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Adherence and quality of life measurement in NCDs

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Executive summary

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Introduction and rationale

This report is part of the work of the "Adherence and quality of life measurement in NCDs" project, which was launched in late 2019 and was undertaken by the Institute of Political, Economic & Social Research (IPOKE).

Non-adherence to treatment is often cited as crucial contributor to the waste of healthcare resources. WHO defines adherence in chronic conditions as "the extent to which a person's behaviour—taking medication, following a diet and/or executing lifestyle changes—corresponds with agreed recommendations from a health care provider. Poor adherence leads to suboptimal health outcomes and increased avoidable morbidity and mortality as well as to considerable additional healthcare costs, being instrumental to the inefficiency of health systems. Understanding the association between patients' health-related quality of life (HRQOL) and their chronic conditions is important, as it provides the tools to develop better management strategies for these diseases. Improving performance while respecting budget constraints and increasing value from available health system resources appears to be the only viable option for attaining health policy goals in the long-term.

Objectives

The primary objective of this research report and the overall project is:

- ✓ To investigate the impact of medication adherence on patients' health-related quality of life (HRQoL).

More specifically, this project will focus its adherence investigation on three specific disease groups:

Diabetes,

Hypertension, and

Hyperlipidemia.

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The secondary objectives of the overall project are as follows:

1. To assess the HRQoL and its determinants for each of the above patient groups.
2. To investigate the prevalence and the determinants of medication adherence for each of the above patient groups.
3. Training health professionals (doctors, nurses and pharmacists) in Health Economics, outcome measurement and Health Technology Assessment, with respect to the findings of this study.

The findings and the recommendations of this project are intended for the use of policy makers and healthcare managers seeking to improve the performance and economic efficiency of health units and health systems in general, particularly in Greece. Furthermore, health care professionals and/or caregivers of patients with diabetes, hypertension or hyperlipidemia, including specialists and primary care physicians, nurses and nurse practitioners, physicians' assistants, educators and dietitians, can employ this report as a useful reference in their daily work.

Methodology

This is a multicenter, cross-sectional, non-interventional study, which was conducted between October 2019 and April 2021 in Greece using a consecutive sampling method. Participants were recruited from patients attending the outpatient departments of different general public and private hospitals, community pharmacies and private practices, and from patient groups and medical societies. A structured questionnaire was developed specifically for this study based on a comprehensive review of the international literature. Data were collected on: i) sociodemographics, ii) clinical characteristics, iii) patients' information channels, iv) beliefs of patients about medicines and their disease by using the Beliefs about Medicines Questionnaire (BMQ) and the Brief Illness Perception Questionnaire (BIPQ), v) doctor-patient relationship, vi) medication adherence behaviour, which was investigated with the last 7 days adherence, the Adherence to Refills and Medications Scale (ARMS) questionnaire and the Adherence Starts with Knowledge 20 (ASK-20) questionnaire, and vii) HRQoL, which was evaluated with the EQ-5D-5L questionnaire.

Descriptive statistics were performed to characterize the sample. The univariate associations were explored with parametric and non-parametric tests. The Pearson and the Spearman correlation coefficients were employed to assess the linear correlations between adherence and HRQoL

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measures. Binary backwards stepwise logistic regressions were performed to predict low adherence separately in each patient group, as it was measured with the ARMS summary score. Furthermore, multiple linear regression analyses using robust standard errors were carried out to identify the variables that were significantly associated with the EQ-5D-5L VAS in each patient group.

Results

In total, this survey used and analyzed data concerning 1702 patients: 518, 721 and 463 for the diabetes, hypertension and hyperlipidemia patient groups, respectively.

Medication adherence

Our study confirmed the suboptimal adherence in chronic conditions. In particular:

- Perfect medication adherence during the last 7 days prior to the interview was reported by only 71.4%, 59.2% and 46.4% for diabetes, hypertension and hyperlipidemia, respectively.
- According to the results of the ARMS instrument, only 15.8%, 12.2% and 11% of diabetic, hypertensive and hyperlipidemic patients could be considered to be perfectly adherent in the long-term. For comparison reasons, we also used the median of the ARMS summary score for the total sample as a cut-off to differentiate between low and high adherence. Low adherence was again more frequent in hyperlipidemia (66.7%), followed closely by hypertension (61.3%), whereas the poor compliance rate was much lower for diabetes (38.8%).
- The ASK-20 instrument was used to identify potential barriers to medication adherence. The mean ASK-20 summary score and TBC scale were higher for hyperlipidemia compared with hypertension and diabetes, suggesting the presence of greater barriers to adherence in this patient group.

Regarding the results of the binary logistic analysis of low adherence as dependent variable:

Lower age, no health insurance or only private, type 2 DM, a lower EQ-5D-5L VAS score and stronger concerns than ideas about the necessity of antidiabetic medications were associated with a higher likelihood of low medication adherence in diabetes.

- Female gender, higher age, better economic status, public health insurance, marriage, living alone, not smoking, controlled blood pressure, no comorbidities, fewer number of

total medications, knowledge adequacy about the disease and its medication treatment, positive attitude towards antihypertensive medicines and lengthier consultation visits were all significantly and independently associated with lower likelihood of poor adherence in hypertension.

- Finally, the likelihood of lower adherence in hyperlipidemia was larger for females, lower age, worse economic status, tertiary education, no health insurance or only private, being a smoker, more frequent drinking, less exercising, high levels of LDL, low levels of HDL and triglycerides, 3 total medications, negative attitude towards antihyperlipidemic medicines, more benign view of hyperlipidemia and low satisfaction with physician consultation.

Health-related quality of life

The average HRQoL of patients was better in diabetes (mean EQ-5D-5L index: 0.79 ±0.20) compared with hypertension (mean EQ-5D-5L index: 0.75 ±0.22) and hyperlipidemia (mean EQ-5D-5L index: 0.73 ±0.20). This can be explained by the much higher mean age as well as the more prevalent multimorbidity in the groups of hypertension and hyperlipidemia. It is noteworthy that anxiety/depression was the HRQoL domain that was found to be the most impaired in all three conditions. The results concerning the univariate associations between the EQ-5D-5L index and VAS and categories defined by the last 7 days adherence and the ARMS summary score were sometimes inconsistent and in most instances not statistically significant. In almost all cases, statistically significant larger mean EQ-5D-5L index and VAS scores were found in the ASK-20 low adherence barriers groups compared with the high adherence barriers groups. As far as the bivariate associations are concerned, in most cases a positive and statistically significant correlation was found between HRQoL and medication adherence scales, although the effect size was small to medium.

Regarding the linear regression models that investigated the factors that independently influence the EQ-5D-VAS in each patient group:

- Female gender, economic inactivity or unemployment, obesity, long duration of the disease, type 2 DM, presence of at least 2 comorbidities, uncontrolled blood glucose levels and medication non-adherence were found to independently decrease and vocational education to increase VAS in diabetes.

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- Females, 60-69 age group, vocational education and overweight were independently associated with higher VAS, whereas economic inactivity or unemployment, obesity, longer duration of hypertension, presence of comorbidities and medication non-adherence were negatively influencing VAS in hypertension.

- Finally, female gender and higher education were significantly increasing VAS, while obesity, long duration of disease, having at least 2 comorbidities and medication non-adherence were significantly decreasing VAS.

Interpretation

In general, the current study demonstrated that higher medication adherence was independently associated with better HRQoL and overall health. Hence, efforts to improve treatment outcomes in a sustainable way require a better understanding of the particular barriers to and facilitators of medication adherence. Medication non-adherence is an important contributor to morbidity, mortality and waste of resources throughout the world. Our results confirmed the suboptimal medication adherence in diabetes, hypertension and hyperlipidemia patients in Greece. An interesting finding of our study was the higher rate of medication adherence around the time of the clinic visit compared with the long-term adherence. This provides evidence of the existence of the white coat adherence phenomenon, that should be considered when measuring adherence. Notably, non-adherence was more prevalent in hypertension and hyperlipidemia, which are mainly asymptomatic conditions. Furthermore, medication adherence constitutes a complex behavioural issue, which is influenced by multiple factors that affect non-adherence in different ways across chronic conditions. It is important to draw a distinction between intentional and the unintentional aspects of medication non-adherence. Whether adherence-enhancing interventions are worthwhile can only be determined after careful consideration of both costs and benefits of adherence. Nevertheless, more patient-centered interventions and establishing a partnership between health professionals and patients are needed to improve treatment adherence. It is necessary to involve patients in the decision-making process and to promote medication adherence during routine clinical consultations. Also, interventions are needed that change patients' negative attitude toward their treatment and promote their knowledge about their disease and medications. However, far greater attention should also be given to structural barriers as well, as it was illustrated by the consistent negative impact of the absence of health insurance on medication adherence.

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