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Applications for social security benefits related to diabetes in the working age in Italy between 2009 and 2019: a nationwide retrospective cohort study

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ABSTRACT

Objectives The aim of this study is to estimate the average number of claims for social security benefits from workers with diabetes-related disability.

Design Nationwide retrospective cohort study.

Setting The database of the Italian Social Security Institute (INPS) was used to analyse the trends and the breakdown of all claims for social security benefit with diabetes as primary diagnosis from 2009 to 2019.

Participants We selected all the applications with the 250.xx International Classification of Diseases, Ninth Revision-CM diagnosis code from 2009 to 2019.

Primary and secondary outcome measures The ratio between accepted or rejected claims for both ordinary incapacity benefit (OIB) and disability pension (DP) and total submitted claims over a 10-year period was computed.

Results From 2009 to 2019, 40 800 applications for social security benefits were filed with diabetes as the principal diagnosis, with an annual increase of 30% per year. Throughout the study decade, there was a higher rate of rejected (67.2%) than accepted (32.8%) applications. Among the accepted requests, most of them (30.7%) were recognised as OIB and the remaining 2.1% were recognised as DP. When related to the total number of claims presented per year, there was a 8.8% decrease of rejected applications, associated with a 20.6% increase of overall acceptance rate. In terms of time trends, the overall rise of submitted requests from 2009 to 2019 resulted in an increase in both rejected (+18%) and accepted (+61% for OIB, +11% for DP) applications. The higher rate of accepted requests was for workers aged 51–60 years, with 52% of admitted applications.

Conclusions Between 2009 and 2019, the number of applications for social security benefits due to diabetes in Italy increased significantly, and so did the number of applications approved, mainly represented by the OIBs.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ This is the first study that evaluates the number of social security claims with diabetes as the main diagnosis in Italy.
⇒ A long period was used for data collection at national level (11 years).
⇒ People with diabetes who applied for a social security benefits were divided according to age and work class to determine which age or working class group is most affected by diabetes.
⇒ The distinction between the two types of social security benefits provided in Italy allowed to estimate the degree of disability associated with diabetes (disability between 67% and 99% for the ordinary incapacity benefit or disability equal to 100% for the disability pension).
⇒ An important limitation of this study is the lack of information on diabetes-related complications or risk factors that lead workers to apply for social security benefits.

INTRODUCTION

Diabetes-related complications, including acute myocardial infarctions, strokes and lower extremity amputations, increased by 25% between 2010 and 2015 among young adults (aged 18–44 years) and middle-aged adults (aged 45–64 years) in the USA.[1] Accordingly, diabetes is associated with high rates of morbidity and disability due to chronic complications, particularly in the working-age population.[1 2] Between 1995 and 2017, Global Burden of Diseases data showed that diabetes moved from seventh to fourth place in Italy in terms of disability-adjusted life years, which represent the number of years lost to disease, disability and premature death.[3]

Diabetes negatively affects productivity and economic costs through reduced work capacity.[4 5] The Italian social security system (SSS) is characterised by a dual structure that provides social assistance and civil disability benefits as well as social security benefits (SSBs) in the strict sense. Regarding the

latter, the SSS provides economic benefits to workers with disabilities and chronic physical and/or mental disabilities, financed primarily by their contributions. In particular, all workers registered with the National Institute of Social Security are entitled, on application, to one of the following two SSBs: the ordinary incapacity benefit (OIB) is granted to persons whose ability to work is reduced to less than one-third (disability between 67% and 99%), and the disability pension (DP) is granted to persons who are permanently and absolutely unable to work (100%).[6] Italian Law No. 222/84[7] specifies the conditions for access to OIB and DP (online supplemental table S1). Both OIB and DP provide income protection for persons who become unable to work before they are entitled to an old-age pension.

Diabetes has received relatively little attention as a reason for claiming SSB in the working-age population, despite its importance for both health surveillance and social policy. Indeed, there are very few studies examining the rate of SSB provided by the National SSS due to diabetes. This is relevant for several reasons. First, the provision of SSB contributes to the increase in indirect costs related to diabetes, estimated at about 10 billion euros in Italy.[8] In addition, it might be useful to track the number of applications for SSB over time to evaluate the impact of diabetes on a person's ability to work; this would also allow an indirect evaluation of the effectiveness of diabetes treatment. Finally, evaluating the number of applications for SSB filed by people with diabetes over time could be used to improve the social security assessment process.

The aim of this study is to estimate the number of applications for SSB filed by Italian workers with diabetes-related work disability from 2009 to 2019. Data from the SSS of each region were collected and presented as a whole.

METHODS

Study design and data source

This is a retrospective cohort study using data from the National Institute of Social Security (Istituto Nazionale della Previdenza Sociale, INPS) database. The database contains all claims submitted for each benefit and the associated judgments (approval or rejection) by medical officers. It contains the indication of the principal diagnosis and all secondary diagnoses using the International Classification of Diseases, Ninth Revision (ICD9-CM).[9] In order for an application to be accepted or denied, INPS medical legal centres make an overall assessment of the applicant's physical and mental health. The assessment is based solely on medical forensic criteria and does not consider other socioeconomic factors.

Case definition

In this study, we examined all applications received by the INPS for recognition of a social security benefit with diabetes as the principal diagnosis. In this case, all claimants suffering from diabetes with diagnosis code 250.xx ICD9-CM were selected.

Analyses by sociodemographic characteristics

Based on these claims, the study analysed trends and breakdowns of all claims from 2009 to 2019. Further descriptive analyses were performed using additional data from the claims, such as claimant age, which was used to categorise claims by different age groups, gender and occupational class. Specifically, diabetes claimant age was used to categorise accepted claims into five age groups: <30 years, 30–40 years, 41–50 years, 51–60 years and >60 years. The purpose of this analysis was to determine which age groups are most affected by diabetes. As a result of this analysis, we were able to determine at what stage of their working lives workers and patients with diabetes are most likely to receive a SSB.

Based on the main groups protected by the INPS, a breakdown of the accepted claims by occupational category was generated. These include: (1) legislators, entrepreneurs and top managers, (2) intellectual, scientific, highly specialised occupations, (3) technical professions, (4) executive desk job occupations, (5) commercial activities and services occupations, (6) artisans, special workers and farmers, (7) plant operators, stationary and moveable machinery staff and drivers of vehicles, (8) unskilled occupations.

Descriptive statistics

Descriptive analyses were conducted to provide a framework for better understanding the characteristics of diabetics and those seeking SSB. Based on the total number of claims filed by judgement for each study year, the percentage distribution was calculated. Specifically, we calculated the ratio of approved applications (separately for both SSB) to total applications filed in the same year. We also calculated the ratio of denied applications. The purpose of these ratios was to examine the evolution of rejected and approved applications for SSB in diabetes over time, after taking into account the evolution of total applications, which certainly influenced the evolution of the absolute number of approved and rejected applications. In this analysis, we were able to observe the evolution of both the approval and denial rates over time.

This study was conducted in accordance with the REporting of Studies Conducted Using Observationally Collected Health Data (RECORD) statement.[10] The checklist RECORD is provided in (online supplemental table S2.

Patient and public involvement

We did not involve patients or the public in the planning, conduct, reporting or dissemination of our research.

RESULTS

Between 2009 and 2019, a total of 40 800 claims for SSB were filed with diabetes as the principal diagnosis. This represents an average of more than 3700 claims per year and an annual increase of 30%.

Figure 1 illustrates the overall rate of social security claims based on the final judgement. During the study

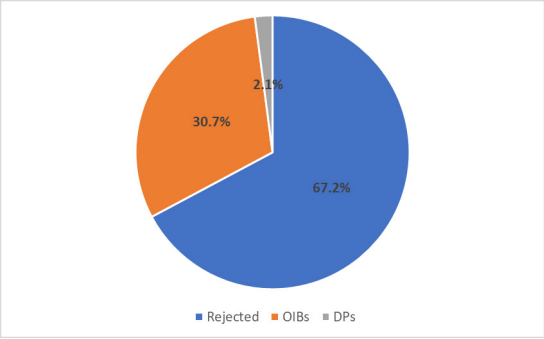

Figure 1 Percentage distribution of claims for social security benefits per final judgement with diabetes as primary diagnosis in Italy between 2009 and 2019. DP, disability pension; OIB, ordinary incapacity benefit.

decade, more applications were denied than granted. Specifically, 67.2% of applications were denied, or an average of about 2500 denied applications per year. The majority (32.8%) of accepted applications (30.7%) were approved as OIB, while only 2.1% were approved as DP. This results in an average number of approved applications per year of more than 1100 for OIB and about 80 for DP. Looking over time, the overall increase in applications submitted from 2009 to 2019 resulted in both an increase in applications denied (+18%) and applications accepted (+61%) (figure 2).

Table 1 shows the percentage distribution of applications by final judgement from 2009 to 2019. An 8.8% decrease in denied applications was accompanied by a 20.6% increase in approval rates. In terms of the type of SSB, there was a 23% increase in accepted applications for OIB and a 14.8% decrease in accepted applications for DP.

We looked at the following specific age groups to determine application acceptance: <30 years, 30–40 years, 41–50 years, 51–60 years and >60 years (figure 3). Workers aged 51–60 accounted for the largest percentage of accepted applications, with 52% of accepted applications, or approximately 600 accepted applications per year between 2009 and 2019. Workers over the age of 60 were the second largest age group, accounting for 32% of accepted applications and approximately 360 accepted applications per year, followed by workers aged 41–50, accounting for 13% of accepted applications and approximately 150 accepted applications per year. Applications from workers younger than 30 were not accepted.

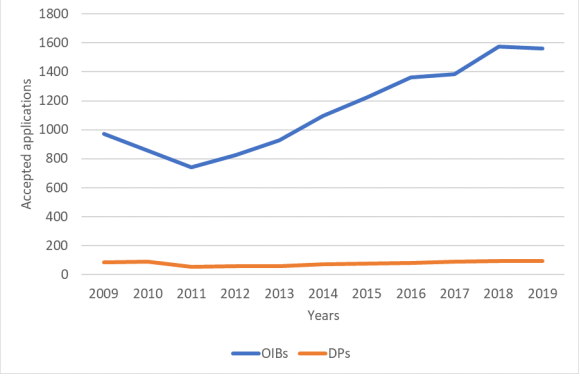

Figure 2 Time trend of accepted applications for social security benefits (OIB and DP) with diabetes as primary diagnosis in Italy between 2009 and 2019. On the vertical axis, number of accepted applications; on the horizontal axis, years. DP, disability pension; OIB, ordinary incapacity benefit.

The number of accepted applications was higher for men (971 per year) than for women (245 per year); however, between 2009 and 2019, the number of accepted applications increased by 58% for men and 51% for women (online supplemental table S3).

When analysed by working class (online supplemental table S3), 'unskilled occupations' (29% of total accepted claims) were the most important groups in terms of accepted claims, followed by 'artisans, skilled workers and farmers' (27% of total accepted claims). Both 'plant operators, stationary and moveable machinery staff and drivers of vehicles' and 'commercial activities and services professions' had a weight of 15% among the overall accepted applications. Finally, the working classes with the lowest weight in terms of accepted applications were 'executive desk job professions', 'technical professions', 'legislators, entrepreneurs and top managers' and 'intellectual, scientific and highly specialised professions' (7%, 4%, 2% and 1%, respectively, of the total accepted claims).

DISCUSSION

To the best of our knowledge, this is the first study to estimate the number of people with diabetes who applied for SSB in Italy from 2009 to 2019. Data were collected at national level, taking into account claims in which diabetes was the main diagnosis. The overall number of claims submitted increased during the decade considered, with the majority of claims (67.2%) being rejected. However, the number of rejected claims submitted per year has decreased, and the number of accepted claims has increased in favour of OIB rather than DP.

The National Institute of Social Security is responsible for assessing the incapacity for work of persons applying for SSBs, relying exclusively on medical and legal criteria and not on income-related conditions. It is noteworthy that most of the applications were made by persons aged 51–60, suggesting that diabetes is not unique to older workers, the second most prevalent group. In addition, the majority of claimants were men, suggesting that women with diabetes-related disabilities are more likely than men to have irregular work schedules or to be inactive. In addition, the most appropriate categories of workers with accepted claims were classified as 'unskilled professions' and 'craftsmen, skilled workers and farmers', all of which require physical strength and coordination.

Diabetes continues to be considered a relevant cause of morbidity and disability in workers, as shown by the increase in total applications for SSBs between 2009 and 2019. This is also confirmed by the increase in the number of claims approved over time, especially in the

Table 1 Percentage distribution by judgement and trend of applications presented for social security benefits with diabetes as primary diagnosis

Year	Rejected/ submitted (%)	OIBs/submitted (%)	DP/submitted (%)	Accepted/ submitted (%)
2009	70.0	27.6	2.4	30.0
2010	71.0	26.3	2.7	29.0
2011	71.6	26.5	2.0	28.4
2012	69.2	28.7	2.0	30.8
2013	70.9	27.4	1.7	29.1
2014	69.3	28.8	1.8	30.7
2015	65.8	32.1	2.0	34.2
2016	62.3	35.5	2.1	37.7
2017	63.2	34.6	2.2	36.8
2018	66.0	32.1	1.9	34.0
2019	63.8	34.1	2.1	36.2
% variation 2009–2019	−8.8	23.7	−14.8	20.6

DP, disability pension; OIBs, ordinary incapacity benefits.

area of OIB, which also reflects an improved knowledge of the diagnosis of diabetes-related complications.

These results could be explained by a number of factors. First, the incidence of type 2 diabetes, which accounts for approximately 90% of all diabetes cases, is increasing worldwide,[11] with a rising prevalence in those under 45 years of age due to the global spread of unhealthy lifestyles and cardiometabolic risk factors,[12] leading to significant and premature morbidity. Second, diabetes is associated with macrovascular and microvascular complications that lead to disability and poor quality of life in affected individuals.[13–15] The risk of macrovascular complications (coronary heart disease, stroke, peripheral artery disease) is largely influenced by other cardiometabolic risk factors such as smoking, obesity, hypertension and hyperlipidaemia.[16] The microvascular complications of diabetes are closely related to hyperglycaemia and affect three of the classic target tissues (eye, kidney and peripheral nervous system). However, the brain, myocardium, skin and other tissues are also affected.[17] Effective glycaemic control and aggressive treatment of cardiometabolic risk factors can prevent both macrovascular and microvascular diabetic complications. Achieving these goals remains a challenge,[18] considering that intensive glycaemic control is associated with only a significant 9% reduction in major cardiovascular events (MACE), implying that there remains some 'residual vascular risk' that persists despite achieving near-normal glycosilated hemoglobin (HbA1C) targets.[19] Interestingly, a number of longitudinal cohort studies have shown that diabetes is associated with twice the risk of developing DP,[20 21] with obesity[20] and cerebrovascular disease[21] being the largest contributors. Third, despite the availability of glucose-lowering drugs which have been shown to be safe (dipeptidyl peptidase-4 inhibitors) or protective (glucagon-like peptide 1 receptor agonists and sodium glucose cotransporters-2 inhibitors) against MACE in people with diabetes at high risk for vascular complications,[22–24] these drugs remain underused in less than 15% of total diabetic population treated.[18 25 26]

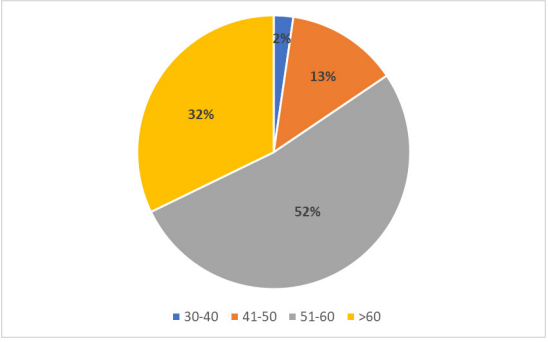

Figure 3 Percentage weight of age groups in terms of applications accepted for social security benefits with diabetes as primary diagnosis in Italy in the period 2009–2019.

There is a lack of studies examining whether a person with diabetes may be able to receive an SSB in their working years. An analysis of a random sample of Finnish nonretired persons aged 18–64 years found that older age increased the likelihood of both applying for and receiving a pension, whereas lower socioeconomic status was associated with a greater likelihood of applying for a DP but also a lower likelihood of receiving it.[27] Participants aged 50–65 years from three large observational studies indicated that both self-reported disability and the prevalence of disability varied considerably across countries in Europe or the USA.[28] There are a number of factors that influence the use of SSB, including health

and sociodemographic factors as well as national policies that determine the generosity of the Social Security Institution.

The strengths of this study include the extended timeframe analysed (11 years), the collection of data at the national level, the differentiation of benefits between the two types of social security schemes in Italy, and the consideration of different age groups or occupational class of workers claiming SSBs. The main limitation concerns the lack of information on diabetes-related complications or risk factors that led workers to apply for social security benefits. In addition, we could not compare the total number of SSB claims for diabetes with claims for noncommunicable chronic diseases during the same period. Compared with data from a study describing the economic and social costs of breast cancer in Italy,[29] the average number of benefits granted annually for diabetes was lower than that for breast cancer. In both cases, the majority of approved claims refer to OIB rather than DP. For diabetes, the percentage of approved claims is 61%, and for breast cancer, the percentage is 14%. Finally, the economic burden associated with accepted applications for SSB provided by the INPS has not been analysed. Two studies calculated the costs associated with the evaluation of the acceptance of applications related to schizophrenia[30] and breast cancer[29] in Italy. They concluded that the monthly rate assigned to patients depends only on the type of social security benefit (OIB or DP), which is based on the patient's degree of disability, regardless of the disease. Nevertheless, a study estimating the economic burden of SSBs for diabetes in Italy identified an expenditure of 715.3 million euros (about 120 million euros per year) between 2014 and 2019.[31]

Although recent evidence on the occupational risk of people with diabetes is conflicting, policies that exclude diabetic workers are both unnecessary and harmful in most occupations. Because people with diabetes are at high risk of developing disease-related disabilities, assessing occupational risk is crucial to identify potentially critical conditions in the workplace (eg, risk of hypoglycaemia, effectiveness of treatment and so on); for these reasons, efforts should be made to improve and prolong the work ability of people with diabetes, including, if necessary, providing alternative employment opportunities.

CONCLUSIONS

This is the first study to document that the number of applications for SSB due to diabetes in Italy increased significantly from 2009 to 2019, with an increase in the number of applications granted, mainly under the OIB. Because diabetes complications can be prevented by strict glycaemic control and improvement of cardiovascular risk factors, there would be substantial health and social benefits if effective secondary prevention could improve the prognosis for the many people with diabetes. Although some population-based cohort studies suggest that cardiorenal protection by new antihyperglycemic agents may act in addition to that of optimal glycaemic control, randomised controlled trials are needed to clarify this issue.

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Contributors MTA, MIM, DG and KE developed the original research idea and drafted the manuscript. SG, CN and FSM carried out the analysis and contributed to revising the manuscript critically for important intellectual content. LS, ML, LC, RM and GB, contributed to data analysis and writing and editing the draft. All authors edited the manuscript and agreed on the final version of the manuscript. KE is the guarantor of this work and, as such, had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement All data relevant to the study are included in the article or uploaded as supplementary information.

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Applications for social security benefits related to diabetes in the working age in Italy between 2009 and 2019: a nationwide retrospective study

Supplementary file

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Table S1. Content of Italian Law no. 222/84 (7)

Both OIB and DP require at least 260 weekly contributions (5 years of contributions and insurance), of which 156 (3 years of contributions and insurance) in the 5 years prior to the date of the submitted claim. Given the partial loss of working capacity, no cessation of working activity is needed to access the OIB. The DP, instead, due to the total and permanent inability of who submit the claim, requires: cessation of any kind of working activity, removal from worker category lists, cancellation of membership of professional bodies, renouncing of payments covered by obligatory unemployment insurance and any other replacement or supplement to your salary. Following an overall assessment of the physical and mental health of the applicant, the Medical Legal Centres of the INPS approve the request, providing the benefit based on the presence of one or more disabling diseases.

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Table S2. The RECORD statement – checklist of items, extended from the STROBE statement, that should be reported in observational studies using routinely collected health data.

	Item No.	STROBE items	Location in manuscript where items are reported	RECORD items	Location in manuscript where items are reported
Title and abstract					
	1	(a) Indicate the study's design with a commonly used term in the title or the abstract (b) Provide in the abstract an informative and balanced summary of what was done and what was found		RECORD 1.1: The type of data used should be specified in the title or abstract. When possible, the name of the databases used should be included. RECORD 1.2: If applicable, the geographic region and timeframe within which the study took place should be reported in the title or abstract. RECORD 1.3: If linkage between databases was conducted for the study, this should be clearly stated in the title or abstract.	1-2 1-2 NA
Introduction					
Background rationale	2	Explain the scientific background and rationale for the investigation being reported			4-5
Objectives	3	State specific objectives, including any prespecified hypotheses			5
Methods					

Study Design	4	Present key elements of study design early in the paper			5
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection			5-6
Participants	6	*(a) Cohort study* - Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up *Case-control study* - Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls *Cross-sectional study* - Give the eligibility criteria, and the sources and methods of selection of participants *(b) Cohort study* - For matched studies, give matching criteria and number of exposed and unexposed *Case-control study* - For matched studies, give matching		RECORD 6.1: The methods of study population selection (such as codes or algorithms used to identify subjects) should be listed in detail. If this is not possible, an explanation should be provided. RECORD 6.2: Any validation studies of the codes or algorithms used to select the population should be referenced. If validation was conducted for this study and not published elsewhere, detailed methods and results should be provided. RECORD 6.3: If the study involved linkage of databases, consider use of a flow diagram or other graphical display to demonstrate the data linkage process, including the number of individuals with linked data at each stage.	5-6 NA NA

		criteria and the number of controls per case			
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable.		RECORD 7.1: A complete list of codes and algorithms used to classify exposures, outcomes, confounders, and effect modifiers should be provided. If these cannot be reported, an explanation should be provided.	5
Data sources/ measurement	8	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group			5-6
Bias	9	Describe any efforts to address potential sources of bias			6
Study size	10	Explain how the study size was arrived at			6-7
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen, and why			5-6
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding			5-6

		(b) Describe any methods used to examine subgroups and interactions (c) Explain how missing data were addressed (d) *Cohort study* - If applicable, explain how loss to follow-up was addressed *Case-control study* - If applicable, explain how matching of cases and controls was addressed *Cross-sectional study* - If applicable, describe analytical methods taking account of sampling strategy (e) Describe any sensitivity analyses			5-6 5-6 7 NA NA 7-8
Data access and cleaning methods		..		RECORD 12.1: Authors should describe the extent to which the investigators had access to the database population used to create the study population. RECORD 12.2: Authors should provide information on the data cleaning methods used in the study.	5-6 5-6
Linkage		..		RECORD 12.3: State whether the study included person-level, institutional-level, or other data linkage across two or more databases. The methods of linkage and methods of	6

				linkage quality evaluation should be provided.	
Results					
Participants	13	(a) Report the numbers of individuals at each stage of the study (*e.g.*, numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed) (b) Give reasons for non-participation at each stage. (c) Consider use of a flow diagram		RECORD 13.1: Describe in detail the selection of the persons included in the study (*i.e.,* study population selection) including filtering based on data quality, data availability and linkage. The selection of included persons can be described in the text and/or by means of the study flow diagram.	7
Descriptive data	14	(a) Give characteristics of study participants (*e.g.*, demographic, clinical, social) and information on exposures and potential confounders (b) Indicate the number of participants with missing data for each variable of interest (c) *Cohort study* - summarise follow-up time (*e.g.*, average and total amount)			8 7-8 7
Outcome data	15	*Cohort study* - Report numbers of outcome events or			7-8

		summary measures over time *Case-control study* - Report numbers in each exposure category, or summary measures of exposure *Cross-sectional study* - Report numbers of outcome events or summary measures			NA NA
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (e.g., 95% confidence interval). Make clear which confounders were adjusted for and why they were included (b) Report category boundaries when continuous variables were categorized (c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period			7-8 7-8 7-8
Other analyses	17	Report other analyses done—e.g., analyses of subgroups and interactions, and sensitivity analyses			7-8
Discussion					

Key results	18	Summarise key results with reference to study objectives			8-9
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias		RECORD 19.1: Discuss the implications of using data that were not created or collected to answer the specific research question(s). Include discussion of misclassification bias, unmeasured confounding, missing data, and changing eligibility over time, as they pertain to the study being reported.	11
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence			8-11
Generalisability	21	Discuss the generalisability (external validity) of the study results			10
Other Information					
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based			NA
Accessibility of protocol, raw data,		..		RECORD 22.1: Authors should provide information on how to access any supplemental information	12

and programming code				such as the study protocol, raw data, or programming code.	

Table S2. Number of applications accepted for social security benefits with diabetes as primary diagnosis in Italy in the period 2009-2019 according to gender.

	Total number of claims	**Average number claims per year**	**Percentage of variation between 2009-2010**
Female	2697	245	51%
Male	10677	971	58%
Total	13374	1216	57%

Table S3. Number and percentage weight of applications accepted for social security benefits with diabetes as primary diagnosis in Italy in the period 2009-2019 according to gender.

	Total claims	**Average number of claims per year**	**% weight**
Legislators, entrepreneurs and top managers	157	14	2%
Intellectual, scientific and highly specialized professions	61	6	1%
Technical professions	281	26	4%
Executive desk job professions	497	45	7%
Commercial activities and services professions	1035	94	15%
Artisans, specialized workers and farmers	1848	168	27%
Plant operators, stationary and moveable machinery staff and drivers of vehicles	1026	93	15%
Unskilled professions	2002	182	29%
Total	6907	628	100%