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Abstract

Background: Evidence about the magnitude and determinants of medication intake adherence among patients and the general population in Southeastern Europe is scant.

Aims: To assess the prevalence and sociodemographic correlates of medication intake adherence among adult primary health-care (PHC) users in Albania.

Methods: A cross-sectional study was conducted in 2018–2019 in a representative sample of 1553 adult PHC users (response: 94%) selected probabilistically from 5 major regions of Albania. There were 849 (55%) women and 704 (45%) men, with a mean age 54.6 (16.4) years. A structured interviewer-administered questionnaire inquired about medication intake adherence prescribed by family physicians, and sociodemographic characteristics. Binary logistic regression was used to assess the sociodemographic correlates of medication intake adherence.

Results: Three hundred (19.8%) participants did not take the prescribed medication. In multivariable-adjusted logistic model, significant correlates of nonintake of medication included rural residence, low educational level, unemployment and low economic level. Among these 300 participants, 273 (91%) considered the high cost of the drugs as a reason for not taking the

medication.

Conclusion: We found a high prevalence of nonintake of medication prescribed by family physicians. Decision-makers and policy-makers in Albania and elsewhere should consider the provision of essential drugs free of charge or at low cost to low socioeconomic groups and other vulnerable and marginalized population categories, because the costs of noncompliance will eventually be higher.

Keywords: Albania, cost-related nonadherence, medication adherence, primary health care, sociodemographic factors.

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Introduction

Health and pharmaceutical policies aim to achieve full coverage of all expenditure, including services and medications (1,2). Hence, effective reimbursement schemes are established globally to minimize out-of-pocket (OOP) expenditure, mainly for prescription-only drugs (3,4). Inability to achieve full coverage of expenses leads to copayments (5,6). Copayments for pharmaceuticals and other healthcare services, which are usually used by health insurers to reduce costs (4,7), may nevertheless incur a heavy financial burden on the population (4,8). This may be especially true in low socioeconomic groups and vulnerable populations that usually suffer the most (8,9).

Medication intake adherence is similar to adherence to medication, but different from compliance, and is the ability of patients to follow healthcare professionals' advice concerning dose regimen, route of administration, and interactions (10,11). There are many reasons for medication nonadherence. Older adults may forgo medication because of cost-related concerns, including lack of adequate prescription coverage by insurance programmes and OOP costs (12,13). Older age, female sex and unemployment may increase nonadherence, even after adjusting for possible confounding variables (14). Healthcare providers consider that educated patients are more likely to be adherent than their less-educated counterparts (14). Arguably, if a patient is highly educated, they should be able to receive the information and stick to it (15). Cost-related nonadherence (CRNA) may be defined as having no access to necessary medication because of limited personal financial resources (16,17).

Albania is a transitional country in the Western Balkans, characterized in the past few decades by rapid political and socioeconomic changes that have been associated with deleterious health effects (18,19). There has been a considerable change in the epidemiological profile of Albania, with a marked increase in noncommunicable diseases (20,21). The main risk factors responsible for the overall burden of disease include arterial hypertension, dietary factors and smoking (20,21). In Albania, medical reimbursement is based on the type of patients and medication prescribed (22,23). Not all patients are entitled to full reimbursement for medication because of their category, or because some specific drugs may not be part of the government-approved reimbursement list (24). Regardless of the situation involving medication intake (prescribed vs over the counter), there are many cases where Albanian patients must make copayments (8,25). Many patients are sensitive to even modest increases in OOP expenses (2), whereas others do not reduce their medication because of cost concerns, even when they have a limited ability to pay (17). This situation often raises the question of whether to take the medication prescribed, mainly because of financial reasons (9,26,27).

There is scant evidence about the scale and determinants of medication adherence among Albanian patients at different levels of care, as well as in the general population. The issue of nonadherence to prescribed medication may be of particular concern to several vulnerable and marginalized population subgroups, especially those of low socioeconomic status (21). Such information is necessary to evaluate the implementation of ongoing reforms aimed at ensuring universal health coverage of the Albanian population (21).

The aim of our study was to assess the prevalence and sociodemographic correlates of medication intake adherence among adult primary healthcare (PHC) users in postcommunist Albania. We hypothesized a significantly higher prevalence of medication intake adherence among PHC users with higher socioeconomic status (employed, highly educated and wealthier individuals), and lower adherence among older patients and those with lower socioeconomic status.

Methods

Study design

A cross-sectional study was conducted of PHC users in 5 major regions of Albania (Tirana, Shkoder, Vlore, Fier and Diber) during December 2018–January 2019.

Study population and sampling

We recruited a representative sample of male and female PHC users aged ≥ 18 years in urban and rural areas of Albania, using a stratified, 2-stage cluster sampling technique in which a region was a stratum and a PHC centre was a cluster.

Based on different conservative assumptions about the prevalence and several sociodemographic correlates of medication adherence among PHC users in Albania, the anticipated minimal sample size was ~870 participants [the significance level (2-tailed) was set at 5%, and the power of the study at 80%]. Sample size was calculated using WINPEPI (28). To account for nonresponse and to increase the study power, allowing for additional and more refined hypothesis testing, we targeted recruitment of 1500 individuals aged ≥ 18 years (500 in Tirana and 250 in each of the other 4 regions).

In Tirana, 2 PHC centres (with probability proportional to size; PPS) were selected in urban areas and 2 in rural areas (also, with PPS). Conversely, in each of the other 4 regions, 1 PHC centre (with PPS) was selected in urban areas and another (with PPS) in rural areas. In each of the 12 selected PHC centres, consecutive samples of PHC users of both sexes aged ≥ 18 years were recruited until the anticipated quota was (at least) reached: 500 individuals in Tirana region (250 each in urban and rural areas) and 250 individuals in each of the other 4 regions (125 each in urban and rural areas). During data collection between December 2018 and January 2019, there were 1649 eligible individuals, and 96 were not included in the study: 39 were too sick to be interviewed, and 57 refused to participate. Hence, the study included 1553 individuals: 704 men and 849 women; overall mean age: 54.6 (16.4) years. The overall response rate was 94.2%.

Data collection

A structured interviewer-administered questionnaire was given to all individuals who agreed to participate. There were 15 interviewers involved in the field work in the 5 regions. All study participants were asked about adherence to medication prescribed by their family physicians. A total of 1516 individuals (98%) provided information about adherence to prescribed medication, whereas the remaining 37 were not prescribed medication. Three hundred participants who

reported nonintake of medication prescribed by their family physicians were additionally asked to indicate which of the following 3 reasons were responsible for not taking the prescribed medication: high cost of the medication; treatment negligence (forgetting and/or skipping intake); and mistrust in the effectiveness/quality of the medication prescribed.

Demographic data included age (trichotomized into:

Before conducting the survey, the whole questionnaire was initially pretested in November 2018 in 2 PHC centres in urban and rural areas of Tirana region. All survey questions were clearly understood by participants in different sociodemographic categories. The pretesting revealed comparable participation rates (95–97%) among different demographic and socioeconomic groups.

Ethics

The study was approved by the Albanian Committee of Bio-Medical Ethics in November 2018. All participants included in this analysis gave their consent after being informed about the aims and procedures of the study.

Data analysis

Fisher's exact test was used to compare the distribution of sociodemographic characteristics of PHC users by medication adherence based on the prescriptions provided by their respective family physicians. Binary logistic regression was used to assess the demographic and socioeconomic correlates (predictor variables) of medication adherence (outcome variable) among survey participants. Initially, crude (unadjusted) odds ratios (ORs: nonintake vs intake of medication prescribed by family physicians), their respective 95% confidence intervals (95% CIs) and P values were calculated. Subsequently, multivariable-adjusted logistic regression models were constructed, controlling simultaneously for all the sociodemographic factors (age, sex, marital status, residence, education, employment and economic status). Multivariable-adjusted ORs, their respective 95% CIs and P values were calculated. The multivariable logistic regression model met the goodness-of-fit criterion as appraised by the Hosmer–Lemeshow test (29). For all statistical tests, $P \leq 0.05$ was considered statistically significant. All statistical analyses were performed using SPSS version 19.0.

Results

The overall response rate was 94.2%. About 23% of study participants were aged 18–40 years, whereas 33% were ≥ 65 years. About 82% of individuals were married; ~58% were urban residents; ~43% had a low educational attainment (≤ 8 years of formal schooling); whereas ~23% had a higher educational level (≥ 13 years of formal schooling); ~29% were unemployed.

The prevalence of self-perceived low economic status was 30% (data not shown).

Overall, 1516 individuals (98% of participants) provided information on adherence to medication prescribed by their respective family physicians (37 individuals were not prescribed medication). Of these, 1216 (80.2%) reported intake of the medication prescribed by their family physicians, whereas the remaining 300 (19.8%) did not take the prescribed medication. An analysis restricted to participants aged ≥ 55 years revealed a prevalence of nonintake of 18%.

Table 1 presents the sociodemographic characteristics of 1516 PHC according to medication adherence. There was no significant difference in prevalence of medication adherence between men and women, or married versus unmarried individuals. Conversely, the prevalence of medication adherence was significantly higher among older participants (≥65 years) than their middle-age (40–64.9 years) counterparts. The prevalence of medication adherence was significantly higher among urban than rural residents; among participants with higher educational attainment than in those with a low educational level; among employed compared to unemployed individuals; and among individuals with a middle and/or high economic status compared with low economic status.

In crude (unadjusted) logistic regression models (Table 2), there was evidence of a positive and significant association of medication nonadherence with middle age (40–64.9 years), rural residence, low education level, unemployment and, in particular, economic level. In multivariable-adjusted logistic regression models, significant correlates of medication nonadherence were: nonmarried status, rural residence, low education level, unemployment, and especially, low economic status. About 22% of medication nonadherence was explained by the sociodemographic factors introduced into the multivariable-adjusted logistic regression models.

Among 300 participants who reported nonintake of medication prescribed by their respective family physicians (19.8% of the overall sample of 1516 individuals with valid data on medication adherence), 91% considered the high cost of the drugs as the main reason for not taking the medication (Table 3). Additionally, ~48% of participants reported negligence (forgetting and/or skipping intake of medications) as the second major reason for not taking the prescribed medication. Furthermore, 46% of these participants stated that mistrust in the effectiveness (quality) of the drugs prescribed was the third major reason for not taking the medication. Interestingly, 45% of participants in this subsample reported all 3 reasons for nonintake of medication prescribed by their family physicians. Conversely, there were 7 (2.3%) participants who did not report any reasons for not taking the medication.

Discussion

This study of a large and almost representative sample of PHC users in Albania showed a high prevalence of nonintake of medication prescribed by family physicians (18% in men and 21% in women). One out of 5 PHC users in not receiving their prescribed medication is a cause for concern. Significant independent correlates of nonintake of medication included rural residence, low educational level, unemployment and, in particular, low economic status. Importantly, these findings persisted upon adjustment for a wide range of demographic characteristics and socioeconomic factors. Evidently, poor and unemployed people can afford less to buy the prescribed drugs. Several socioeconomic factors included in logistic regression models were interconnected (e.g., individuals residing in urban areas or those with a higher education had more possibility to find a job and were less likely to be poor). Nonetheless, each of the 3 main socioeconomic factors (education, employment and economic status) turned out to be independent correlates of medication adherence in multivariable-adjusted models. Therefore, regardless of potential collinearity (a condition in which independent variables are highly correlated), each of these 3 key socioeconomic factors was a strong and significant independent predictor of medication adherence in this study population.

Similar to our findings, a previous study has reported no effect of sex, age, place of residence, body mass index, income, smoking, alcohol consumption, comorbidity and disease activity on medication adherence (30). On multivariate analysis, the predictors of adherence were the combined category of education, occupation and socioeconomic status, and disease duration (30). Another study showed that sex and socioeconomic status do not appear to influence nonadherence (14). Several studies have shown reduced adherence in ethnic minorities. Factors that may predict nonadherence include forgetfulness, illiteracy, inability to understand the purpose of treatment, not perceiving the treatment as necessary, lack of trust in the treatment, a lack of knowledge about the effects of treatment (14).

Morgan and Lee have presented data on the 12-month prevalence of CRNA for medication adherence among adults aged ≥ 55 years for 11 developed countries (13). Most countries ranged between 1.6% (France) and 8.3% (Canada), except the United States of America, which was an outlier with a substantially higher prevalence of CRNA (16.8%) (13). In comparison, Albania seemed to have a higher prevalence of CRNA. Our study included individuals aged ≥ 18 years; however, an analysis restricted to participants aged ≥ 55 years revealed a prevalence of nonintake of 18%, which is still higher than in all 11 countries included in the study by Morgan and Lee (13). Of note, the outcome in the study by Morgan and Lee (12-year prevalence) was not exactly the same, but is nevertheless comparable with our operational definition of medication adherence, as they defined it as having reported CRNA at least once during the last 12 months (13). In our study, the outcome variable (medication adherence) referred to recently prescribed medication, thus, our estimate may be even higher if we include nonadherence during the past year.

Possible reasons for the higher prevalence of CRNA in Albania compared to other countries may include lack of coverage or partial coverage of drug costs by the health insurance scheme (23). Also, another driving factor may consist of the fact that medicines are relatively more expensive in Albania compared to developed countries. Indeed, assessment of prices of some defined drug categories (including antidiabetic and antihypertensive medication) in relation to the general cost of living indicates an unfavourable position of Albania compared to Western countries (26,27). The opposite is evident in countries such as the Netherlands where socioeconomic status is not a predictor of nonadherence, nonpersistence or reinitiation (31). This can be explained by the health insurance coverage of prescribed antihypertensive drugs, a study says (31). In Qatar, a study conducted regarding medication adherence among patients with uncontrolled diabetes showed that, although medicines are available at subsidized cost to Qatari and non-Qatari (only 20% of the total cost) inividuals, patients from deprived socioeconomic backgrounds found it difficult to pay for their medicines, leading to nonadherence (32). The same was shown in the study conducted on medication adherence, nonpersistence and reinitiation of antihypertensive drugs among patients on oral antidiabetic drugs in the Netherlands where, lower noadherence and nonpersistence rates can be expected, since patients are obliged to have health insurance, which covers most of the costs for prescribed antihypertensive drugs (31). A previous literature review has reported that the reduction of drug expenses through better insurance coverage can improve drug adherence (31). Although we did not assess this outcome, it is worth mentioning a study that showed that many patients reported the inability to understand the prescription or inadequate information about their treatment as a hindrance to medication adherence (30).

Our finding regarding a higher CRNA rate among people with a weaker financial background is not surprising. Nevertheless, the magnitude was remarkable (OR = 4.2 poor vs not poor). Yet, our findings are compatible with a large American study that reported higher CRNA levels associated with a weaker financial background (lower income: OR = 1.59, or difficulty to pay bills: OR = 6.63) (33).

A 2018 study reported that CRN levels were higher among younger individuals, women, poor people and those with serious mental illness (12). Conversely, a survey conducted in Israel in 2012 reported that adherent patients were comparable to nonadherent patients in their demographic and socioeconomic characteristics (34). This study also reported that about 32% of the patients did not purchase the prescribed medication mainly because of their adverse effects and/or cost (34). Instead, in our study, 91% of participants did not take the medication because of its cost. A study conducted on adherence to medication in patients with inflammatory bowel disease showed that 6% of participants did not adhere to medication due to the cost of treatment (30).

There were several limitations to the current study including the possibility of selection and information bias as wells as the study design. This study included a probabilistic nationwide sample of PHC users in several regions of Albania, which points to an almost representative sample of the adult population attending PHC services. Nonetheless, nonusers may be different from users of PHC services regarding selected sociodemographic characteristics. Therefore, our findings cannot be generalized to the overall population, but should be confined to adult PHC users in Albania. Data collection consisted of a straightforward interviewer-administered questionnaire. All the interviewers were properly trained during a 2-day intensive course, and the questionnaire was initially pretested. There was no evidence of any information bias, given the initial pretesting of the instrument and also the proper training of all the interviewers regarding data collection and recording. Nevertheless, we cannot entirely exclude the differential reporting of medication adherence and/or the reasons for nonintake between various sociodemographic groups. Many factors are associated with nonadherence and they were not included in this study. Also, we did not include individuals who were seriously ill. It would have been interesting to know whether about 20% of the seriously ill individuals would not have taken the prescribed medication for financial reasons. The specific types of medication prescribed by the family physicians were not assessed in this study. A limitation of this study relates to the impossibility of defining the threshold for taking or not taking the prescribed medication (i.e., what price was perceived as too high). It would be interesting knowing if the patients refused to take relevant or essential medicines; information which was not retrieved in the current study. Finally, associations pertinent to cross-sectional studies are not assumed to be causal and, therefore, should be interpreted with caution.

Conclusion

Our study provides valuable and novel evidence about the extent and sociodemographic determinants of medication adherence among adult PHC users in a transitional South Eastern European population. Our findings should be replicated and confirmed in future studies and in different settings. Apparently, the magnitude of nonintake of medication is primarily linked to financial constraints, affecting especially the low socioeconomic groups and other vulnerable and marginalized population categories. Decision-makers and policy-makers in Albania and elsewhere should consider the provision of essential medication free-of-charge or at very low cost to poor and lowly educated people, because the costs of noncompliance will be eventually higher.

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Competing interests: None declared.

Prévalence et corrélats sociodémographiques de l'observance thérapeutique chez les usagers des soins de santé primaires en Albanie

Résumé

Contexte : Les données sur l’ampleur et les déterminants de l’observance thérapeutique chez les patients et dans la population générale en Europe du Sud-Est sont rares.

Objectifs : Évaluer la prévalence et les corrélats sociodémographiques de l'observance thérapeutique chez les usagers des soins de santé primaires adultes en Albanie.

Méthodes : Une étude transversale a été menée en 2018-2019 auprès d'un échantillon représentatif de 1553 adultes usagers des soins de santé primaires (taux de réponse : 94 %) sélectionnés de manière aléatoire dans cinq grandes régions d'Albanie. Il s’agissait de 849 femmes (55 %) et 704 hommes (45 %), dont l’âge moyen était de 54,6 ans (16,4). Un questionnaire structuré administré par un enquêteur a permis de s'enquérir de l'observance thérapeutique pour les médicaments prescrits par les médecins de famille, et des caractéristiques sociodémographiques. La régression logistique binaire a été utilisée pour évaluer les corrélats sociodémographiques de l’observance thérapeutique.

Résultats : Trois cents participants (19,8 %) n'ont pas pris les médicaments prescrits. Dans le modèle logistique ajusté multivarié, les corrélats significatifs de la non-prise de médicaments comprenaient la résidence rurale, le faible niveau d'éducation, le chômage et le faible niveau économique. Parmi ces 300 participants, 273 (91 %) ont considéré le coût élevé des médicaments comme une raison de ne pas les prendre.

Conclusion : Nous avons constaté une forte prévalence de la non-prise de médicaments prescrits par les médecins de famille. Les décideurs et les responsables de l’élaboration des politiques en Albanie et ailleurs devraient envisager la fourniture de médicaments essentiels gratuitement ou à un coût très bas pour les groupes à faible revenu et les autres catégories de population vulnérables et marginalisées, car le coût de la non-observance sera en fin de compte plus élevé.

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