criteria for, participant demographics, interventions under comparison, and tools used for measurement of outcomes which is simple for the reader to follow.

U: Unbiased

This paper is designed to give an accurate idea of SBPM’s impact by minimizing the researcher’s bias on the selection of literature to be included in the analysis.

N: Novel

The review focuses on a timely and emergent area of hypertension care and specifically highlights an SBPM when conducted with co-interventions.

D: Direct

The recommendations derived from the study are specific and could inform clinical practice for healthcare practitioners who are attending to hypertensive patients.

A: Applicable

Due to clear definitions of interventions and outcomes in the study, this instrument can be considered useful for healthcare providers and consumers and an effective tool for decision-making.

E: Empirical

The paper relies on literature from the past five years to buttress its findings on the effectiveness of SBPM in controlling hypertension.

# **10. Barriers to Evidence Dissemination**

Organizational barriers often arise where an organization lacks appropriate systems and processes that enable the integration of evidence into practice, and can disrupt disseminating efforts (Paulin and Suneson, 2015).

* Organizational Constraint could be in the form of Integrating SBPM data into healthcare systems might require technological upgrades and training.
* No leadership barriers were seen
* Financial barriers were seen for the access of SBPM in lower-income populations where they may require Financial support.
* Communication barriers were seen in ensuring that patients are properly educated on how to use the devices and interpreting the results.

To effectively overcome these barriers, organizations can:

* Enhance the use of communication channels
* Allocate the right resources to facilitate training and enhancement of technology.

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