

Health inequalities and inadequate housing: the case of exceptions to hygienic requirements for dwellings in Italy

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Abstract

In the past decades, Italian hygienic requirements for dwellings have been modified by multiple derogations. Aim of the present work is to analyse the derogations introduced at a national, regional, and local level. The most important derogations were related to the habitable use of semi-basements and garrets, and building restoration. The paper also describes the regulations regarding indemnity for infringement of building abuses. The authors underline the need for more uniformity and clarity in the determination of health standards of dwellings, as well as for a simplification of the existing legislation.

Introduction

International studies widely and strongly recognise indoor environment as a major health determinant (1-5), in both developing and developed countries (6, 7). In the most economically developed countries, nowadays people spend up to 90% of their lifetime indoor (2, 8, 9). The occurrence and re-occurrence of pathologies related to the quality of built environment, exacerbated by the severe current socio-economic crisis, upholds once more the ultimate importance of domestic environment as principal living space (2, 9-13). Italy is undergoing a dwelling

crisis, especially in its larger urban areas (10, 14) and this is leading to the residential use of inadequate spaces (15-18), or spaces not normally considered as living environments. Among these, garrets and semi-basements constitute a not negligible portion of the new housing market (19-21). Law enforcement is a key part of Public Health protection in indoor environment (22, 23), and a general re-thinking of housing policies and regulations is mostly needed (14, 24). In Italy, regulations paid particular attention to hygiene and wellbeing in housing environment (25), but they are currently not up-to-date (26-29). After a constitutional reform, much more

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independence on different matters has been given to regional governments multiple exceptions were introduced at a local level (19, 20, 26), alongside with a dangerous indemnity for infringement of building abuses (29). The aim of the present study is to give an overview of exceptions introduced nationwide and to analyse the exceptions introduced across Italian national territory, particularly focusing on their compliance with international standards. The paper summarises the evidences highlighted by previously published studies. The present research focuses on four categories of exceptions that may represent major health threats: semi-basements, garrets, building restoration and indemnity for infringement of building abuses.

Semi-basements

Semi-basements represent a peculiar living space, which is usually wet for the accumulation of moisture of diverse provenience (i.e. rising damp, seepage or condensation), and which has scarce illumination and/or natural ventilation. The respect of both these aspects is essential to ensure adequate drying and removal of dangerous airborne contaminants, such as cigarette smoke and radon (19, 21).

The consequences of living in an unhealthy space are multiple, and associated with relevant social and sanitary costs: microclimate modifications induced by damp and deficiency of appropriate heating systems are risk factors for the development of acute and chronic illnesses, such as allergic rhinitis, asthma, eczema, respiratory infections (30-33), and chronic disabilities in adulthood (34). Exposure to radon, a radioactive noble gas, carcinogenic if inhaled (Group I according to IARC classification) (35) and recognized as the second cause of lung cancer (36, 37), is higher in semi-basements.

The only national regulation related to semi-basement use as dwellings dates back to 1896, and it is the Ministerial Instructions for the draft of Local Hygiene Codes for soil and buildings (*Compilazione dei regolamenti locali di Igiene del suolo e dell'abitato*) (19, 38). Article 58 of the above mentioned law states that no room whose walls are, in whole or in part of their height, located underground, will be allowed for permanent residence by one or more persons. (38) The same law declares that an exception can be made only if the walls height is at least 3 m, of which at least 1 m above ground, that they must be at least 1.5 m away from the street and 2 m away from underground aquifers; and that there must be sufficient illumination and ventilation. It is very interesting that these two articles are the first two of section 5, "Living Spaces", underlining that, basically, semi-basements cannot be considered habitable (19).

Some Italian regions allow the use of semi-basements as habitations, sometimes imposing additional requirements (Table 1), in any case less restrictive than the ones established by the Ministerial Instructions (19) more than 120 years ago. For example, Sardinia Region states that the walls are to be 2.4 m high, of which at least 1.5 m above ground, and that windows/floor ratio must be not less than 1/8 (19, 39). Sicily Region imposes only a height requirement of 2.4 m (19, 40). Umbria Region poses less restrictive requirements, but empowers Local Health Authorities to decide about hygienic appropriateness (19, 41, 42). Other Italian regions, as Apulia and Calabria, have more restrictive requirements (19, 43, 44).

From the analysis performed in our paper on the Municipal Building Codes of the ten largest Italian cities, it emerges that only two Codes (Rome and Florence) allow the use of semi-basements as living spaces (19, 45, 46). The situation in Palermo remains unclear, as the Code, at the article 56, mentions only new-built dwellings (47); same situation happens

Table 1 – Variability in the requirements for semi-basements used as dwellings

	Minimum Height	Portion of wall above the ground	Cavity Size	Windows/ floor Ratio
Ministerial Instructions	3 m	1/3	1,5 m	1/8
Regional Laws	2.4-2.7 m	1/4-1,5m	NS	1/8-1/16
Municipal Building Codes	NS-3 m	NS-1/2	0.5 – 0.6 m	NS-1/8

NS= Not Specified

in Genoa too, where the Code forbids the habitable use of semi-basements only in the old town centre (48). The Building Code of Catania, at article 146.3, does not allow using this spaces for living (19, 49), but article 19 refers to the Regional law number 4 of April 16th 2003 (40), that allows their use only when building restoration has been performed. The Building code of Rome, at article 38, allows the use semi-basements as dwellings, but it imposes some specific requirements. In particular, the ceiling highness has to be at least 3 m, at least half height of the walls must be above the ground, there must be a ventilated cavity of 0,5 m around the walls and another of at least 0.3 m under the floor. The same article imposes a windows/floor ratio of no less than 1/8, and minimum width of the street of 10 m (19, 45). The Building Code of Florence, at article 134/bis, allows the use of semi-basements as habitations only if, in addition to all normal requirements, there is a ventilated cavity around and below the structures that separates the house from the ground (19, 46).

Garrets

Albeit not always considered unhealthy spaces, garrets may pose hygienic issues, related to the reduction to the minimum of the values in terms of “air cube”, natural lighting and ventilation (20). Ministerial Instructions of 1896 (38) impose less restrictive requirements for garrets than for

other floors, because of the major natural lighting received (30). A minimum height of 2 m is prescribed, specifying that it must be “measured, between the floor and the ceiling, on the wall on the side of roof’s base, if this is sloping”; this figure rises to 2.5 m for dwellings with flat roof. Aero-illuminating ratio must not be lower than 1/15 of the floor, and with a minimum of 1.50 m² opening, against 1/10 and 2 m² provided for the other floors. Article 68 of the same law makes a specific mention of the insulation of these spaces, in order to provide thermal comfort and avoid huge temperature variations.

The above mentioned differences have been eliminated by Health Ministerial Decree (D.M.) of July 5th 1975 (50) that modifies the Ministerial Instructions; uniform requirements are imposed, regardless of the floor where the dwellings are located. In particular, highness requirements are 2.7 m or 2.55 m for mountain municipalities (the ones located at least 1,000 m above sea level) (20, 50).

Since 1996, several Italian regions have legislated on the redevelopment of garrets in order to reduce additional soil and energy consumption (20). In 1996, Lombardy was the first region to take a step with Regional Law July 15th 1996, n. 15, laying down its “Recovery for residential purposes of the existing attics” (51). From a sanitary point of view all these rules acted to lower the minimum requirements, as provided for by D.M. “Health” of July 05th 1975 (20, 50). The height value is often intended as an average

Table 2 – Variability in the requirements for garrets used as dwellings (regional regulations)

	Height (m)		Height (m) mountain communities	
	Habitable	Service	Habitable	Service
Minimum height for habitable garrets (ranges)	1.4 -1.8	1.3 -1.8	1.2-1.8	1.1-1.8
Average height for garrets (ranges)	2.0 -2.4	2.0 -2.4	2.0 -2.4	2.0 -2.4
	Volume (m ³)		Volume (m ³) mountain communities	
	Single*	Double**	Single*	Double**
Minimum volume for single* and double** room in garrets (ranges)	18.0-21.6	14.0-16.8	18.0-21.6	14.0-16.8
Window/floor ratio				
Ventilation/illumination ratio (range)	1/8 – 1/16			

* Values are obtained multiplying heights for minimal surface as indicated in in art. 2 Ministerial Decree July 05th July 1975 (9 m²).

** Values are obtained multiplying heights for minimal surface as indicated in in art. 2 Ministerial Decree July 05th 1975 (14 m²).

and laws require also a minimum one (Table 2) (20). These values may be different if the law takes into account whether the room is devoted to habitation or not (service rooms), or if the dwelling is located in a mountain community (variable between 300 and 1,000 meters above sea level, depending on the region); these ranges are reported in Table 2 (20, 52, 53). In the publication, air cubes were calculated multiplying height as expressed in regional standards, and using as basis the minimum areas imposed by the D.M. "Health" July 05th 1975 (9 m² for single rooms and 14 m² for double-size rooms) (20). The values obtained from these calculations are different from region to region (Table 2), with a range of 21.6- 18.0 m³ (20). The average air cubes for occupant are 21 m³ for single room (19.44 m³ for mountain towns), which drops to 16.33 m³ (15.12 m³ for mountain towns) for double room (20). According to national standards (50), these cubes should be not less than 24.3 m³ (22.95 m³ for municipalities above 1,000 m above sea level) for single room and 18.9 m³ (17.85 m³, for municipalities above 1,000 m above sea level) for double room (20, 50). Finally, some of these regional standards (Table 2) provide a reduction (up to one half) of the

ventilation/illumination ratio (20, 50). Not all regional laws provide variations of this basic requirement (20); If local regulations do not mention this parameter, national values are to be considered as not changed, and therefore applicable (1/8 of the floor area) (20, 50).

Building restoration

Restoration, on both building and urban scale, assumes a crucial importance in Italy, considering that about 20% of the buildings present in the country were built before 1919 (54, 55). The legislators, especially at a regional level, have already acted in order to facilitate the re-use of existing buildings, also for residential purposes, also, if needed, derogating national hygienic requirements (29).

For what concerns historic buildings, it is necessary to take into account a number of limitations that may be imposed by local art protection authorities, in order to preserve the historical and architectural heritage (29, 56, 57). With this respect, Article 21 of Law 1089 of January 06th 1939 "Protection of goods of artistic or historical interest" allows to act independently from

the prescription of zoning and building regulations (56).

Therefore, without a clear national legislation on possible exemptions from hygienic requirements, it is easy to understand how difficult it can be the daily practice for both designers and Public Health Officers (29, 56).

It is worth mentioning that the Ministerial (Health) Decree of June 09th 1999 (52) has considered the preservation of historical and architectural heritage, taking into account the difficulties in adapting old buildings to the mandatory requirements of minimum height. This decree provides an exception for buildings located in mountain municipalities (1,000 m above sea level), and undergoing renovation or hygienic improvements, but the exception applies only if the building presents specific characteristics defined by the decree (52). As reported in previous studies (53) the 1999 Decree excludes the old town centres of most Italian cities (not included in mountain communities), where the majority of historical buildings are located (29, 52).

Indemnity for infringement of building abuses

Amnesty is a title of legitimacy for abusive works that have been already realised, and it is granted once a sum of money has been paid (58).

With regards to amnesties, paragraph 19 of Article 35 of the Law February 28th 1985 number 47 states that: "Following the amnesty a certificate of habitability is released by the authority, also if the building does not fit with the requirements set by regulations, provided that it respects provisions in force for static security" (59). Considering this statement, all hygienic requirements prescribed at national or local level may be derogated. For example, in Rome rooms are considered habitable with a surface of at least 8 m², a minimum height

of 2.20 m, and ventilation/illumination ratio equal to 1/12 of the floor, and artificially integrated (10, 59).

In this regard, the judgment number 2620 of May 03rd 2011, released by the State Council (highest level of Italian Administrative Courts) sanctioned the implausibility to waive requirements that protect rights guaranteed by the Constitution, such as the right to health (29, 59-61). According to the State Council, health and hygienic requirements should in any case comply with the D.M. "Health" of July 5th 1975, Local Hygiene Codes and Municipal Building Codes (29). Nevertheless, the assertion of this sentence is not enough to dispel doubts on exemptions already granted to those buildings remedied in the period following the adoption of the above mentioned law, but before the decision of the State Council (29).

Discussion

The occurrence and re-occurrence of pathologies related to the quality of dwellings upholds once more the ultimate importance of domestic environment as principal living space (4, 62-65) and highlights the need to provide rigorous requirements for built environment, and mostly residences (22, 23, 26, 66). The present study underlines how the Italian regulatory system concerning housing and health is inhomogeneous and not updated, and sometimes even contradictory (67).

The first consideration is that article 32 of the Italian Constitution states that "the Republic protects Health as a fundamental right of individuals and as an interest for the community" (61), but regional laws create inequalities in Health Protection, varying the hygienic requirements of dwellings.

The second consideration is that, as underlined by different other studies (25-28), the criteria are out-dated and not

always relying on international standards and even on scientific evidence. New aspects ought to be taken into account, such as building sustainability and urban context (68-72).

A third consideration deals with the fact that existing regulations at regional and local levels sometimes set requirements that do not reach the internationally recognised minimum values (4, 19, 20, 72-74).

A fourth consideration is related to tragic natural disasters (floods, landslides, earthquakes) that hit Italy in the last years, and highlighted the fragility of national territory, but also of the housing stock as a whole. It makes again more obvious that garrets, semi-basements, buildings restored in not optimal ways and abusive buildings represent a threat for both security and health in case of these events (21, 75, 76).

The final consideration is that the study depicted a complex and fragmented legal framework that makes it difficult, if not impossible, to properly protect Public Health.

Conclusions

Indoor environment, and especially dwellings, represents one of the major health determinants, and a clear and updated regulatory system is a key factor to ensure Public Health protection. The Authors reckon that new and updated regulatory instruments for building hygiene should be developed, relying on the most recent acquisitions of international scientific literature and guaranteeing the highest standards in Public Health safeguard. The theme of housing and health nowadays needs to be assessed with a multidisciplinary and trans-disciplinary approach in both research and practice (77, 78), because of the complexity and wideness of these issues. The SItI (Italian Society of Hygiene, Preventive Medicine and Public Health) created a Working Group on

indoor health topics, composed not only by physicians, but also by architects, engineers, chemists, and biologists (79). This Group recently issued an important proposal (80) that might be considered as the very first step to update and keep the hygienic requirements of dwellings homogeneous. It is fundamental that lawmakers and policymakers take into account timely what is denounced by the scientific community in order to limit health inequalities across the Nation.

Riassunto

Diseguaglianze di salute ed ambienti abitativi inadeguati: il caso delle eccezioni ai requisiti igienico-sanitari delle abitazioni in Italia

In Italia sono state introdotte nei decenni una serie di deroghe ai requisiti igienico-sanitari delle abitazioni. Nel presente lavoro gli autori analizzano quanto decretato dai legislatori, a livello nazionale, regionale, ed anche locale. Le maggiori deroghe sono state operate in relazione all'utilizzo abitativo di seminterrati, sottotetti, e nel recupero edilizio; inoltre, vengono descritti i provvedimenti normativi circa le sanatorie per abusi edilizi. Infine, gli autori sottolineano la necessità di chiarezza ed omogeneità nella determinazione dei requisiti igienico-sanitari, oltre che di una semplificazione della normativa esistente.

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