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PSYCHOSOCIAL AND CLINICAL FACTORS OF PERCEIVED QUALITY OF LIFE IN INDIVIDUALS WITH PRIMARY HYPERTENSION

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Abstract

A quantitative descriptive research design was used, and the purposive sampling technique was used to recruit 70 people with primary hypertension for over a year. A Demographic Information Sheet, Clinical Information Sheet, Depression Anxiety Stress Scale-21 (DASS-21), Morisky Medication Adherence Scale (MMAS) and the (MINICHAL) were used for data collection. Data were analyzed using descriptive statistics, reliability analysis, independent sample t-tests and one-way analysis of variance (ANOVA). The results showed that psychological distress and compliance to medications had a significant effect on perceived QOL in primary hypertension patients. Increased depression, anxiety and stress were correlated with lower quality of life, while increased medication adherence was correlated with better quality of life. There was significant difference between the genders in terms of psychological distress, and between age groups in terms of psychological distress and medication adherence, and also between education levels and psychological distress and medication adherence. In general, the results highlight the importance of psychosocial factors in addition to clinical parameters in the quality of life of hypertensive patients. The study throws highlights on the need of taking a bio psychosocial approach in the management of primary hypertension. Intervention to relieve psychological distress and improve medication adherence could lead to better quality of life and health outcomes for those with hypertension. The results could offer some implications for health care providers when creating holistic and patient-focused interventions for the hypertensive population. Primary hypertension often leads to sick absenteeism and a decline in quality of life. Psychosocial factors, as well as clinical factors, are associated with hypertension-related sick absenteeism and psychological distress, which in turn is associated with decreased adherence to medication, and all of these are measured by the same instruments (DASS-21 and MINICHAL).

INTRODUCTION

If there is no underlying secondary cause, hypertension is also known as primary hypertension or essential hypertension, and is a common chronic condition. It is an important risk factor for cardiovascular disease, stroke and kidney failure and plays a significant role in morbidity and mortality throughout the world. With the treatment options available there are still people with primary hypertension who have a decreased quality of life (QoL). Such a decrease in QoL is not just a reflection of the clinical parameters (e.g., blood pressure control) but also influenced by the psychosocial factors that influence the whole man. The psychosocial and clinical factors that impact the QOL of people with hypertension are important to understand so they could be better managed and achieve better outcomes. (Svetkey et al., 2009).

It's called a "silent killer" because many people do not experience symptoms until further

complications occur. There are two types of hypertension: Primary (essential) hypertension – which is the most common type, with no known cause; Secondary hypertension – which occurs due to other health conditions including kidney disease or endocrine disorders. There are factors that can increase the likelihood of developing heart disease, such as age, weight, diet, not exercising, smoking, drinking alcohol, and genetics (Whelton et al., 2018).

Hypertension has seen a tremendous increase in burden at the global level in the last couple of decades. The disease has been increasing in prevalence due to the rapid urbanization, population aging, urban socioeconomic change, unhealthy nutrition, sedentary lifestyle, obesity, and exposure to stress. There are an estimated 1.28 billion adults aged 30-79 with hypertension worldwide, of which almost 46% are not aware. In addition, only 49% of those affected get proper treatment, and not many of these achieve good blood pressure control. Hypertension is especially common in low- and middle-income countries where health systems are limited and under-resourced, and access to preventive services and health literacy are low, making effective management of the disease difficult (WHO, 2023).

There are two main types of hypertension: primary (essential) hypertension and secondary hypertension. Primary hypertension makes up about 90-95% of all cases and occurs over a period of time with no single cause. It is a result of a combination of genetic and environmental factors. Genetic factors play a major role in the regulation of blood pressure, including through mechanisms related to renal sodium handling, vascular tone and neurohormonal pathways. Other factors include excessive dietary sodium, obesity, physical inactivity, smoking, alcohol, and chronic psychological stress.

Secondary hypertension makes up around 5-10% of cases and is caused by other known underlying health problems. These may be due to chronic kidney disease, renovascular disease, endocrine disorders, such as primary hyperaldosteronism and Cushing's syndrome, thyroid disorders, sleep apnea, or other medications that are used, including nonsteroidal anti-inflammatory drugs (NSAIDS), corticosteroid drugs, and oral contraceptives. In contrast to primary hypertension, secondary hypertension can be cured if the underlying cause can be recognized and corrected (Carey et al., 2018).

Rationale

Both Pakistan and the rest of the world have a high prevalence of hypertension and it has negative psychosocial and emotional impacts as well as physical health impacts. Stress, anxiety, depression and social restrictions are common in people with primary hypertension, and can affect their quality of life (QoL). Patients' overall wellbeing and functioning is further supported by clinical factors like symptom burden, disease severity, comorbidities, and adherence to medications. It is important to acknowledge the role of both psychosocial factors (stress, coping, emotional well-being, etc.) and clinical factors (blood pressure control, symptom severity, comorbidities, medication adherence, etc.) in perceived QoL to inform the design of the holistic intervention.

Although hypertension is widely prevalent in Pakistan, there is a lack of systematic study in Pakistan that looks into the interaction of clinical and psychosocial factors to improve QoL of hypertensive individuals. Understanding these relationships could serve as evidence for health care providers to adopt patient-centered management strategies, better disease control, increased adherence to care and ultimately lead to better physical, emotional, and social outcomes for people with hypertension.

Furthermore, hypertension can be a condition that needs to be managed by individuals over a long period of time, as a self-care disease, which can be psychologically demanding for individuals, especially if lifestyle changes and/or long-term drug treatment are necessary. This constant burden can result in treatment fatigue, loss of motivation and poor adherence, impacting clinical outcomes and quality of life. Moreover, differences in the availability of health care services, health literacy and cultural attitudes towards chronic disease in Pakistan can affect the experience and coping with hypertension. In this

regard, understanding how psychosocial and clinical factors influence quality of life is critical in order to identify vulnerable patients and design intervention strategies that target the emotional and social aspects of the patient's experience as well as the biological aspects of these patients' hypertension.

Aim of the Study

- To review the psychosocial and clinical variables which may affect perceived quality of life (QoL) in patients with primary hypertension.
- To identify how these factors, interact and influence the overall well-being of hypertensive patients in Pakistan.
- Research Questions
- What is the relationship between psychosocial factors (social support, stress) and quality of life in people with primary hypertension?
- Are there any links between perceived quality of life and clinical variables (such as blood pressure control and adherence to treatment) in people with primary hypertension?
- What is the net effect of psychosocial and clinical factors on quality of life of primary hypertension patients?

Research Design

The study was descriptive research design with primary hypertension patients to find out the psychosocial and clinical factors affecting the perceived quality of life (QoL) among the patients. Descriptive designs are especially helpful for describing the attributes of a phenomenon, in this case, the association between clinical and psychosocial variables and their effects on patients QoL.

Sample/Sampling Strategy

A non-probability, purposive sampling method was used. Although the sample size estimated for the study was 120 participants calculated by GPower. During the data collection process, some practical difficulties were encountered. Especially, it was difficult to get permission from hospitals and many with primary hypertension were not regularly attending hospitals for follow-up. Thus, the final sample comprised of 70 participants. Gender equality was achieved by ensuring a similar number of males and females (35 males and 35 females) in the sample.

Hypothesis:

- Patients with Hypertension who have higher levels of stress, anxiety, and depression will have a much poorer quality of life.
- Men with hypertension will be more likely to have psychological stress (depression, anxiety and stress), than women with hypertension.
- Patients will see improved physical, emotional and social quality of life if they take their blood pressure medication as prescribed.
- Regular blood pressure checks will help patients take better care of themselves than those who do not check.

Inclusion Criteria:

- Has been diagnosed by a health care provider as having primary hypertension for 1 year or more.
- Currently on treatment for hypertension to assess effect of adherence on QOL.
- Patients who don't have any severe mental health condition, such as schizophrenia and bipolar disorder etc.

Exclusion Criteria:

- A serious mental illness (such as schizophrenia, psychosis) or mental retardation.
- Advanced chronic diseases (such as end stage renal failure) that will greatly affect their daily living and quality of life will be excluded.
- Assessment Measures:
- Following assessment measures was used in the study.

Demographic Information Sheet:

The researcher created a demographic information questionnaire that was used to evaluate the demographic information of the participants. Demographic information that collected include gender, age, years of formal education, marital status, household income, number of dependents, socioeconomic status

familial background (rural/urban), family system (joint/nuclear) and others.

Clinical Information Sheet:
Medical data collected for patients comprised of basic clinical data of hypertension onset and duration, treatment, medication, duration, family history of hypertension, comorbidities, BMI etc.

A Minneapolis Heart Institute Quality of Life Scale (MINCHAL Scale
A Minneapolis Heart Institute Quality of Life Scale (MINCHAL Scale) is used to assess the quality of life.
The health-related quality of life (HRQoL) of people with cardiovascular diseases, including primary hypertension, is assessed using the MINCHAL Scale (Minneapolis Heart Institute Quality of Life Scale). The scale was developed by Koehler et al. (1994) and was designed to measure the impact of cardiovascular diseases such as hypertension on patient's physical, emotional, and social health. The MINCHAL Scale has multiple domains that address different aspects of life affected by cardiovascular health, such as physical function, emotional health, social function and health perceptions. This tool can be particularly helpful to gain insight into how chronic cardiovascular disease affects patient's lives, their functioning in activities and their health. The scale assesses general health-related quality of life, but also includes items that give us information about psychosocial factors and coping strategies used by patients.
Most subscales of the MINCHAL Scale have exhibited good reliability with Cronbach's alpha values ranging between 0.75 and 0.90, reflecting good internal consistency of scales. This makes it a helpful tool in clinical practice and research for monitoring hypertension patients and those with cardiovascular diseases. The multidimensional approach to the scale enables the healthcare provider to understand the wide-ranging effects of hypertension on patient's lives and design interventions to suit.

Depression Anxiety and Stress Scale (DASS)
The Depression, Anxiety, and Stress Scale (DASS) is a widely-used psychological assessment scale designed to assess emotional states of depression, anxiety and stress in both clinical and non-clinical populations. The DASS is a scale designed by Lovibond and Lovibond (1995) to assess the level and type of emotional distress in persons with chronic health problems such as hypertension. The scale has three subscores: Depression, Anxiety and Stress, all of which evaluate negative emotional experiences, cognitive symptoms and physical tension.
The DASS can be helpful in understanding the psychosocial burden of chronic illness as well as the emotional stressors that impact on the individual's functioning, coping mechanisms, and well-being. The tool has yielded satisfactory internal consistency with Cronbach's alphas of the subscales usually between 0.82 and 0.90, and has shown to be highly reliable. The DASS is a valuable tool for clinical practice and research, as its multidimensional structure allows healthcare providers to better identify mental health issues, track emotional changes over time, and adapt psychological interventions to address them.

Morisky Medication Adherence Scale (MMAS)
The Morisky Medication Adherence Scale (MMAS) is a commonly used self-report questionnaire that measures patients' adherence to their prescribed medication regimen, especially for chronic diseases like hypertension and diabetes. The scale was developed by Morisky et al. (1986, 2008) and assesses behaviors that lead to non-adherence such as forgetting doses, stopping meds when feeling better, or discontinuing meds due to side effects. There are multiple versions of the MMAS, such as the MMAS-4 and MMAS-8, which are practical and reliable to measure adherence in clinical and research settings.
The MMAS has been found to be reliable and predictive, and it can be used to identify patients who may not be adherent to their treatment and to monitor treatment outcomes. The scale provides a way to measure medication-taking behaviors to investigate the relationship between medication adherence and clinical outcomes –

such as blood pressure control, symptom burden, and quality of life – and to inform better patient-centered interventions.

Procedure

All pertinent departments were first contacted and formal consent was secured before data was collected. When approved, they approached the participants during their visits to the outpatient department (OPD). As participants approach, they were told the purpose of the study and a participant information sheet was given to each participant. If they consent to participate, they were asked to sign a consent form. Questionnaires were then given after this. Participants were ensured of the confidentiality of the information they provide. Also, they were told that they could leave the study at any time without any consequences. The data were collected followed by a statistical analysis of the collected data.

Results

Our present study aimed to explore the psychosocial and clinical determinants of the quality of life perceived by people with primary hypertension. Collected data were statistically analyzed and results were analyzed in a number of steps. The process of descriptive statistics was undertaken to inspect the demographic features of the participants and to study the distribution of the study variables in the first step. In the second step, reliability analyses for all study measures (Depression Anxiety Stress Scales (DASS), Morisky Medication Adherence Scale (MMAS), (MINICHAL)), were conducted and Cronbach's alpha coefficients were obtained to measure their internal consistency. Thirdly, independent samples t-tests were used to investigate gender differences on the study variables. Subsequently, the differences in the perceived QOL, psychological distress, and medication adherence were assessed using one-way analysis of variance (ANOVA) between the different demographic groups, such as age categories and gender. These analyses and their findings are detailed below in the following tables.

Reliability Analysis

Reliability coefficients of the scales, subscales, descriptive statistics and range of variables are shown in Table.

Psychometric Properties of Major Study Variables (N=70)

Scales	Items of Questionnaire	Cronbach's Alpha
Morisky Medication Adherence Scale	1-8	.755
DASS21	9-29	.764
MINICHAL Questionnaire	30-45	.754
Overall		0.76

The reliability coefficients for internal consistency for each of the three research instruments are shown in Table 4.2, along with the cumulative value of the survey questionnaire. The highest reliability coefficient was for the DASS21 scale (alpha = .76), followed closely by the Morisky Medication Adherence Scale (alpha = .76) and the MINICHAL Questionnaire (alpha = .75). The overall internal consistency (Cronbach alpha) for the comprehensive instrument was acceptable (.76). All the reported Cronbach's alpha values exceed the psychometric acceptable level of .70, and the psychometric benchmarks, thus establishing satisfactory levels of reliability for academic inquiries.

Independent Sample t-test comparing gender with study variables (N=70)

	Male N=35		Female N=35		t	p
	M	SD	M	SD		
Morisky Medication Adherence Scale	10.7429	1.57821	10.8000	1.92201	-.136	.427
DASS21	17.9714	5.66457	15.2286	6.91157	1.816	.033
MINICHAL Questionnaire	13.4286	5.59036	11.6857	5.97924	1.260	.234

Independent-samples t-tests were performed to investigate any differences between genders on the three clinical instruments. There was a statistically significant difference between males and females on the DASS21 scale, t (68) = 1.82, p = .033, male participants had more psychological distress (M = 17.97, SD = 5.66) than female (M = 15.23, SD = 6.91). However, no gender difference was seen on the Morisky Medication Adherence Scale scores t (68) = -0.14, p = .427 or the MINICHAL Questionnaire scores t (68) = 1.26, p = .234. The results of this study suggest that there is no statistically significant difference between psychological distresses by gender.

One way ANOVA comparing study variables with education (N=70)

Scales		**df**	**Mean square**	**F**	**Sig.**
Morisky Medication Adherence Scale	Between Group	5	6.748	2.445	.043
	Within Group	64	2.759		
DASS21	Between Group	5	102.055	2.795	.024
	Within Group	64	36.508		
MINICHAL Questionnaire	Between Group	5	61.946	1.961	.097
	Within Group	64	31.587		

One-way ANOVA showed a statistically significant difference among the groups for the Morisky Medication Adherence Scale, F (5, 64) = 2.45, p = .043 and the DASS21 scale, F (5, 64) = 2.80, p = .024. However, there were no statistically significant differences among cohorts on results of the MINICHAL Questionnaires scores (F (5, 64) = 1.96, p = .097). These results suggest that although there was a significant difference in medication adherence and psychological distress depending on the demographic factors, reported health-related quality of life was statistically homogenous.

Tukey's HSD Post Hoc Comparisons by Qualification across DV Measures (N=70)

Dependant Variable	(I) Qualification	(J) Qualification	Mean Difference (I−J)	p
TMMAS	Primary	Middle	-0.63	.953
		Matric	-1.43	.171
		Inter	-0.25	.999
		BS	0.31	.995
		Mphil	0.64	.956
	Matric	BS	1.75	.052
		Mphil	2.08	.083
TDASS	Primary	Middle	0.06	1.000
		Matric	2.55	.848
		Inter	5.56	.287
		BS	5.63	.104

		Mphil	7.38	.090
TMINICHAL	Primary	Middle	0.50	1.000
		Matric	-0.18	1.000
		Inter	-1.50	.989
		BS	3.88	.382
		Mphil	4.61	.467

Based on the results of the Tukey's HSD post-hoc comparisons, there were no statistically significant differences in mean scores across any of the qualification levels for the three dependent variables. The Primary qualification to all other qualification levels (and the Matric to BS; p = .052 and to MPhil; p = .083) did not achieve statistical significance at the alpha level of .05 for the TMMAS measure. Also, no significant differences were detected between Primary and Middle or Matric or Inter or BS or MPhil groups on the TDASS, with the lowest p value (.090) being with the MPhil group. Finally, the mean differences for Primary qualification and all other educational groups for the TMNICHAL measure were extremely non-significant, ranging from $.382 to 1.000. The overall result of the analysis suggests that the participant's qualification level does not distinguish the scores obtained on TMMAS, TDASS or TMNICHAL.

One-way ANOVA comparing study variables with age (N=70)

Scales		df	Mean square	F	Sig.
Morisky Medication Adherence Scale	Between Group	4	9.041	3.374	.014
	Within Group	65	2.680		
DASS21	Between Group	4	88.595	2.310	.004
	Within Group	65	38.345		
MINICHAL Questionnaire	Between Group	4	119.842	4.206	.067
	Within Group	65	28.491		

The effects of age on the three study variables were tested with a one-way analysis of variance (ANOVA). The results of the analysis found that there was a statistically significant difference between the age groups with respect to the Morisky Medication Adherence Scale, F (4, 65) = 3.37, p = .014 and the DASS21 scale, F (4, 65) = 2.31, p = .004. The MINICHAL Questionnaire scores, F (4, 65) = 4.21, p = .067, did not differ across age cohorts, however. These results show that there are significant differences between the adherence patterns of the different age groups, and also significant differences in the level of psychological distress. However, the level of health related quality of life is statistically similar across the different age groups.

Discussion

The first aim of this study was to explore the psychosocial factors and clinical characteristics that would affect perceived quality of life (QoL) in people with primary hypertension. This study sought to gain valuable insights into the importance of mental distress and treatment behaviors for overall health for people with hypertension, and to help guide them toward behavior changes that would benefit their long-term health. The study aimed to understand the inter-play between these factors and how they affect the daily functioning and health-related quality of life of the hypertension patients in the particular socio-cultural and economic context of Pakistan. To accomplish these goals the study was carried out on sample of 70 diagnosed hypertensive people (N = 70) of Pakistan. The participants were mostly adults, with 38.9% aged between 25 and 29. The gender split was perfect with half a male (48.6%) and half a female (48.6%) participants. In terms of their geographical location, most respondents (61.1%) lived in urban

areas. Socioeconomically the sample showed a moderate income range, as almost one-fifth (19.4%) had a monthly income between 40 and 50 thousand PKR. The educational background was very diverse and the majority of these had a Matric (20.8%) or Bachelor of Science (BS) (22.2%) degree.

Mills et al. (2020) and Vasan et al. (2001) found that modifiable risk factors, such as population aging, fast urbanization, unhealthy diets, obesity, physical inactivity, tobacco and alcohol use, were prominent factors that have contributed to the growing burden of disease worldwide. The clinical characteristics obtained in the present study corroborate these claims, as a high proportion of poorly controlled blood pressure in the subjects in the current study often corresponds to these cumulative lifestyle and environmental risk factors.

Strengths of the study

- The study provides a comprehensive understanding of quality of life in individuals with primary hypertension by examining both psychosocial and clinical factors simultaneously.
- It addresses an important public health issue, as hypertension is highly prevalent and associated with significant physical and psychological consequences.
- The study contributes to the limited body of indigenous research on the combined impact of psychological distress and clinical variables on quality of life among hypertensive patients in Pakistan.

Limitations

- Strict hospital regulation and administration procedures were a major constraint to the sample size. This reduced the number of participants available for data collection in the allotted time.
- One of the significant challenges was the need to access the target population in hospital environments. Hypertensive patients were identified within the hospital wards, but this was challenging because hypertension often is managed in an outpatient clinic, community pharmacy, or at home.
- The scales used showed good internal consistency, although Cronbach's alpha reliability coefficients are very sensitive to sample size. The instrument may only have limited reliability for broader populations and statistical power because of the constrained sample. This study is a cross-sectional study and does not allow for the ability to make definite causal inferences across the time dimension.

Suggestions

The following suggestions may help future researchers:

- Further research is needed to include more data from a wider range of settings than those of hospital wards. A larger and more representative sample will be obtained by accessing specialized outpatient clinics, primary healthcare centers and community health drives.
- Specific attention should be given to future investigations in clinically diagnosed patients at the early diagnostic stage. Parameters of adherence to medications early on can be important clues to understanding the effects of psychological and situational factors on long-term health outcomes.
- As cross-sectional studies have limitations, structured follow-ups are strongly recommended in a longitudinal study design. It would give researchers the opportunity to see how the way the medication is taken and the state of the patient's health change or remain consistent across multiple center replications of the study, increasing the reliability (Cronbach's alpha) and validity of the scales.

Implications:

- People with anxiety and stress can become more concerned about the physical symptoms of anxiety, and see a worsening of worrying about a health crisis.
- This increased awareness may result in sub-optimal medication adherence patterns, such as side effect fears, misinterpretation of medical recommendations. These negative experiences when dealing with the illness without emotional support can lead to a loss of confidence in coping

with the illness, which can be difficult to keep blood pressure stable.

- People with hypertension who experience high psychological stress levels might develop negative thoughts about their future health and vitality, which can reduce their satisfaction with health care results. This may lead to a sense of physical restriction, general fatigue and a skewed self-perception about their own wellbeing.
- Psychological distress, poor adherence to treatment, and poor quality of life have the potential to create a difficult life for these people. Psychological symptoms can be exacerbated by the worry of future cardiovascular issues, and by the challenges of sticking to medication management routines outside the hospital, which can make it hard to take part with healthy lifestyle practices. This may eventually result in inadequate disease control, recurring complications and a constant feeling of insecurity.

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