

Unravelling the association between lung function in early adulthood and the burden of lung diseases later in life: a cohort study

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Introduction

Spirometry is recommended in symptomatic smokers to identify obstructive lung diseases. However, it is unknown whether there are certain characteristics, which can be used to identify the individual risk of developing obstructive lung diseases.

Aim

The aim of this study was to examine the association between lung function in early adulthood and burden of lung diseases throughout 27 years of follow-up.

Methods

We performed a cohort study among individuals aged 30-49 years at baseline (1991). Spirometry measurements were divided into three groups: 1: FEV₁/FVC < 70, 2: FEV₁/FVC: 70 - 75, 3: FEV₁/FVC >75 (reference). Using negative binominal regression, the burden of lung disease was measured by contacts to general practice and redeemed respiratory medicine between 1991 and 2017.

Main Finding

We found an association between lung function in early adulthood and the burden of lung diseases throughout a 27-year follow-up period. In particular, adults with a FEV₁/FVC: 70 – 75 need extra attention in the case finding.

Results

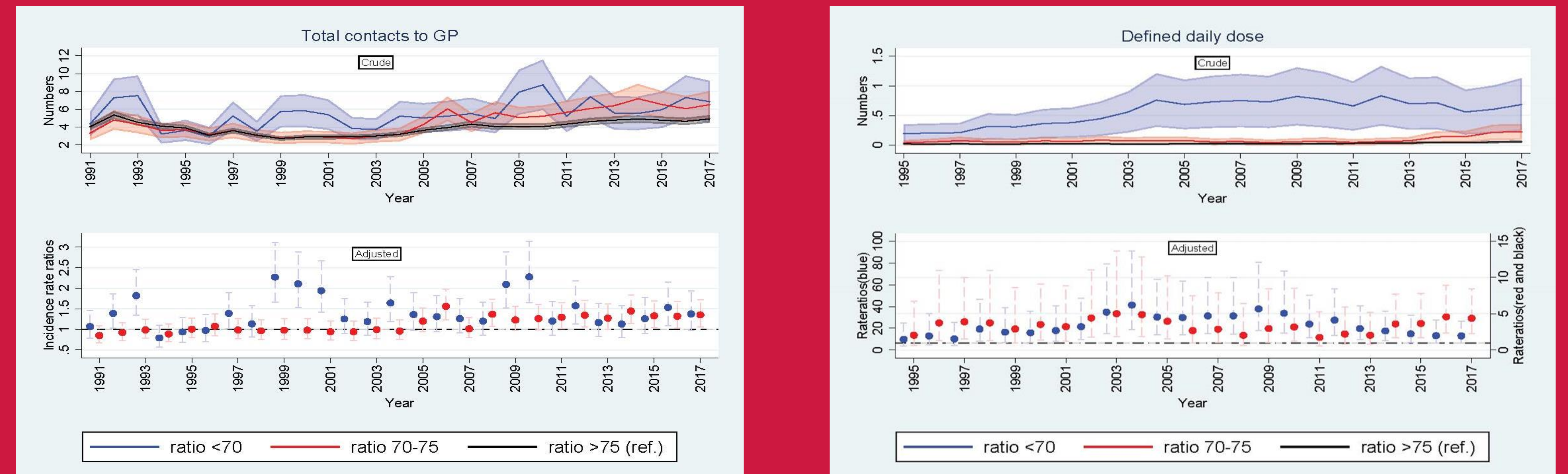


Figure 1: The graphs show the descriptive correlation between lung function at baseline and development of redeemed prescriptions for respiratory medicine(left) and number of contacts to general practitioner(right). *adjusted for sex, age, and smoking status

Lung function	Years	Crude IRR(95% CI)	Adjusted IRR(95% CI)
FEV ₁ / FVC (<70)	1991-2017	1.39(1.28;1.52)	1.40(1.28;1.54)
	2004-2017	1.44(1.30;1.59)	1.41(1.26;1.58)
FEV ₁ / FVC (70-75)	1991-2017	1.14(1.07;1.21)	1.14(1.07;1.21)
	2004-2017	1.29(1.18;1.41)	1.24(1.14;1.35)

Lung function	Years	Crude IRR(95% CI)	Adjusted IRR(95% CI)
FEV ₁ / FVC (<70)	1995-2017	20.44(16.88;24.76)	21.12(17.38;25.66)
	2004-2017	23.65(19.03;29.39)	24.02(19.34;29.84)
FEV ₁ / FVC (70-75)	1995-2017	3.01(2.40;3.77)	3.37(2.69;4.23)
	2004-2017	2.91(2.22;3.81)	3.21(2.45;4.21)

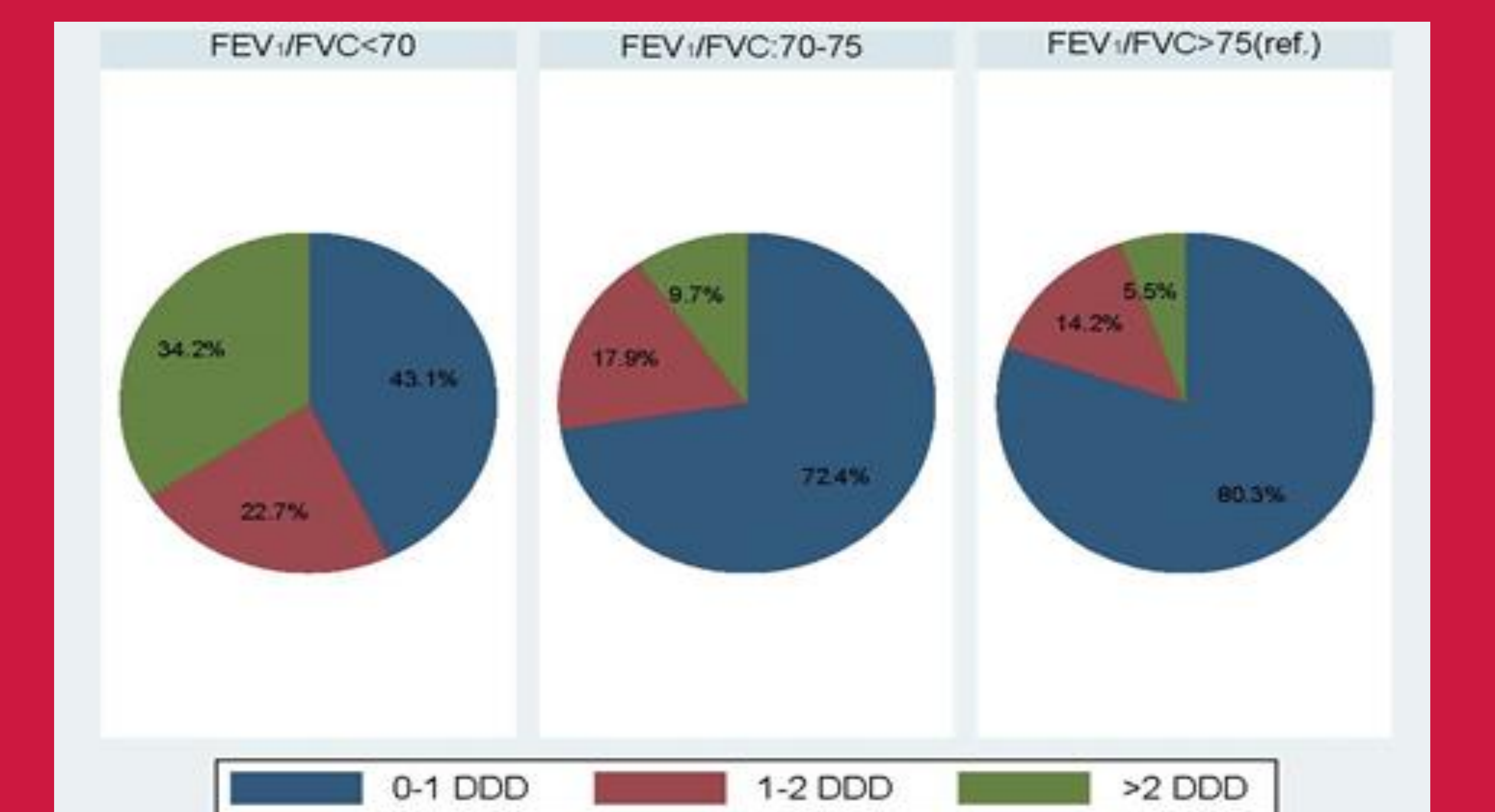
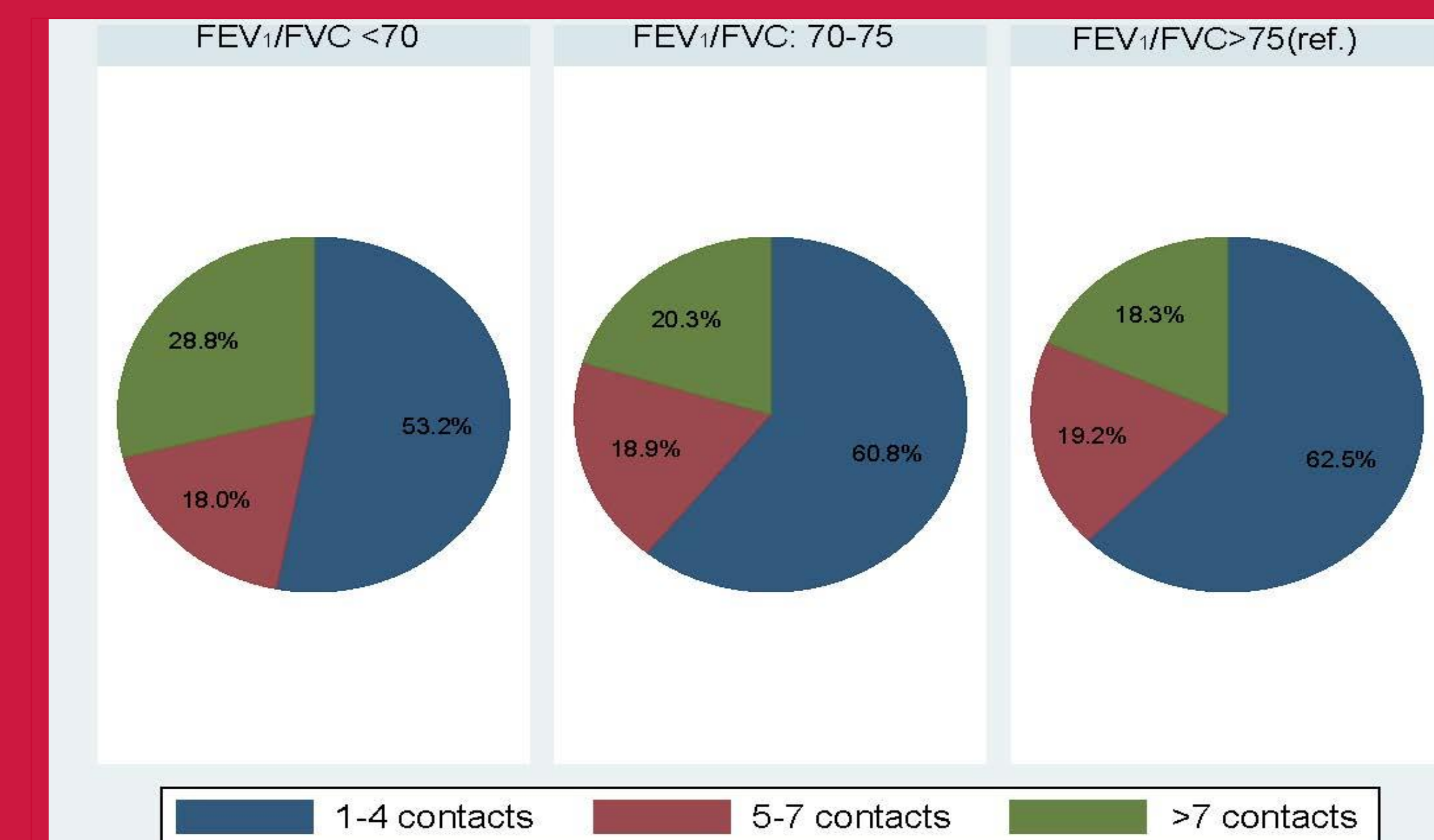


Figure 2: The distribution across the three groups is shown in percentages. To the left: the redeemed prescriptions of respiratory medicine categorised into 3 groups; 0-1 DDD, 1-2 DDD, and > 2 DDD. To the right: shows the annual number of contacts to general practice categorised into 3 groups; 1-4 contacts, 5-7 contacts, and > 7 contacts