Review Article

International Journal of Research in Pharmaceutical Sciences

Published by JK Welfare & Pharmascope Foundation Journal Home Page: www.ijrps.com

Health Related Quality of Life (HRQoL) in Hypertensive Patients

Mohammed Safeer V S, Umesh M*

Department of Pharmacy practice, JSS College of Pharmacy Mysuru, JSS Academy of Higher Education and Research, Sri Shivarathreeshwara Nagara, Mysuru- Karnataka - 570015, India

Article History:

Received on: 03 Feb 2020
Revised on: 01 Mar 2020
Accepted on: 03 Mar 2020

Keywords:

Health related quality of life (HRQoL),
Blood pressure,
Hypertension,
Questionnaire

Abstract

Hypertension also called as increased blood pressure (BP) is a chronic disorder in which BP is persistently elevated in the main systemic arteries. The main risk factor for cardiovascular disorder is hypertension. It is common in almost all countries. It makes a silent and gradual progress. Quality of life is a wide term which mainly affects the physical health, psychological condition, level of independence, social relationships and personal beliefs of a person. The HRQoL in people with hypertension can be mostly affected by the disease condition itself or due to the adverse effects of the treatment. Determining the quality of life of patients with hypertension has become an important issue. The HRQoL of hypertensive patients can be improved if the treatment and lifestyle modifications are done correctly. Counseling the patients with hypertension regarding risk factors, lifestyle modifications and medication adherence can also improve the HRQoL. Several questionnaires are available for assessing the HRQoL of people with different disorders. This questionnaire or instrument can be categorized into two types: the questionnaires for a specific disease and the general questionnaire. The SF instrument was introduced in the United States of America by the RANDS Corporation's Health Insurance researches. It has now been translated to more than 120 world languages. Short form instrument is divided into different types which includes SF-36, SF-12, SF-20 and many more. EuroQol created EQ5D as a standardized method for assessing health status to provide a clear, objective health measure for medical and economic evaluation. The EQ5D instrument comprises of three versions: EQ-5D-5L, EQ-5D-3L and EQ-5D-Y. WHOQoL- BREF, is a generic questionnaire administered on its own which contain 26 items. The MINICHAL was developed or introduced in 2001 in Spain which contains 17 questions. The word MINICHAL was obtained from "Mini Cuestionario de Calidad de Vida en Hypertensión Arterial".

*Corresponding Author

Name: Umesh M
Phone:
Email: mumesh@jssuni.edu.in

ISSN: 0975-7538

DOI: https://doi.org/10.26452/ijrps.v11i3.2576

Production and Hosted by

IJRPS | www.ijrps.com

INTRODUCTION

Hypertension also called as increased blood pressure (BP) is a chronic disorder in which BP is persistently elevated in the main systemic arteries. Hypertension is a silent killer that becomes the world's most common disease (Diana *et al.*, 2018). The main risk factor for cardiovascular disease is hypertension which is common in almost all countries with gradual and silent progression. In the developing world, the total burden of diseases related to hypertension is increas-

ing rapidly (Kearney *et al.*, 2005). Hypertension is a common chronic condition which causes 9.4 million deaths annually worldwide. Latest reports reveal that about 1 billion adults are suffering from hypertension and this amount is expected to rise to 1.56 billion by 2025. 20-40% of adult patients in India, with hypertension come from cities and 12-17% from rural locations (Kaliyaperumal *et al.*, 2016). Hypertension contributes for many of the chronic conditions, including diabetes and cardiovascular diseases (Zhang *et al.*, 2015). Hypertension incidence increased from 2.9 per 100 person-years in 1991–97 to 5.3 per 100 person-years in 2004–2009 (Liang *et al.*, 1991). Quality of life is a wide term which mainly affects the physical health, psychological condition, and level of independence, social relationships and personal beliefs of a person. The HRQoL in people with hypertension can be mostly affected by the disease condition itself or due to the adverse effects of the treatment (Wan-Fei *et al.*, 2011). Determining the quality of life of patients with hypertension has become an important issue (Kaliyaperumal *et al.*, 2016). The HRQoL of hypertensive patients are lower when compared with normal people (Trevisol *et al.*, 2011). The HRQoL of hypertensive patients can be improved if the treatment and lifestyle modifications are done correctly. Counseling the patients with hypertension regarding risk factors, lifestyle modifications and medication adherence can also improve the HRQoL (Naveen *et al.*, 2014). A Brazilian study identified complicated hypertension reduces the HRQoL (de *et al.*, 2009) while another study in South-West Nigeria described uncontrolled BP, increased symptom counts and complications as negative predictive factors for HRQoL (Wilson, 1995)

Assessment of Health related quality of life (HRQoL)

Several questionnaires are available for assessing the HRQoL of people with different disorders. These questionnaires or instruments can be categorized into two types: the questionnaires for a specific disease and the general questionnaires. The specific one asses the HRQoL for a specific disease while general ones are used for wide range of population and to asses certain aspects which includes physical and emotional well-being (Wilson, 1995; Coons *et al.*, 2000). Many methods are used to assess the HRQoL from the early literature. Some of the methods available are the Sickness Impact Profile (Kaplan *et al.*, 1998) the Quality of Well-Being Scale (Bergner *et al.*, 1981) and Medical Outcomes Study Short Forms, (Ware *et al.*, 1996, 2008). Among these instruments short form (SF) health survey is designed in a way such that it can be used as generic and disease specific instrument in smaller and larger population (Bolarinwa *et al.*, 2016).

General questionnaire for assessing HRQoL

Short form (SF)

The SF instrument was introduced in the United States of America by the RANDS Corporation's Health Insurance researches. It has now been translated to more than 120 world languages. Short form instrument is divided into different types which includes SF-36, SF-12, SF-20 and many more, where the SF-36 instrument is widely accepted and used in literature (Burholt and Nash, 2011).

SF-36

The 36 item short form (SF-36) is one of the widely used instrument for measuring HRQoL. The SF-36 instrument contains a total of 36 questions. It gives scores for 8 scales as well as physical and mental health score. The eight scales contain General Health (5 Items), Vitality (4 Items), Social Aspects (2 Items), Emotional Aspects (3 Items), Mental Health (5 Items), Functional Capacity (10 Items), Physical Aspects (4 Items), Pain (Two Items) (Kaliyaperumal *et al.*, 2016). In SF-36 instrument, based on the guidelines a score is calculated and patients having higher score indicates that the patients have better health. Several studies have been done with SF-36 instrument. Naveen et al conducted a study with SF-36 Instrument which showed that a pharmacist's intervention improved the health related quality of life (HRQoL) in patient with hypertension (Naveen *et al.*, 2014).

SF-12

SF-12 questionnaire consists of 12 questions for assessing the HRQoL, which covers all the eight domains in SF-36 questionnaire. It is a shortened version of SF-36 which can be completed within 2-3 minutes. The SF-12 physical and mental health summary measures are referred to as Physical Composite scores (PCS-12) and Mental Composite scores (MCS-12) respectively. SF-12 include 2 questions concerning physical functioning , 2 questions on role limitation because of physical health problems, 1 question on bodily pain, 1 question on general health perceptions, 1 question on vitality, 1 question on social functioning, 2 questions on role limitation because of emotional problem and 2 questions on general mental health. PCS was assessed based on the physical quality of life and SF-12 questionnaire by taking health and working status throughout the day. MCS was assessed based on the mental quality of life and emotional status of the patient based on SF-12 questionnaire by taking the energy status

throughout the day (Ware *et al.*, 1996).

SF-20

The SF-20 was developed as part of the Medical Outcomes Survey (MOS) in 1988. It was first published in the journal Medical Care as the MOS short form general health survey. This questionnaire measures the health in 6 fields. It includes physical function (6 questions), perceptions of health (5 questions), functioning of roles (2 questions), mental health (5 questions), pain (1 question) and social functioning (1 question). Scores are calculated in each domain from 0 % to 100%, where 0% indicates that subject is having poor health and 100% indicates that the subject is having perfect health. The reliability and validity of short form (SF-20) questionnaire was first introduced in the Journal of American Medical Association (Stewart *et al.*, 1988; Carver, 1999).

SF-8

SF-8 is a derivative of SF-36, an easier instrument to determine the health related quality of life (HRQoL). SF-8 covers 8 domains same as that of SF-36 where each domain has a single question. The domains in SF-8 are General Health, Physical Aspects, Social Aspects, Emotional Aspects, Mental Health, Functional Capacity, Vitality and Pain. The subject or the participant should answer the following 8 questions and a score is calculated based on the guidelines. Higher the score of the subject indicates that patient or the subject is having better health (Ware *et al.*, 2008). Malak Khalifeh et al conducted a research with SF-8 instrument in Lebanon patients having hypertension and came to a conclusion that the health related quality of life (HRQoL) in patients with hypertension is low when compared with normal people (Khalifeh *et al.*, 2015).

EQ5D

EuroQol created EQ5D as a standardized method for assessing health status to provide a clear, objective health measure for medical and economic evaluation. The EQ5D instrument was developed to measure health status in different disease areas. The EQ5D instrument is translated to most of the major languages. The EQ5D instrument is a questionnaire that requires just a few minutes to finish. The EQ5D instrument is available in both paper and electronic version. The EQ5D instrument comprises of three versions: EQ-5D-5L, EQ-5D-3L and EQ-5D-Y (EuroQol, 1990).

EQ-5D-3L

This model was developed in 1990. It is one of the widely used method for measuring health related quality of life (HRQoL). This model is found in more than 180 world languages. The EQ-5D-3L contains two parts: EQ5D descriptive part (questionnaire) and EQ5D visual analogue scale (EQ VAS) part. The EQ-5D-3L consists of five domains: Self-care, usual activities, pain/discomfort, anxiety/ depression and mobility. All these five dimensions have three sub categories: no problem, some problem and extreme problem. The subject is asked to select the suitable option from all the five dimensions (EuroQol, 1990).

EQ-5D-5L

In order to increase sensitivity of EQ-5D-5L a research programme was implemented in 2005 (Devlin and Brooks, 2017). After much of research, it was decided by the researchers that there should be no change in the number of dimensions for a new version of EQ-5D. After several research, the researchers decided that the new version of the EQ-5D should include five levels of severity in each of the existing five EQ-5D dimensions and that it would be called the EQ-5D-5L (Devlin and Brooks, 2017). When compared with the 3L version, the EQ-5D-5L consist of three pages – the title page, the EQ-5D-5L descriptive system and the EQ VAS . The descriptive EQ-5D-5L system has the same five dimensions as the EQ-5D-3L (MOBILITY, SELF-CARE, USUAL ACTIVITIES, PAIN / DISCOMFORT, ANXIETY / DEPRESSION). In EQ-5D-5L system, each of these five dimensions has five response levels: no problems, slight problems, moderate problems, severe problems, unable to/extreme problems. The subject or the participant is asked to select the appropriate options from the five levels and the responses are coded. The answers are coded as single-digit numbers representing the level of severity selected in each dimension. For example I have slight problem in walking about is coded as 2. The five-dimensional digits can be incorporated in a 5-digit code defining the health status of the respondent; for example, 21111 implies minor mobility dimension issues and no problems in any of the other dimensions. The EQ VAS tracks the overall current health of the respondent on a vertical graphical analog scale, calling the endpoints the worst health you can imagine and the best health you can imagine. The EQ VAS offers a quantitative measure of the patient's overall health experience (Herdman *et al.*, 2011).

EQ-5D-Y

In 2006, the EuroQol Group set up a task force to create a child-friendly version of the EQ-5D (Wille *et al.*, 2010). The working group therefore decided to develop an EQ-5D-Y child-friendly source version (standardized international English) from which all translations could be derived. After much debate, the working group decided to use the word 'Youth' as

appropriate for both children and adolescents therefore naming it as EQ-5D-Y. The EQ-5D-Y is made up of two pages–the descriptive system EQ-5D-Y and the visual analog scale EQ (EQ VAS). The descriptive system consists of the same 5 dimensions as the EQ-5D-3L, but using a child-friendly wording (mobility, self-care, usual activities, pain or discomfort, anxiety, sadness or unhappiness). Each of the 5 dimensions has 3 levels: no problem, some problem and a lot of problem. The subject or the participant is asked select suitable options and responses obtained are coded (Ravens-Sieberer *et al.*, 2010).

WHOQoL- BREF

This is a generic questionnaire administered on its own which contains 26 items. The WHOQOL-BREF is among the most widely used standardized QOL questionnaires produced simultaneously along a wide range of Member nations, making it more multi-cultural and multi-lingual than any of the existing QOL tool. All objects could be grouped into five realms on a five-point scale: general health — global (two questions), physical (seven questions), mental (six questions), social relations (three questions) and environment (eight questions). The answer choice ranges from 1 (very dissatisfied or very poor) to 5 (very pleased or very good) (WHOQoL, 1998). The score which is obtained from these five dimensions is transformed to 0 (poor health condition) and 100 (good health condition) (WHOQoL, 1996). Several studies have been conducted using WHOQoL-BREF to determine health related quality of life in hypertensive patients. Bhavit B Oza et al conducted a study using WHOQoL-BREF in hypertensive patients and concluded that important predictor of QOL in hypertensive patients is age, female sex, amount of symptoms, systolic BP and amount of co-morbidities (Oza *et al.*, 2014). Uchmanowicz B et al conducted a study using WHOQoL-BREF in hypertensive patients showed that there is a relation between adherence to medication and quality of life. It concluded with an increase in QOL the level of adherence also increases (Uchmanowicz *et al.*, 2018).

Specific questionnaire for assessing HRQoL in hypertensive patients

MINICHAL

The MINICHAL was developed or introduced in 2001 in Spain which contains 17 questions. The word MINICHAL was obtained from "Mini Cuestionario de Calidad de Vida en Hipertensión Arterial". It is made up of two categories: psychological (nine questions) and somatic (seven questions). The cognitive area contains questions from 1-9 and consists of 0-27 points. The somatic area contains questions from 10-16 and ranges between 0 and 21 points. The final question gives an overall effect of quality of life in hypertensive patients. The scale used is Likert scale which contain four possible answers: (0 = No, not at all; 1 = yes, somewhat; 2 = yes, a lot; 3 = yes, very much). The total point of the scale ranges between 0 to 51 where 0 indicates perfect level of health and 51 indicates the poor level of health (Schulz *et al.*, 2008) (Schilz et al, 2008). Studies have been conducted with MINICHAL to determine the health related quality of life in patients with hypertension. Bhavit B Oza et al conducted a study using MINICHAL in hypertensive patients and concluded that the important predictor of QOL in hypertensive patients is age, female sex, No of symptoms, systolic BP and No of co-morbid conditions (Oza *et al.*, 2014).

CONCLUSION

Hypertension is a medical condition in which the pressure of blood in the main systemic artery is persistently elevated. Studying the HRQoL in patients with hypertension is important. For studying the HRQoL in hypertensive patients, various questionnaires are available in the market. The questionnaires available can be general or specific to a particular disease. The various questionnaire available includes: General (short form (SF) questionnaire, EQ5D, WHOQoL-BREF) and specific (MINICHAL). Various factors can contribute to the HRQoL in patients with hypertension which includes medications given for the treatment, adverse effects of the treatment, medication adherence etc. Determining the HRQoL in patients with hypertension helps in identifying various factors contributing to poor health. Thus, health care professional can counsel the patient on various factors affecting the health and thereby improving the health of patient and preventing further complication of the disease.

Conflict of Interest

None.

Funding Support

None.

REFERENCES

Bergner, M., Bobbitt, R. A., Carter, W. B., Gilson, B. S. 1981. The Sickness Impact Profile: Development and Final Revision of a Health Status Measure. *Medical Care*, 19(8):787–805.

Bolarinwa, O., Ameen, H., Sanya, E., Kolo, P., Durowade, K., Uthman, M.-M., Ogunmodede, J., Biliaminu, S., Odeigah, L., Akande, T. 2016. Pattern

and predictive factors of health-related quality of life of patients with hypertension, diabetes and concomitant hypertension with diabetes in Ilorin, Nigeria. *Nigerian Postgraduate Medical Journal*, 23(4):182–182.

Burholt, V., Nash, P. 2011. Short Form 36 (SF-36) Health Survey Questionnaire: normative data for Wales. *Journal of Public Health*, 33(4):587–603.

Carver, D. 1999. Validity and reliability of the Medical Outcomes Study Short Form-20 questionnaire as a measure of quality of life in elderly people living at home. *Age and Ageing*, 28(2):169–174.

Coons, S. J., Rao, S., Keininger, D. L., Hays, R. D. 2000. A Comparative Review of Generic Quality-of-Life Instruments. *PharmacoEconomics*, 17(1):13–35.

de, G. J. L., Mion, D., Pierin, A. M. G. 2009. Health-related quality of life and blood pressure control in hypertensive patients with and without complications. *Clinics*, 64(7):619–620.

Devlin, N. J., Brooks, R. 2017. EQ-5D and the EuroQol Group: Past, Present and Future. Applied Health Economics and Health Policy. 15(2):127–137.

Diana, R., Khomsan, A., Nurdin, N. M., Anwar, F., Riyadi, H. 2018. Smoking Habit, Physical Activity and Hypertension Among Middle Aged Men. *Media Gizi Indonesia*, 13(1):57.

EuroQol 1990. EuroQol - a new facility for the measurement of health-related quality of life. *Health Policy*, 16(3):199–208.

Herdman, M., Gudex, C., Lloyd, A., Janssen, M., Kind, P., Parkin, D., Bonsel, G., Badia, X. 2011. Development and preliminary testing of the new five-level version of EQ-5D (EQ-5D-5L). *Quality of Life Research*, 20(10):1727–1736.

Kaliyaperumal, S., Hari, S., Siddela, P., Yadala, S. 2016. Assessment of Quality of Life in Hypertensive Patients. *Journal of Applied Pharmaceutical Science*, 6(5):143–147.

Kaplan, R., Ganiats, T., Sieber, W., Anderson, J. 1998. The quality of well-being scale: critical similarities and differences with SF-36. *International Journal for Quality in Health Care*, 10(6):509–520.

Kearney, P. M., Whelton, M., Reynolds, K., Muntner, P., Whelton, P. K., He, J. 2005. Global burden of hypertension: analysis of worldwide data. *The Lancet*, 365(9455):217–223.

Khalifeh, M., Salameh, P., Hajje, A. A., Awada, S., Rachidi, S., Bawab, W. 2015. Hypertension in the Lebanese adults: Impact on health related quality of life. *Journal of Epidemiology and Global Health*, 5(4):327–336.

Liang, Y., Liu, R., Du, S., Qiu, C. 1991. Trends in incidence of hypertension in Chinese adults. *International Journal of Cardiology*, 175(1):96–101.

Naveen, B., Mahaboojan, M., Padmanabha, Y. R., Goruntla, N. 2014. Impact of clinical pharmacist mediated patient counselling on health related quality of life in hypertensive patients. *Indian Journal of Pharmacy Practice*, 7(1):34–40.

Oza, B. B., Patel, B. M., Malhotra, S. D., Patel, V. J. 2014. Health related quality of life in hypertensive patients in a tertiary care teaching hospital. *The Journal of the Association of Physicians of India*, 62(10):22–29.

Ravens-Sieberer, U., Wille, N., Badia, X., Bonsel, G., Burström, K., Cavrini, G., Devlin, N., Egmar, A.-C., Gusi, N., Herdman, M., Jelsma, J., Kind, P., Olivares, P. R., Scalone, L., Greiner, W. 2010. Feasibility, reliability, and validity of the EQ-5D-Y: results from a multinational study. *Quality of Life Research*, 19(6):887–897.

Schulz, R. B., Rossignoli, P., Correr, C. J., Fernández-Llimós, F., de Toni, P. M. 2008. Validação do mini-questionário de qualidade de vida em hipertensão arterial (MINICHAL) para o português (Brasil). *Arquivos Brasileiros de Cardiologia*, 90(2):139–144.

Stewart, A. L., Hays, R. D., Ware, J. E. 1988. The MOS Short-form General Health Survey. *Medical Care*, 26(7):724–735.

Trevisol, D. J., Moreira, L. B., Kerkhoff, A., Fuchs, S. C., Fuchs, F. D. 2011. Health-related quality of life and hypertension: a systematic review and meta-analysis of observational studies. *Journal of Hypertension*, 29(2):179–188.

Uchmanowicz, B., Chudiak, A., Mazur, G. 2018. The influence of quality of life on the level of adherence to therapeutic recommendations among elderly hypertensive patients. *Patient Preference and Adherence*, Volume 12:2593–2603.

Wan-Fei, K., Hassan, S., Syed, Latiff, L. 2011. Comorbid conditions and health-related quality of life among hypertensive patients. *Healthmed*, 5:180–186.

Ware, J. E., Kosinski, M., Bjorner, J. B., Turner-Bowker, D. M., Gandek, B., Maruish, M. E. 2008. SF-36v2 Health Survey: Administration guide for clinical trial Investigators. *QualityMetric Incorporated*, pages 1–34.

Ware, J. E., Kosinski, M., Keller, S. D. 1996. A 12-Item Short-Form Health Survey. *Medical Care*, 34(3):220–233.

WHOQoL 1996. WHOQoL-BREF: introduction, administration, scoring and generic version of the assessment: field trial version, December 1996,

Geneva.

WHOQoL 1998. Development of the World Health Organization WHOQoL-BREF Quality of Life Assessment. *Psychological Medicine*, 28(3):551–558.

Wille, N., Badia, X., Bonsel, G., Burström, K., Cavrini, G., Devlin, N., Egmar, A.-C., Greiner, W., Gusi, N., Herdman, M., Jelsma, J., Kind, P., Scalone, L., Ravens-Sieberer, U. 2010. Development of the EQ-5D-Y: a child-friendly version of the EQ-5D. *Quality of Life Research*, 19(6):875–886.

Wilson, I. B. 1995. Linking clinical variables with health-related quality of life. A conceptual model of patient outcomes. *JAMA: The Journal of the American Medical Association*, 273(1):59–65.

Zhang, J. T., Chen, K. P., Guan, T., Zhang, S. 2015. Effect of aliskiren on cardiovascular outcomes in patients with prehypertension: a meta-analysis of randomized controlled trials. Drug Design. *Development and Therapy*, 9:1963–1971.