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Urban Health at a Glance in Italy by PASSI and PASSI d'Argento Surveillance Systems Data

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Abstract: (1) The percentage of the world's urban population is 56% and is expected to reach 68% by 2050. In this study, we have investigated the dimensions of individual health by relating them to the type of residing municipality. (2) We also analyzed the health status, prevention, lifestyle, and elderly conditions in illustrated from PASSI and PASSI d'Argento (PdA) surveillance systems data by estimating the prevalence rates and adjusted odds ratios (ORs) for different municipal residences. (3) Urban areas negatively influence some health outcomes, such as respiratory system diseases (OR = 1.24; 95% CI 1.18–1.30). With regards to the spontaneous participation in screening programs from female adults residing in urban areas, we observed ORs of 1.24 (1.13–1.37) and 1.30 (1.12–1.39) for breast and uterine cervix cancers, respectively. Urban contexts seem to promote healthy lifestyles, as there is a lower consumption of alcohol in both adult (0.92; 0.88–0.95) and elderly populations (0.85; 0.77–0.94), although sedentary life is more widespread. Compared to elderly residents living in rural settings, urban individuals find their neighborhood less safe and are less considered as a "resource". (4) Urban areas promote some unhealthy conditions but can also be a valuable source of services and perspectives. According to the increasing urban population, public health policies towards implementing sustainable development should be established.

Keywords: urban health; surveillance system; health conditions; sustainability; prevention; municipality

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1. Introduction

Over the world, the percentage of the urban population is equal to 56.2% with an increase of 10% in the last 20 years [1], and it is expected to grow to 68% by 2050 [2]. In Europe, about 72% of the population lives in urban areas, and this proportion is expected to increase to 77% by 2025 [3].

Living and health conditions clearly change between urban and rural regions. Today's challenge is to meet the new needs of urban populations in terms of health, living environment, social status, and quality of life by all means possible [4].

A current priority is thus to understand how context affects health outcomes, which risks to deal with and, conversely, the potential benefits obtained [5].

Public health moves from the individual, in a biomedical model perspective, towards the collective and social context determined by environmental, socioeconomic, cultural, and psychological factors [6,7]. In fact, urban health comprises a strategic orientation that reconciles health protection, prevention, and promotion actions with territorial planning:

its goal is, therefore, to protect and improve the urban population's health and quality of life as well as the entire social welfare system [8].

The ways to respond to the needs related to urban health are different [9]. First, it is important that governments commit themselves to improving equitable and quality access to health services for the whole population. To this end, the implementation of the Sustainable Development Goal (SDG) 11, to "Make cities and human settlements inclusive, safe, resilient and sustainable" through its targets and indicators, allows several health protection actions. Pursuing the possibilities of achieving a design that is both urban and healthy from an intergenerational perspective is essential; for example, by promoting investments in alternative and safe transport (such as public transport, cycling, or walking), or by improving the air or water quality as a prerogative for all, and especially for the most economically disadvantaged people,

Urban areas are characterized by high levels of complexity and innovation, and they are populated by constantly changing and diversified groups, even differently distributed onto their territory [10]. On the one hand, urban contexts offer multiple opportunities for access to services but, on the other, they involve high risks of exposure to physical, chemical, mental, and social stressors. Such conditions induce both positive and negative effects on public health [8]. Therefore, urban health is a highly complex phenomenon consisting of several dimensions directly relating to the individual, natural, and manufactured environment. For this reason, a multidisciplinary and cross-sectoral approach is needed to assess the various interventions in cities overall [11].

Scientific research is a valuable source of knowledge that provides insights to policymakers for interventions that may reduce health inequalities [12].

The aim of this study was to evaluate the association between three fundamental dimensions of individual health—lifestyles, health conditions, and prevention—and the "urbanization degree" of the municipality where people live.

2. Materials and Methods

2.1. Data Sources

2.1.1. PASSI and PASSI d'Argento Surveillance Systems Data

PASSI and PASSI d'Argento (PdA) are population-based public health surveillance systems that monitor a wide range of health-related behaviors, physical and psychological health, and the socio-demographic characteristics of people aged 18–69 (PASSI) and 65+ (PdA) residing in Italy. Both are based on cross-sectional surveys with ongoing data collection at the Local Health Unit (LHU) level and represent tools for the National Health Service (NHS) to process continuous and prompt information at local and regional levels. They are recognized by the Italian Prime Minister's Office Decree in the list of regionally and nationally relevant surveillances [13]. The National Institute of Health (Istituto Superiore di Sanità-ISS) is in charge of the design, research, training, and development functions.

The eligible population included residents who may be contacted by telephone and are capable of being interviewed, whereas those hospitalized, residents in nursing homes, and prisoners at the time of the interview were not eligible. Those who did not speak Italian were also excluded, except in the autonomous province of Bolzano where interviewees had the option of being interviewed in German. The sampling involved stratified monthly samples by sex and age groups (18–34, 35–49, 50–69 for PASSI; 65–74; 75–84, 85+ for PdA), consisting of individuals extracted from the LHUs' registry lists. Specially trained personnel from the LHU carried out telephone interviews using a standard questionnaire; in PdA, for elderly with hearing or other problems, there was also the possibility of being interviewed in person. The LHUs' data were merged and analyzed in order to obtain national, regional, or local estimates.

Detailed information on PASSI and PASSI d'Argento surveillance systems is available elsewhere [14–17]. The present study refers to the PASSI and PdA data collection timeframes, both 2014–2018 and 2016–2018 (as PdA was not ongoing in 2014–2015), respec-

tively. The response rate was 81% in PASSI and 86% in PdA. Overall, the records analyzed amounted to 169,436 for PASSI and 40,296 for PdA.

We processed information about the lifestyles, health, and prevention, and their sociodemographic characteristics. The code of the interviewee's municipality of residence (according to the coding by the National Institute of Statistics—ISTAT) available from PASSI and PdA was used to obtain the "urbanization degree" through its linkage with ISTAT sources on municipalities characteristics.

2.1.2. Italian Municipalities Classification

In this study, we referred the phrase 'urban area' to the Italian classification of 14 metropolitan cities and to the urbanization degree of municipalities (under ISTAT classification).

Metropolitan cities (Figure 1a) are large entities comprising a regional or provincial capital and several neighboring municipalities that share a common strategic territorial governance in terms of economic and social development, as well as the management of services, infrastructures, and communication networks (e.g., in the field of mobility and traffic). They are governed by elected mayors and councilors of the municipalities included. The law 54/2014, which concerns only the regions with an ordinary statute, typifies 10 metropolitan cities: Turin, Milan, Venice, Genoa, Bologna, Florence, Rome, Bari, Naples, and Reggio Calabria (Article 1 paragraph 5, Law No. 56/2014). Cagliari, Catania, Messina, and Palermo, on the other hand, are metropolitan cities in the regions with a special statute.

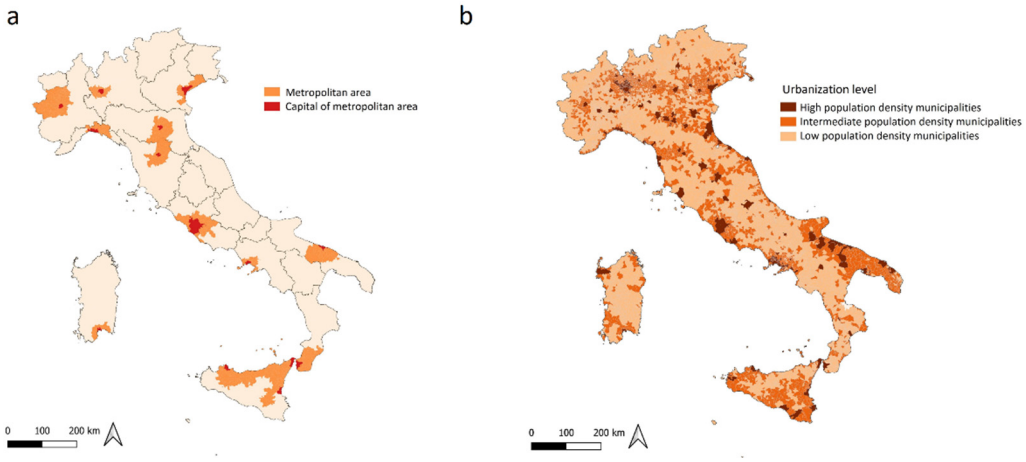

Figure 1. Italian municipalities belonging to the 14 metropolitan areas with relative capitals (**a**) and classified according to the urbanization level (**b**).

In Italy, 15.9% of municipalities belong to one of the 14 metropolitan cities.

Moreover, ISTAT disseminates a classification of Italian municipalities according to the urbanization degree (Figure 1b) [18] based on a subdivision of the territory into 1 km^2 cells, considering both the criteria of geographic contiguity and minimum population threshold. The resulting areas are matched with the administrative boundaries of the municipalities and grouped into three classes:

1. high population density municipalities—at least 50% of the population lives in densely populated areas;
2. intermediate population density municipalities—less than 50% of the population lives in rural areas and less than 50% in densely populated areas;
3. low population density municipalities—more than 50% of the population falls into rural areas.

The majority of Italian municipalities fall within the lowest degree of urbanization (67.8%), about one out of ten in the intermediate level (28.8%), and very few belong to the highest-degree group (3.4%).

2.2. Statistical Analysis

The design of this study was cross-sectional; as indicated above, the reference periods for analysis were 2014–2018 (PASSI) and 2016–2018 (PdA). Prevalence estimates were weighted by assigning each record a probability weight equal to the inverse of the sampling fraction in each LHU stratum. Complex survey design analyses were conducted; all prevalences reported 95% confidence intervals (95% CI) [15–17]. We calculated prevalence rates stratified by the type of municipality of residence to highlight the possible differences between individuals residing in urban versus non-urban areas. Using multivariate Poisson regression models, we subsequently estimated the Odds Ratios (ORs) adjusting for the main sociodemographic confounders [19]. The control variables, both for the adult and for the elderly populations, are gender, age groups, educational level (none or primary school, middle school, high school, or university), economic difficulties in making ends meet by the available financial resources (many, some or not at all), and geographic residence area as categorized by the ISTAT criteria (North, Centre, South and major islands).

The determinant variables linked to health conditions were represented by: (1) residency in a metropolitan city (dichotomous variable); and (2) the urbanization degree of the respondent's municipality of residence (high population density, intermediate population density, low population density). For the latter determinant, we decided to report the results obtained from the comparison between the two extreme categories, because the municipalities with intermediate population density are numerous and heterogeneous and, therefore, do not have specific characteristics either of large urban areas or rural areas.

Finally, the outcomes varied depending on the two surveillance systems. With reference to the adult population targeted by PASSI, the dimensions examined concerned, health status, prevention and lifestyles. The outcomes for which significant differences have been identified are these following as grouped in three dimensions: (1) self-reported health status—overweight, obesity, the presence of depressive symptoms (PHQ2) [20], diabetes, chronic respiratory diseases, cardio-cerebrovascular diseases, and cancer; (2) female cancer screening compliance with a screening for the cervix and breast cancer prevention, both in an organized and spontaneous program; (3) atrisk alcohol consumption, sedentary lifestyle, smoking, and the consumption of at least five portions of fruits and/or vegetables a day. In the Supplementary Materials (Table S1), more details about these indicators are available. In detail, the screening program is defined as organized when it is totally offered by LHUs included in the invitation to participate. On the other side, spontaneous screening occurs when people take examthemselves.

For the elderly population interviewed in PdA, the outcomes concern both lifestyle and health conditions and specific aspects of older ages. The indicators showing statistically significant associations with the type of municipality of residence are grouped into two dimensions: (1) their lifestyle and self-reported health status, including at-risk alcohol consumption, a sedentary lifestyle [21], smoking, a daily consumption of fruit and vegetables, and the presence of depressive symptoms; (2) and elderly conditions, including the perception of safety in the neighborhood of residence and a satisfaction with life, possible problems in accessing health services and services of daily life, the elderly as a "resource" (someone who participates in activities to improve physical and mental health and to increase the quality of one's life, also reducing the level of dependence from others) [22], and the elderly as a support for cohabitants. In the Supplementary Materials (Table S2), more details about these indicators are available.

3. Results

3.1. PASSI

Tables 1–3 show the prevalence and adjusted odds ratio (OR) for each investigated dimension (self-reported health status, prevention and lifestyle) by metropolitan residence or not and by the urbanization degree.

Table 1. Dimension: self-reported health status. Prevalence and adjusted odds ratio (OR) by metropolitan municipality (metr. area) or not (non-metr. area) and by urbanization degree of residing municipality [high population density (level 1); low population density (level 3)]. PASSI surveillance system 2014–2018.

Outcome	Prevalence (%) (95% CI)		OR ° (95% CI)	Prevalence (%) (95% CI)		OR ° (95% CI)
	Metr. Area	Non Metr. Area	Metr. Area vs. Non Metr. Area	Level 1	Level 3	Level 1 vs. Level 3
Overweight	42.40 (41.9–43.0)	42.30 (41.9–42.6)	1.00 (0.97–1.03)	40.90 (40.3–41.5)	44.90 (44.4–45.4)	0.89 *** (0.86–0.93)
Obesity	10.60 (10.2–11.0)	10.80 (10.6–11.0)	0.97 (0.93–1.02)	9.90 (9.5–10.3)	11.70 (11.3–12.0)	0.88 *** (0.84–0.93)
Depressive symptoms	7.20 (6.8–7.5)	5.40 (5.2–5.5)	1.26 ***(1) (1.20–1.33)	7.10 (6.8–7.4)	5.50 (5.2–5.7)	1.27 ***(1) (1.19–1.35)
Diabetes	5.10 (4.8–5.4)	4.60 (4.4–4.7)	1.09 ***(2) (1.02–1.16)	4.70 (4.4–5.0)	5.10 (4.8–5.3)	1.00 (2) (0.93–1.08)
Respiratory system diseases	7.80 (7.5–8.2)	5.70 (5.4–6.0)	1.24 ***(3) (1.18–1.30)	7.80 (7.4–8.1)	6.40 (6.2–6.7)	1.21 ***(3) (1.13–1.29)
Cancer diseases	3.90 (3.7–4.2)	3.70 (3.6–3.8)	1.12 ***(4) (1.05–1.20)	3.90 (3.7–4.1)	3.60 (3.4–3.8)	1.06 (4) (0.98–1.15)
Cardio-cerebrovascular system diseases	5.20 (5.0–5.5)	4.80 (4.7–5.0)	1.09 ***(5) (1.03–1.15)	4.90 (4.7–5.2)	5.10 (4.9–5.3)	1.00 (5) (0.93–1.07)

*** $p < 0.01$; ° The results are adjusted by sociodemographic covariates: age, sex, educational level, the presence of economic difficulties, and the residence geographical area; (1) Additional covariates with respect to the main socio-demographic confounders include a sedentary lifestyle and the presence of at least one chronic disease; (2) Additional covariates with respect to the main sociodemographic confounders include a sedentary lifestyle and being overweight; (3) Additional covariates with respect to the main sociodemographic confounders include smoking; (4) Additional covariates with respect to the main sociodemographic confounders also include smoking and at risk alcohol consumption; (5) Additional covariates with respect to the main sociodemographic confounders include a sedentary lifestyle and being overweight.

Table 2. Dimension: women cancer screening Prevalence and adjusted odds ratio (OR) by metropolitan municipality (metr. area) or not (non-metr. area) and by urbanization degree of residing municipality [high population density (level 1); low population density (level 3)]. PASSI surveillance system 2014–2018.

Outcome	Prevalence (%) (95% CI)		OR ° (95% CI)	Prevalence (%) (95% CI)		OR ° (95% CI)
	Metr. Area	Non Metr. Area	Metr. Area vs. Non Metr. Area	Level 1	Level 3	Level 1 vs. Level 3
Breast cancer screeing total	71.70 (70.5–72.9)	75.00 (74.3–75.6)	0.91 *** (0.84–0.97)	73.20 (72.0–74.4)	73.10 (72.1–74.2)	0.95 (0.87–1.04)
Breast cancer screeing organized public programs	47.60 (46.4–48.9)	58.00 (57.3–58.6)	0.82 ***(1) (0.75–0.88)	49.80 (48.6–51.1)	56.90 (55.7–58.0)	0.87 ***(1) (0.79–0.95)
Breast cancer screeing personal initiative	23.50 (22.4–24.7)	16.70 (16.1–17.2)	1.24 ***(1) (1.13–1.37)	22.90 (21.8–24.1)	15.90 (15.1–16.8)	1.34 ***(1) (1.19–1.51)
Uterine cervix cancer screening total	79.20 (78.4–80.0)	79.40 (79.0–79.9)	1.06 ** (1.00–1.12)	79.50 (78.7–80.3)	77.80 (77.1–78.5)	1.05 (0.98–1.13)
Uterine cervix cancer screening organized public programs	38.40 (37.5–39.3)	50.60 (50.1–51.1)	0.93 **(1) (0.87–0.99)	38.70 (37.9–39.6)	51.20 (50.4–52.0)	0.87 ***(1) (0.81–0.93)
Uterine cervix cancer screening personal initiative	40.20 (39.3–41.1)	28.40 (28.0–28.9)	1.30 ***(1) (1.12–1.39)	40.20 (39.3–41.2)	26.20 (25.4–26.9)	1.42 ***(1) (1.32–1.54)

*** $p < 0.01$, ** $p < 0.05$; ° The results are adjusted by sociodemographic covariates: age, sex, educational level, economic difficulties presence and residence geographical area (1) Additional covariates with respect to the main sociodemographic confounders include a proxy for the functioning of the regional service.

Table 3. Dimension: lifestyle Prevalence and adjusted odds ratio (OR) by metropolitan municipality (metr. area) or not (non-metr. area) and by urbanization degree of residing municipality [high population density (level 1); low population density (level 3)]. PASSI surveillance system 2014–2018.

Outcome	Prevalence (%) (95% CI)		OR ° (95% CI)	Prevalence (%) (95% CI)		OR ° (95% CI)
	Metr. Area	Non Metr. Area	Metr. Area vs. Non Metr. Area	Level 1	Level 3	Level 1 vs. Level 3
Sedentary lifestyle	32.70 (32.2–33.3)	25.80 (25.6–26.1)	1.31 *** (1.27–1.35)	30.20 (29.6–30.7)	27.50 (27.0–28.0)	1.16 *** (1.12–1.21)
Smoking	26.90 (26.4–27.5)	25.10 (24.8–25.4)	1.10 *** (1.06–1.13)	27.00 (26.5–27.6)	25.40 (24.9–25.8)	1.14 *** (1.10–1.19)
At-risk alcohol consumption	15.60 (15.1–16.0)	17.90 (17.7–18.1)	0.92 *** (0.88–0.95)	16.60 (16.2–17.0)	17.80 (16.8–17.3)	0.92 *** (0.88–0.97)
Fruits and vegetables consumption (5 portions)	10.50 (10.2–10.9)	9.50 (9.3–9.7)	1.16 *** (1.11–1.21)	10.20 (9.9–10.6)	9.50 (9.2–9.8)	1.03 (0.98–1.09)

*** $p < 0.01$; ° The results are adjusted by socio-demographic covariates: age, sex, educational level, economic difficulties presence and residence geographical area.

3.1.1. Self-Reported Health Status

With regards to specific health status outcomes, residents in metropolitan cities show a disadvantage compared to residents in the rest of the Italian territory for all indicators considered, even when adjusting for the main sociodemographic confounders. There is a higher prevalence of individuals with depressive symptoms [7.2% metropolitan cities vs. 5.4% rest of the Italian territory; OR = 1.26 (95% IC = (1.20–1.33)], with diabetes [5.1% vs. 4.6%; 1.09 (1.02–1.16)], with a disease of the respiratory system [7.8% vs. 5.7%; 1.24 (1.18–1.30)], of the cardiovascular-cerebrovascular system [5.2% vs. 4.8%; 1.09 (1.03–1.15)], and with a tumor [3.9% vs. 3.7%; 1.12 (1.05–1.20)].

This disadvantage is also retrievable by classifying residence municipalities according to the urbanization degree. Statistically significant results are obtained for depressive symptoms [7.1% densely populated municipalities vs. 5.5% common with low population density; 1.27 (1.19–1.35)] and for respiratory system diseases [7.8% vs. 6.4%; 1.21 (1.13–1.29)].

3.1.2. Prevention

When looking specifically at female participants, it is interesting to highlight what happens with regards to participation in screening programs for female cancer prevention. As far as the total participation (both spontaneous and organized) is concerned, there are no differences between metropolitan cities and the rest of the Italian municipalities; however, only in the case of breast cancer prevention are there statistically significant results showing a lower participation of female residents in metropolitan cities [71.7% metropolitan cities vs. 75.0% rest of the Italian territory; OR = 0.91 (0.84–0.87)]. Nevertheless, it is important to distinguish participation in programs offered actively and free of charge by the LHUs from spontaneous participation. In the case of cervical cancer screenings, and in the light of the national coverage data, the two components are equivalent. With regards to the breast cancer screening, reactive participation is greater than the spontaneous initiative: the differences in total participation in relation to place of residence depend essentially on the differences observed for participation in the actively offered programs. For both types of cancer screenings, we observed that in metropolitan cities there was less participation in organized programs (breast cancer: 47.6% vs. 58.0%; cervical cancer: 38.4% vs. 50.6%), but the spontaneous participation rate is higher (breast cancer: 23.5% vs. 16.7%; cervical cancer: 40.2% vs. 28.4%). Such an opposition is also confirmed by adjusting the same main sociodemographic confounders and by having received the invitation letter for screening participation from the regional service. For the prevention of breast cancer, the OR for participation in organized programs is 0.82 (95% CI 0.75–0.88), and for participation on spontaneous initiative it is 1.24 (95% CI 1.13–1.37). Moreover, for the prevention of cervical cancer, the OR are equal to 0.93 (95% CI 0.87–0.99) and 1.30 (95% CI 1.21–1.39), respectively.

When analyzing the total participation in cancer screening programs by the urbanization degree of the municipalities, there were no statistically significant results for either type of prevention, both for the prevalence rates and adjusted odds ratios, except for the prevalence of total participation in the cervical cancer screening, which is more widespread in densely populated municipalities than in those with a low population density (79.5% vs. 77.8%). The contrast between organized and spontaneous components continues to be evident even considering the urbanization degree of the municipalities: in densely populated municipalities, the participation in programs organized is lower [breast cancer: 49.8% vs. 56.9%; 0.87 (0.79–0.95); cervical cancer: 38.7% vs. 51.2%; 0.87 (0.81–0.93)] and, on the other hand, the participation on spontaneous initiative is higher [(breast cancer: 22.9% vs. 15.9%; 1.34 (1.19–1.51); cervical cancer: 40.2% vs. 26.2%; 1.57 (1.32–1.54)].

3.1.3. Lifestyle

In metropolitan cities compared to the rest of Italy, the proportion of adult residents (18–69 years) who are physically inactive [32.7% metropolitan cities vs. 25.8% rest of Italy; 1.31 (1.06–1.13)] and smokers [26.9% vs. 25.1%; 1.10 (1.06–1.13)] is higher. On the other hand, there is a lower prevalence of those with an at-risk alcohol consumption level [15.6% vs. 17.9%; 0.92 (0.88–0.95)], and the consumption of at least five servings of fruits and/or vegetables per day is also higher [10.5% vs. 9.5%; 1.16 (1.11–1.21)].

These results also emerge in the comparison between residents in densely populated cities and residents in municipalities with a low population density: the former, in fact, includes all Italian municipalities with a population over a certain threshold as metropolitan cities. In densely populated municipalities, the prevalence of physically inactive people [30.2% densely populated municipalities vs. 27.5% low-density municipalities; 1.16 (1.12–1.21)] and smokers [27% vs. 25.4%; 1.14 (1.10–1.19)] is higher. There are differences regarding at-risk alcohol use and the consumption of fruit and vegetables, which are also analyzed by the urbanization degree of municipalities, although not all the comparisons reported are statistically significant. Moreover, the prevalence measures for overweightness, and especially for obesity, are statistically significant: in densely populated municipalities, these risk factors are less widespread than in municipalities with a low population density [overweight: 40.9% vs. 44.9%; 0.89 (0.86–0.93); obesity: 9.9% vs. 10.7%, 0.88 (0.84–0.93)].

3.2. Passi d'Argento

Tables 4 and 5 show the prevalence and the OR for each investigated dimension in the PdA surveillance system (lifestyle and self-reported health status and elderly conditions) by metropolitan residence, or not, and by urbanization degree.

Table 4. Dimension: lifestyle and self-reported health status. Prevalence and adjusted odds ratio (OR) by metropolitan municipality (metr. area) or not (non metr. area) and by urbanization degree of residing municipality [high population density (level 1); low population density (level 3)]. PASSI d'Argento surveillance system 2016–2018.

Outcome	Prevalence (%) (95% CI)		OR ° (95% CI)	Prevalence (%) (95% CI)		OR ° (95% CI)
	Metr. Area	Non Metr. Area	Metr. Area vs. Non Metr. Area	Level 1	Level 3	Level 1 vs. Level 3
Sedentary lifestyle	43.80 (41.3–44.3)	37.90 (36.8–39.1)	1.21 *** (1.11–1.33)	43.80 (42.4–45.2)	37.10 (35.2–39.0)	1.35 *** (1.21–1.50)
Smoking	10.50 (9.7–11.3)	9.40 (8.8–10.1)	1.08 (0.96–1.21)	11.40 (10.6–12.2)	8.60 (7.8–9.5)	1.28 *** (1.12–1.47)
At–risk alcohol consumption	17.00 (16.0–17.4)	19.40 (18.4–20.2)	0.85 *** (0.77–0.94)	16.90 (16.0–17.8)	20.20 (19.0–21.5)	0.79 *** (0.71–0.89)
Fruits and vegetables consumption (3 portions)	51.60 (50.3–53.0)	57.60 (56.6–58.6)	0.75 *** (0.70–0.81)	53.20 (51.9–54.5)	56.30 (54.9–57.8)	0.83 *** (0.76–0.90)
Depressive symptoms	13.90 (12.9–14.9)	13.10 (12.3–14.9)	1.14 ** (1.00–1.30)	15.00 (14.0–16.0)	12.30 (11.2–13.6)	1.35 *** (1.16–1.56)

*** $p < 0.01$, ** $p < 0.05$; ° The results are adjusted by socio-demographic covariates: age, sex, educational level, economic difficulties presence and residence geographical area.

Table 5. Dimension: elderly conditions. Prevalence and adjusted odds ratio (OR) by metropolitan municipality (metr. area) or not (non metr. area) and by urbanization degree of residing municipality [high population density (level 1); low population density (level 3)]. PASSI d'Argento surveillance system 2016–2018.

Outcome	Prevalence (%) (95% CI)		OR ° (95% CI)	Prevalence (%) (95% CI)		OR ° (95% CI)
	Metr. Area	Non Metr. Area	Metr. Area vs. Non Metr. Area	Level 1	Level 3	Level 1 vs. Level 3
Neighborhood security perception	82.10 (81.0–83.2)	85.50 (84.6–86.3)	0.78 *** (0.70–0.87)	80.40 (79.3–81.5)	87.90 (86.7–89.0)	0.57 *** (0.50–0.65)
Satisfaction with life	75.80 (74.4–77.1)	80.20 (79.3–81.1)	0.74 *** (0.66–0.83)	77.60 (76.5–78.8)	78.00 (76.4–79.6)	0.93 (0.82–1.05)
Problems in health services access	31.30 (30.1–32.6)	31.80 (30.9–32.8)	1.04 (0.95–1.13)	29.10 (27.9–30.3)	34.70 (33.3–36.1)	0.82 *** (0.74–0.92)
Problems in daily services access	31.60 (30.4–32.8)	33.00 (32.0–33.9)	1.01 (0.92–1.11)	29.30 (28.1–30.5)	35.90 (34.5–37.3)	0.79 *** (0.71–0.88)
Elderly as "resouce"	27.70 (26.5–29.0)	29.40 (28.5–30.3)	0.88 *** (0.81–0.96)	27.80 (26.7–29.0)	27.60 (26.2–29.0)	0.91 * (0.83–1.01)
Support for cohabitants	18.40 (17.4–19.4)	19.50 (18.7–20.4)	0.87 *** (0.79–0.95)	17.70 (16.7–18.7)	18.10 (17.1–19.3)	0.90 * (0.80–1.00)

*** $p < 0.01$, * $p < 0.1$; ° The results are adjusted by socio-demographic covariates: age, sex, educational level, economic difficulties and residence geographical area.

3.2.1. Lifestyle and Self-Reported Health Status

In metropolitan areas, with reference to the elderly population (65 years and over), the prevalence of physically inactive people is higher [(43.8% vs. 37.9% in the rest of the Italian territory; OR = 1.12 (1.11–1.33)]. Furthermore, the prevalence of those who consume at least three portions of fruit and vegetables per day is lower [(51.5% vs. 57.6%; 0.75 (0.70–0.81)]. However, elderly residents in metropolitan cities show a lower at-risk alcohol consumption than in the rest of Italy [(17.0% vs. 19.4%; 0.85 (0.77–0.94)]. As health outcomes, the one mostly showing a diversification due to the type of residence municipality are the presence of depressive symptoms: among metropolitan residents compared to those residing in the rest of Italy, there is a statistically significant disadvantage in adjusting by the sociodemographic variables [OR = 1.14 (1.00–1.30)].

Following the classification of municipalities by urbanization degree, to the residents in densely populated municipalities compared to those with low population density, the disadvantage is confirmed in terms of a higher proportion of physically inactive people [43.8% vs. 37.1%; 1.35 (1.21–1.50)] and a lower percentage of people consuming at least three portions of fruit and vegetables per day [53.2% vs. 56.3%; 1.28 (1.12–1.47)]. Besides, older persons living in densely populated municipalities show another relevant modifiable risk factor: 11.4% are current smokers (vs 8.6) (OR = 1.28 (1.12–1.47). In contrast, as well as for metropolitan cities, people aged 65 and over living in densely populated municipalities experience a lower at-risk consumption of alcohol compared to residents in low-density municipalities [16.9% versus 20.2%; 0.79 (0.71–0.89)]. In densely populated municipalities, there is a higher prevalence of residents with depressive symptoms than those in low population density municipalities [15.0% vs. 12.3; 1.35 (1.16–1.56)].

3.2.2. Elderly Conditions

Furthermore, the prevalence of the elderly living in metropolitan cities who perceive their neighborhood as safe is lower than the elderly residing elsewhere in Italy [82.1% vs. 85.5%; 0.78 (0.70–0.87)]. We observed a lower perception of residential safety also among residents in densely populated municipalities compared to those with a low population density [80.4% vs. 87.9%; 0.57 (0.50–0.65)].

Specifically, residents in metropolitan cities declare themselves to be less satisfied with their lives than those who reside in the rest of Italy [(75.8% vs. 80.2%; 0.74 (0.66–0.83)]. In metropolitan cities, older individuals are considered less as either as a "resource" [27.7% vs. 29.4%; 0.88 (0.81–0.96)] or as a support to their cohabitants [18.4 % vs. 19.5%; 0.87 (0.79–0.95)]. However, these results are not statistically significant when analyzing the

municipalities by the urbanization degree. Nevertheless, with regards to the latter classification, two other indicators show statistically significant results: in densely populated municipalities, there are fewer problems for the elderly in accessing health services [29.1% vs. 34.7%; 0.82 (0.74–0.92)] and in accessing daily life services [29.3% vs. 35.9%; 0.79 (0.71–0.88)].

4. Discussion

Several of the 17 SDGs have been recently defined as "health-related". Because of the extremely complex matter represented by urban environments, it is necessary to use tools that generate accurate data, which can be highly relevant to the design, implementation, monitoring, and evaluation of programs and policies at different levels (local, regional, national), as PASSI and Passi d'Argento allow to do [23].

When considering the PASSI data concerning the adult population living in Italy, urban areas (metropolitan cities or densely populated municipalities), compared to rural areas (municipalities not belonging to a metropolitan city or municipalities with low population density), favor some healthy lifestyles, such as lowering the at-risk consumption of alcohol, the prevalence of overweightness/obesity, and increasing the consumption of fruit and vegetables. Conversely, in these areas two harmful habits to health seem to be greater: sedentariness and tobacco use. The reasons for those differences between urban and non-urban areas may be manifold and mostly related to different habits and social norms, as well as to the diversified opportunities offered by the living environment. This is particularly true for higher-risk alcohol consumption, which penalizes residents in rural areas and confirms findings observed in other countries [24]. The contrast for the at-risk alcohol consumption, in particular, is also true for the elderly investigated in the PdA.

Contrary to the common view of "obesogenic cities" [25], a study conducted by the Imperial College London, and published in the journal *Nature* in May 2019, states that obesity is on the rise everywhere; however, the trend is faster in rural areas of the world than in urban settings, confirming the disadvantage of rural contexts in terms of obesity resulting from this analysis. Urbanization has always been believed to be one of the factors in the worldwide increase in obesity prevalence, but more than 55% of the global increase in the body mass index in the last 30 years is due to its rise in rural areas [26].

In urban centers among the adult population residing in Italy there is a higher prevalence of sedentary people and smokers. Living in an urban area penalizes the practice of physical activity and, for elderly people, even the mere performance of daily activities, whether they are leisurely, home-based, or social, in favor of a greater presence of physically inactive individuals [27]. In public health, tackling the sedentary lifestyle is a goal to reach above all else through the promotion of physical activity. This is influenced by multiple social, economic, and cultural determinants, as much depends on individual motivation, the phase of life, the design of the surrounding areas, and accessibility to the facilities provided. Furthermore, research shows that individuals who have never smoked are more likely to be active; a smoking habit and sedentary lifestyle are two directly related risk factors [28]. In fact, both negatively characterize urban areas. The contrast interventions try to act in a multidimensional perspective through health education, mass communication campaigns, prevention programs, prohibitions, and restrictions.

Urban contexts for the Italian adult population are negatively characterized by all the health outcomes analyzed, particularly in contrast to what happens to the elderly population who turn out to already be selected, or in any case more exposed to the possibility of experiencing chronic diseases. Health indicators studied in urban contexts do not reveal themselves to be as alarming, but remain at a disadvantage compared to what is observed in the other territories [29]. At the Second International Conference on health in Urban Areas in 2001, some remarked about how the increase in the number of individuals within cities can make urban environments a cause of physical and social problems, with negative consequences on individual health and health inequalities, also aggravated by environmental factors [30]. Furthermore, screening uptake is negatively associated with

unhealthy behaviors and with health conditions that are also risk factors for breast and colorectal cancer [31]. According to the WHO, non-communicable diseases are responsible for more than two thirds of all global deaths, and most of the determinants involved, such as physical inactivity, are linked to urbanization.

Among the health outcomes analyzed, there is also the presence of depressive symptoms, which is more widespread in urban than in rural areas for all population age groups. The urban environment is also a risk factor for psychiatric disorders, especially depression and anxiety, which are strongly associated with stress. Urban contexts, in fact, are characterized as places where rapid changes, individual isolation, anonymity, and contrasting values can take place; in contrast, rural ones are areas of social stability, integration, and supportive and consensus interpersonal networks [32]. Therefore, the elderly in urban contexts feel less safe within the neighborhood in which they live and, in general, are less satisfied with their lives. In large municipalities, there is often a lack of a support network to help the elderly and, conversely, they are not favored to represent a "resource" for society and a support for the people with whom they live. However, in more populated municipalities, the elderly declare that they have fewer difficulties in accessing health services and services related to daily life. In fact, it should be emphasized that in larger centers, the service is more within the reach of the citizen who can satisfy their needs in a relatively less extended space than those who live in small municipalities.

In reference to healthy behaviors for the adult female population, access to cancer prevention services is often a discriminatory factor derived from one's proximity to the nearest health center [33]. However, in urban areas where there is a greater participation in spontaneous initiatives and less participation in organized programs, the offer of the prevention service by the private sector may be more widespread; at the same time, it seems plausible to believe that the organization of the LHUs is unable to ensure efficient coverage [34]. It is possible that the wide availability of private sector ensuring services, such as offering screening tests at competitive prices, guaranteeing ease of access in terms of timeliness, schedule flexibility, and comfortable environments, takes away a significant proportion of the target population from organized programmers. It is also probable that greater integration is needed between the organization and the provision of services, as well as increased citizen awareness.

This study has some limitations. The PASSI and PdA surveillance systems are based on self-reported data collected by a telephone interview, therefore there may be some bias in the obtained information. We adjusted the estimations to include sociodemographic confounders and other covariates related to each specific outcome, but there may still be some residual confounding. We considered the individuals' municipalities of residence and not the temporary municipal changes; however, we assume that the usual life environment of individuals can correspond with their residence.

Finally, this research has major strengths. To our best knowledge, it is the only study so far which considers the whole of Italy and connects different health dimensions with the urbanization degree of the municipality of residence. It analyzes a heterogeneous population comprised of both adults and the elderly. In fact, PASSI and PdA surveillance systems allow for exploring a large amount of data; due to their standardized procedures for contacts and recall techniques, they have high response rates (81% in PASSI and 86% in PdA).

5. Conclusions

By analyzing urban health related issues, this study specifically highlights some areas of interest for immediate action, ranging from the contrasting of risk factors harmful to health up to the improvement of the availability of infrastructure and the use of services. Additionally, public health should be safeguarded to prevent it from being penalized by the phenomenon of urbanization. Moreover, in parallel to the strong increase in the number of the population, guidelines should be established to effectively allow the implementation of actual sustainable development. In conclusion, from a cross-sectoral and trans-spill

perspective, a matter of reorganizing services and infrastructure adaptation is clearly and urgently needed in urban areas alongside direct policies to promote the health of citizens and the protection of their living environment.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/su14105931/s1, Table S1: Definitions of PASSI indicators (https://www.epicentro.iss.it/passi/dati/socio?tab-container-1=tab1 (accessed on 20 March 2022)); Table S2: Definitions of PASSI d'Argento indicators (https://www.epicentro.iss.it/passi-argento/dati/socio#dati (accessed on 20 March 2022)).

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Institutional Review Board Statement: PASSI e Passi d'Argento are included in the list of regionally and nationally relevant surveillance in the Prime Minister's Office Decree, DPCM 3rd March 2017 on Registries and Surveillances (GU Serie Generale n.109 del 12-05-2017-All.A). The Ethics Committee of the Italian National Institute of Health (ISS-Istituto Superiore di Sanità) has issued a favourable ethical opinion on the Italian behavioural surveillance system PASSI. The protocol number of the final opinion is CE-ISS 06/158-8th of March 2007.

Informed Consent Statement: PASSI and PASSI d'Argento comply with General Data Protection Regulation. Verbal informed consent was obtained from all participants included in the study at the beginning of the telephone interview. This is an essential condition for the interview to be continued. The ethics committee approved the procedure.

Data Availability Statement: Raw data were generated at National Institute of Health (Istituto Superiore di Sanità-ISS). Derived data supporting the findings of this study are available from the authors [V.M. for PASSI and B.C. for PASSI d'Argento] on request.

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Conflicts of Interest: The authors declare no conflict of interest.

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