

## STATUS OF MEDICATION COMPLIANCE AMONG PATIENTS WITH HYPERTENSION: A GLOBAL CHALLENGE

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### Contribution

IA conceived the idea. Data collection and manuscript writing was done by IH and AS. All the authors contributed equally to the submitted manuscript.

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### ABSTRACT

Medication compliance among hypertensive patients is poor, affecting a large population which can be noted in the form of increased morbidity and mortality worldwide. Further, uncontrolled hypertension (HTN) can lead to multiple complications on the basis of gender and age. The aim was to explore the existing literature related to medication compliance among patients with hypertension. In this regard, literature search both nationally and internationally has been conducted. In conclusion, avoiding sedentary life style, awareness and counselling as well as family involvement, availability of anti-hypertensive medications in government hospitals and team based approaches are required for improving medication compliance among these patients. Qualitative researches are needed for exploring the challenges related to anti-hypertensive medication compliance both from patients and health care professionals' perspectives.

**Keywords:** Medication Compliance, Hypertension, Risk Factors, Complications and Patients

## INTRODUCTION

Medication compliance can be defined as the process in which patients agree to take their prescribed medicines according to guidelines of health care professionals.<sup>1</sup> According to American Heart Association about 125,000 deaths that occurs each year due to poor medication compliance can be prevented.<sup>2</sup> In addition, one of the study states that intervention has been required for 82.5% patients regarding hypertensive medications.<sup>3</sup>

A study from Northern Vietnamese showed medication compliance has been 49.8% and education about complications of hypertension has been needed.<sup>4</sup> Similarly, a study from Brazil shows that medication compliance has been 45.1%.<sup>5</sup> In addition, medication compliance in China and Northwest Ethiopia has been 46.6% and 67.2% respectively.<sup>6</sup> The medication compliance has been much more poor in Nigeria with the score of 69.1% while 23%, 28.9%, 35.4%, 45.8% and 80% in Pakistan, India, Ethiopia, Kano and Bangladesh respectively.<sup>7</sup> In contrast, a study from America showed that compliance to antihypertensive medications has been 75.1% while 66.1% had control of blood pressure.<sup>8</sup> However, a study conducted at Saudi Arabia explains that compliance among patients has been 27.9% while 72.1% were non-adherent to antihypertensive medications.<sup>9</sup> Furthermore, in India there is high death rate due to hypertension.<sup>10</sup>

The current statistics identified that medication compliance among hypertensive patients varies in different parts of the world as evidenced by morbidity and mortality due to hypertension. This review aim to explore the existing literature related to medication compliance among patients with hypertension.

## METHODOLOGY

### Search Strategy and Data Sources

The most common electronic databases such as Google, Google Scholar and PubMed were used in order to find the literature written in English language about medication compliance among

hypertensive patients key terms such as medication compliance or hypertension and hypertensive patients were searched.

### Scanning

A total of 65 articles were reviewed. The numbers of studies included were 45, which identified to be related to medication compliance among hypertensive patients worldwide.

### Risk Factors and Complications of Hypertension

Hypertension has been defined as systolic blood pressure (SBP) with minimum 140mmHg (millimeter of mercury) and diastolic blood pressure (DBP) 90 mmHg.<sup>11</sup> A study shows that patients have increased sedentary life style and inadequate use of medications in context of hypertension management.<sup>12</sup> The five risks that contributes to mortality worldwide are hypertension, tobacco use, diabetes, physical inactivity, and obesity.<sup>13</sup> This disease is the prominent cause of morbidity in adults worldwide.<sup>14</sup> Hypertensive patients are high risk for stroke, myocardial infarction, heart and renal failure.<sup>15</sup> In America risk for HTN and stroke is high among black population.<sup>16</sup> Another study states that the prevalence of HTN is high among Asian immigrants in United Arab Emirate (UAE) while management of hypertension can be noted as poor.<sup>17</sup> Due to increase prevalence of HTN (60%), stroke has been more common in Asia countries.<sup>18</sup> A study from Pakistan showed that one among three individuals above 45 years is having HTN.<sup>19</sup> In addition, this disease is very common among young individuals.<sup>20</sup> Patients with HTN need be investigated for medication compliance and complications.<sup>21</sup> The above mentioned facts clarifies that HTN is associated with certain risk factors and complications which can be miserable, if ignored to be treated.

### Medication Compliance among Patients with HTN in Pakistan

In Pakistan, the control over hypertension is only 22.3%, affecting a large number of individuals.<sup>22</sup> In

addition, according to National Survey of Pakistan, HTN affects 18% of adult population while 33% among them are above 45 years of age.<sup>23</sup> Furthermore, interest for prevention of HTN in Pakistan is lacking throughout the country.<sup>24</sup> Medication compliance among men is poor, which is directly related to their health's status.<sup>25</sup> In Pakistan non-compliance to antihypertensive medication is 65.45%.<sup>26</sup> In contrast, a study from Aga Khan University Hospital, Pakistan medication compliance is 77% on 80% cutoff value.<sup>27</sup> Similarly, medication compliance is high (84.4%) and knowledge about medication compliance is 91.7%.<sup>28</sup> However, another study showed that medication compliance is medium with 51.8% and 48.2%.<sup>29</sup> In addition, the overall medication compliance is low, 0-50% as noted among African American men.<sup>30</sup> Furthermore, according to World Health Organization (WHO) compliance to antihypertensive medications ranges from 52% -74% and poor compliance is the main cause of treatment failure among patients.<sup>7</sup> Similarly, a study stated that poor compliance is associated with lack of control over hypertension.<sup>31</sup> The overall data from Pakistan shows lack of awareness about medication compliance in relation to HTN which is an alarming situation for government and health care authorities.

### Factors related to Poor Medication Compliance

A meta-analysis showed that medication compliance is vital in management of chronic diseases and linked to improvement in health however (a) beliefs and experiences of medicines, (b) family and culture, (c) role of and relationship with health care practitioners, (d) factors related to diseases, (e) self-regulation, (f) communication, (g) cost and (h) access are reasons which affects compliance among hypertensive patients, leading to failure of treatment and challenges for the health authorities.<sup>32</sup> Furthermore, a study stated that instead of treatment medication compliance is poor among patients with hypertension and finding magnitude of compliance to medication is challenging.<sup>33</sup> In addition, instead of different new strategies medication compliance is poor among hypertensive patients which can be noted in the form of lack of knowledge, non-serious perception about medicines, side effects and high cost of medications.<sup>34</sup> Studies revealed that hypertension is affecting a large number of populations, mainly on the basis of life style, lack of medication compliance, age, gender and ethnicity. Poor medication compliance is responsible for complications such as myocardial infarction, stroke,

renal and heart failure. Factors related to poor medication compliance are, interaction with the health workers, communication, level of disease, accessibility, availability and affordability of the health services, self-manipulation, culture and role of family members. In summary, medication compliance to hypertensive medications among patients is affected by multiple factors, leading to lack of control over the disease.

### Strategies for Improvement of Medication Compliance

Medication compliance can be vital in the management of hypertension because even in advance country like America every third adult above 20 years of age have blood pressure greater than 140/90 mmHg.<sup>35</sup> Medication compliance has three components which are "initiation, implementation and persistence."<sup>36</sup> Education, motivation, active involvement in decision making process, considering economic status, effective communication with health care professionals, proper prescription of medications, knowing patient's perceptions and team based approach are the needs of patients with hypertensive medications.<sup>37</sup> As a study conducted in Malaysia showed that intervention group resulted in decrease of systolic and diastolic blood pressure (DBP).<sup>38</sup> Policies and implementation processes are required for the above mentioned methods which may improve the status of medication compliance among patients with hypertension.

### Past and Future Regarding Medication Compliance

Multiple approaches have been made for improving medication compliance on individual and organizational basis. These techniques mostly focused on motivation of the patients towards medication compliance with the help of counselling.<sup>39</sup> Similarly, other studies showed that counselling about HTN and medication compliance may improve patients' behavior towards medications.<sup>40,41</sup> In addition, a systemic review showed that improving patients' knowledge about medications benefits in terms of medication compliance.<sup>42</sup> For future direction, researches stress on information about HTN and its complication, reminders for the patients such as weekly pill plan or using alarm devices and continuous monitoring by health care professionals are required.<sup>43</sup> In addition,

one of the study showed that use of mobile application among patients have better outcome regarding medication compliance.<sup>44</sup> Furthermore, interventions for medication compliance should be focused on patients, therapy and system.<sup>45</sup> This shows that a team based approach is required to improve the awareness among patients with hypertension.

## CONCLUSION

Medication compliance is poor among patients with hypertension as evident by morbidity, mortality and complications mentioned above. Avoiding sedentary life style, awareness and counselling as well as family involvement, availability of anti-hypertensive medications in government hospitals and team based approach is required for improving medication compliance among these patients. Qualitative researches are needed for exploring the challenges related to anti-hypertensive medication compliance both from patients and health care professionals' perspectives.

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