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Knowledge, Attitudes, and Practices Regarding the Dual Burden of Diabetes and Hypertension in Khyber Pakhtunkhwa, Pakistan

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ABSTRACT

Background: In Pakistan, nearly 60 % of all deaths are caused by Non communicable diseases, among these (NCDs) diabetes and high blood pressure are the most prevalent metabolic illnesses. Diabetes and high blood pressure are very common and are often linked together. **Objective:** To evaluate the Knowledge, Attitudes, and Practices (KAP) of people in Khyber Pakhtunkhwa about the burden of diabetes and hypertension in order to guide them and what they actually do to stay healthy. **Study Design:** Mixed methodology used. **Settings:** Main government hospitals and medical camps in KPK, Pakistan, coordinated by the (DDRI). **Duration:** January 2024 to June 2024. **Methods:** Total participants 580, data collected through a structured KAP questionnaire including qualitative interviews. Quantitative data analysed with descriptive statistics and logistic regression, and to examine qualitative data, thematic analysis were used. **Results:** Mostly participants have some awareness (average knowledge score 11.8±2.6) and (average positive attitudes score 37.2±4.5). However, most participants didn't used their knowledge in practice, (average practice score 8.1±2.7), compare to participants with higher education, living in cities, and continuous clinical contact ($p < 0.001$). Qualitative results also identified some other main barriers, wrong ideas about food, women restrictions on exercising, mostly participants belief that we can't prevent disease. **Conclusion:** This study finds an important gap between knowledge and practice, people understand these diseases, but they do not apply that knowledge for prevention. The outcomes revealed the need for more education, and interventions to identify the specific barriers and to improve preventive practices.

Keywords: Diabetes, Hypertension, NCDs, DDRI.

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INTRODUCTION

Non-communicable diseases are a big problem in South Asia.¹ In Pakistan, NCDs cause approximately 60% of all adult deaths, and diabetes mellitus and hypertension are the two main causes.² Mostly diabetes and hypertension occurred combined, and this dual burden is the risk for heart, kidney, eye, and brain diseases.³ All over the world, both male and female, 1 in 6 live with diabetes, and 1 in 4 has high BP The World Health Organization (WHO) even made it a top global priority, aiming to reduce early deaths from NCDs by 2030.^{4,5}

In fact, South Asian populations, including people in Pakistan, are especially vulnerable due to a few things, including

genetics, the tendency for fat to gather around the organs, and diets high in carbs.¹ Plus, life is changing fast. Urbanization is spreading, people are eating more processed food, and many jobs are sedentary.^{4,6} The latest survey showed that 26.3% people have diabetes, and 33.9% have high blood pressure; around one in five adults has both.²

However, the education found was still too low, especially in participants from rural areas, including low-income families, and mostly women.^{7,8} That's why the Darwesh Diabetes Research Institute (DDRI) collaborated with main hospitals in Khyber Pakhtunkhwa (KPK) to assess people's KAP levels to identify the problem. Khyber Pakhtunkhwa traditionally

focused on infectious diseases. This study aimed to summarize the results from both data and observations to find out what people know about diabetes and hypertension and what they actually do about their health risks.^{9,10}

METHODS

This research was a multicentre, cross-sectional analytical study, was conducted across main government hospitals, including outreach community medical camps coordinated by DDRI in Khyber Pakhtunkhwa (KPK), to cover urban and rural districts, major areas, Peshawar, Pabbi, Nowshera, Mardan, Swat, and Kohat were included. DDRI was the principal centre and handled everything, designing, surveys, supervising, including work in the field, and analysing the final data. We looked at adults 25 years and older. This included those people who were already diagnosed with diabetes and hypertension, as well those healthy people just visiting the OPDs or DDRI, outreach community medical camps.

We used a sophisticated method called multi-stage, stratified sampling. In total, we carefully selected 580 participants, 300 men and 280 women, in proportion to the census data; roundabout 60% lived in cities, while 40% came from villages. The Inclusion criteria required participants to live permanently in the area where they selected, also to understand either Urdu or Pashto, and, most importantly, to give their informed consent. Proper ethical approval was obtained from DDRI, IRB.

We collected data using a structured KAP questionnaire and Interviewers. The survey had to be clear for everyone, so we translated the whole questionnaire, Interviewers into Urdu and Pashto. The survey had five main parts: demographics, knowledge, attitude, practice, and institutional exposure, to find out what they knew, how they felt about the issue, what they actually did about the issue, and whether they had any hospital contact or not. In the questionnaire, we asked about causes, symptoms, complications, and preventive measures. Participants answered using simple scales and specific options. Also, we checked blood pressure, RBS, and BMI. Additionally, we captured some qualitative open-ended interview questions and information from the OPD and camp visits.

We focused on the main ideas of Knowledge, Attitudes, and Practices (KAP), or variables, to get a better idea, for example:

Knowledge: Did they properly identify the risks, symptoms, and prevention steps?

Attitude: To find, how deeply they think about the illness, this is their own problem to keep themselves healthy or someone else's responsibility.

Practice: In this section, we found what their behaviour was like, what kind of exercise they did, how long they did it, and what activities they did, we recorded about their age, gender, where they came from, we checked that if someone's score was more than 70%, we considered them good, and score between 50% to 69%, we considered them okay, and less than 50%, we considered poor.

We started by using SPSS version 27 to look at our quantitative data, and we found simple average scores. After basic scores,

we applied (χ^2 , ANOVA, logistic regression tests) to see what worked for people's good habits and better results for good practice.

for qualitative data, thematic analysis was used to read all conversations from our study to know people's views and problems. Finally, we combined both quantitative and qualitative answers for a solid and reliable result.^{11,12}

We explained everything to each person in Urdu, and to all Pashto speakers in Pashto, and we explained the research to them in full detail and also told them that their names would be kept confidential. To ensure this, we did not use their names, but rather gave them a special code that no one else knew. This ensures all the data stays secure. However, we didn't just collect data and walk away. All those participants whose results looked abnormal was straightaway referred out. They received necessary counselling and follow-up care from Health professionals.

RESULTS

The study involved 580 participants, 52% were male, and 48% were women. Their usual age was around 44 years, 44.3\pm 12.6 years. Their educational background was quite different; nearly half of the group (specifically 45%) had completed secondary school or higher education. Most of the participants lived in city environments, with 58% calling urban areas home, and about one-third of the households reported that their average income is less than PKR 50,000 per month. Also, we looked at family health history, and we found that 40% participants reported that diabetes ran in their family. Similarly, 36% had a family history of high blood pressure. These pre-existing conditions were really important to keep in mind.

Table 1: Socio-demographic characteristics of participants (n=580)

Gender Distribution of Respondents		Residence Distribution of Respondents	
Male	Female	Urban	Rural
52%	48%	58%	42%

The scores for health knowledge were actually pretty good. Participants knew more about their health. Specifically, the average score hit 11.8 ± 2.6 out of 15 points, up to 80% of the participants properly pointed out that being overweight, or eating too much sugar, and feeling stressed are all genuine risk factors for disease.^{12,13} This means the basic public health messages are getting through. However, the knowledge wasn't perfect; we saw that only 46% of respondents knew that consuming lots of salt is a major trigger for high blood pressure, and even more importantly, just 38% correctly understood this simple fact. Early disease stages often come with absolutely no symptoms at all. Also, we found that Higher education and Awareness make a difference; people who had finished Higher education or those who lived in urban areas compared to rural, scored significantly better ($p < 0.001$). Those participants who had attended DDRI awareness sessions were found to be more competent and had high knowledge levels. (OR = 2.3, 95 % CI 1.6–3.4). That kind of sessions really works to boost public understanding about the diseases.

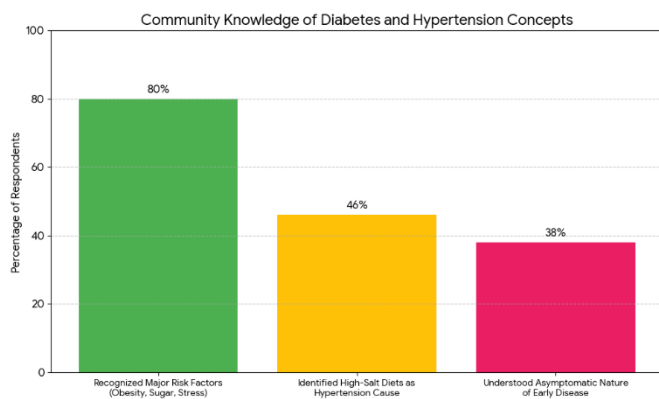


Table 2: Knowledge, attitude, and practice scores among participants (n=580)

Scores on attitudes were quite strong, averaging about 37.2 ± 4.5 out of 50. Most people were completely willing to live healthier. When we asked people about illnesses. Many people believed that since the disease comes from Allah, only Allah will cure it. However, we also saw that despite holding this belief, people still go to doctors. This meant that every person has these two contradictory thoughts in their mind. We can change this belief. This meant that they were ignoring the reality but also accepting it.

There was a huge discrepancy between the Practice of many people and their knowledge, the scores, was low 8.1 ± 2.7 out of 15. this was a huge gap between their knowledge and actions, for example, their knowledge about some basic health principles was quite high, but then the action was, only 32 percent people exercised properly and only 29 percent of people reduced their salt intake. 41 percent of people went to their doctor annually, although they all knew almost what they should do, but when you look at their actions, they were not following it properly. However, the habits of people living in cities were much better than those living in villages. Most of them were educated people who went to the doctor regularly and also did sports, exercise. They were found to be more active in various activities to stay healthy than those who did not ($p < 0.01$).

Theme 1: Social: In most areas, it is very important to cook good food, and they know that no matter how sweet it is or the food that contains fried food or a lot of ghee, they know that it is intoxicating and not good for health. They know it is very difficult for them and not only that it is difficult to cook it, it is also a waste of money. one woman explained it in this way that “if I cook food for my husband and add a little less salt to it or I add a little less sugar to the tea or I add less ghee to the food, then he gets angry and don't even talk to me for two or three days, it's a big problem for me”.

Theme 2: Gender: The issue of walking and exercise, many problems are coming to light. For example, in rural areas, many women gave the same message that there is no specific place for walking and exercise in their areas, and there is no separate gym for women where they can go and exercise. One stated, “We are not even allowed to go out alone for anything”. Similarly, men also had different kinds of complications in this

regard. We understood that most men have this one thing that if they have a car or a motorcycle at home, they will use it even for minor work outside, and the reason for this when they go out, they feel that when they are in a car or on a motorcycle, they consider themselves rich. if we look at urban areas, most people prefer to walk, and gyms are also available; there are even separate gyms for women in different cities.

Theme 3: Religious: As we know that people often believe that every disease comes from Allah, and of course, there is no doubt about it. DDRI adopted a special policy to present this matter in a good way, Quranic verses that were related to health such as health is a separate trust with us and such as suicide is forbidden and cleanliness is half of faith, DDRI started a program called (Health is Amanat) and helped people understand that it is also our religious duty to take care of our health and this was one of the reasons for DDRI's success that people came to the camps. DDRI also included scholars with them and then told these people how they can do different activities to keep themselves healthy, such as related to food, which was very important for diabetic people or people who have high blood pressure.

This policy of DDRI really worked, and we saw that all those people who participated in DDRI awareness and medical camps had significantly higher KAP scores than those who were treated in regular OPDs. DDRI also adopted a good policy that they screened both diseases together, which is, they screened for blood pressure and diabetes at the same time.¹⁴ This is a huge deal. They also provided clear counselling and used SMS messages for follow-up, which everyone praised. However, focus on the gap, even though people are aware of what's healthy, they said they need continuous help from the community and access to affordable, good food to stick with the changes.¹⁵

DISCUSSION

This research study provides comprehensive provincial overviews of the dual burden of diabetes and hypertension on people in KPK, Pakistan. This study confirmed that knowledge is higher than the attitude levels. That's great, but limited change in behaviour matches what other studies find. The strongest advocates of better prevention were clear: obtaining a good education, having a stable residence, and maintaining sustained contact with the healthcare system.

Behavioural Gap Between Awareness and Action

The public health researchers called it, behavioural paradox, the gap between knowledge and practice.¹⁶ People genuinely know the risks. They understand the dangers of a certain habit or activity. However, they consistently fail to change what they do. Why does this gap exist between simply knowing and doing? This has not just happened in one area; similar patterns where awareness doesn't translate into action have been clearly documented in India¹⁷ and in another country, Bangladesh.¹⁸ Our main goal was this study was to find out the exact reasons for all these issues, and in all our interviews, we heard a lot from people that these issues were not their personal problems but mostly came from social or society. For example, old-fashioned rules forbid women from going out for their work. Similarly, all

problems related to food and drink, eating mostly ghee and fried foods, social and society-related issues, so counselling alone for one person will not be enough. The entire community will have to work together to highlight it in the right way.

Role of Cultural and Religious Context

Another big obstacle we saw is that people often think that everything is a game of fate and all the diseases come from Allah and only Allah will cure them.¹⁹ So why should we take so much care of our health or ourselves when everything is controlled by Allah? DDRI made a clear policy for this issue, and DDRI did not argue against this belief, but instead highlighted all the positive health-related issues in Islam. This idea worked internationally. For example, Indonesia's "Healthy Mosque" health project used mosques to improve health in Muslim communities.¹⁷

Education and Socio-Economic Influences

As we all know that education is very important, and an educated society understands how diseases develop and how to prevent diseases.⁷ In an educated society, the KAP and health outcomes of its people are very good. They also know the benefits of physical activities, their diet plan, and their lifestyle; they understand these things in a correct way.¹⁰ But those people whose income was low said that there are various health barriers everywhere, such as expensive medicines, or similar things like sugar-free drinks, or various things used to prevent blood pressure and diabetes. If those things become affordable for them, it will be an important policy of the government. We should all think about this and make a policy to reduce taxes on all necessary medications.

Institutional Integration and System Strengthening

It would be easy and cheap to include both check-ups and counselling in BHUs and in primary care.²¹ This is what DDRI did. This can cover both these diseases at once. Along with their counselling, diet plans can also be worked on. To improve this, it is also necessary to take the help of technology, such as recommended by WHO to help in managing NCDs.² It is necessary to apply DDRI's digital registry in different areas as well so that NCDs can be reduced.

Public Health Implications:

This research told us that three things we should do right now.

Policy: First of all, we should make it a policy that whenever a patient goes to the doctor, the doctor should check both these diseases at the same time, diabetes and high blood pressure. Initially, it will be a little difficult for us, but this is an easy method and it is very important for our health that both diseases are diagnosed at the same time, then the treatment becomes easier.

Community: We should think about our society. Sometimes people are busy with their daily life and cannot work on the principles of health properly. That is why we should join such programs in which we can know how to maintain our health and what we can do. For this, public health should arrange such

programs for the community to tell them how they can keep themselves healthy.

Institutions: We should rapidly expand the DDRI outreach program and its online tracker model, and together we should use this great project in the entire region, we should try to establish it properly in the whole of Pakistan because these two diseases consume a large part of our country's health budget.

CONCLUSION

Diabetes and high BP together are big problems, not only in KPK but in Pakistan. It is a huge burden on our economy and our health budget. People know a lot about diabetes and high BP, but there is no significant change in their actions and performance. It may be financial problems, local traditions and poor policies. In this study we have seen, the DDRI plan can work properly. In fact, to fight these two diseases, our health providers and public health leaders should make some solid policies that include, DDRI model dual screening, education and awareness, tax free medicines, should be available to people at cheap prices.

LIMITATIONS

This research has uncovered some great points. We have examined different locations throughout the KPK province, which was a very important and difficult task, but it was necessary. We combined quantitative data with qualitative insights. By working with DDRI and local hospitals, our results feel true to life. But as we know, every project has weaknesses, because people don't always tell the truth about their work. We also couldn't reach to all area of KPK, in future research, we should include how community behaviour and actions change over many years, which is very important.

SUGGESTIONS / RECOMMENDATIONS

We need to rapidly expand the DDRI screening program in every local clinic and BHU in KPK. This will help us in diagnosing the disease. All the local religious leaders or community health workers should work together. Medicines are very important, we should make such policies that the important medicines for diabetes and high blood pressure should be made at low cost and there should be no tax on it. Public health policy makers should take steps to increase physical education, good foods and physical activities, in every school and college.

CONFLICT OF INTEREST / DISCLOSURE

None.

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