



I31 Suicide in a Mountainous Territory: A Ten-Year Retrospective Survey

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Learning Overview: After attending this presentation, attendees will understand a suicidal trend in the Italian region “Valle d’Aosta” during a ten-year-long retrospective survey.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by providing information about unusual aspects of a suicide phenomenon in a mountainous territory that can be a predisposing factor to social isolation and difficulty in health care access.

Italy is ranked 128th worldwide for suicide with 4.7 suicides per 100,000 people per year. Since 2013, the leading region for suicidal events in Italy is the “Valle d’Aosta,” a small mountainous area in northwestern of Italy. It is the least densely populated Italian region with only 39 residents per square kilometer. The majority of the population lives in an urban area along the central valley that leads to France and Switzerland, while secondary lateral valleys have only remote rural villages, which are frequently isolated during the long, harsh winters.

This presentation reports data about the total number of suicides in “Valle d’Aosta” from January 2009 to June 2019 collected through the analysis of death certificates and external examination reports archived in the Aosta Office of the Medical Examiner. Resulting data were checked with medical records of the regional hospital to identify cases with a psychiatric history.

The research yielded a total of 159 suicides (20.8% of all the violent deaths): in 43 cases, the decedent was female (27%) and in 116 male (73%) with an average age of 58.6 years (range 17–93 years). The greatest percentage of suicides occurred in the age group of over 65 years (44%). This figure was markedly higher than the national statistics (33%). For this reason, this study compared the older suicidal population (Group 3) with two younger groups (Group 1, aged 17–4 years, and Group 2, aged 35–64).

The male-to-female ratio was 12:1 for Group 1, 1.73:1 for Group 2, and 3.37:1 for Group 3. These data confirm sociological studies: there are distinct sex differences in suicide mortality and suicidality (i.e., ideation and/or attempt). Females report higher rates of attempting suicide, yet males are more likely to die from suicide, possibly because males use more lethal means.¹

The suicide rate in the lateral valleys was significantly higher in the youngest group compared to the oldest one ($p=0.0207$), probably due to social isolation and lack of a future outlook, more difficult to cope with by a younger population. Seasonality showed a slight homogeneous prevalence of suicides during spring, consistent with the literature on the subject.² Leading suicidal methods were hanging (53.8%), fall from height (19.2%), and railway suicide (11.5%), with no firearms cases, for Group 1; hanging (47.6%), fall from height (15.9%), and drowning (14.3%) for Group 2; and hanging (45.7%), fall from height (15.7%), and firearms (15.7%) for Group 3. Hanging is worldwide one of the most common suicidal methods, while the constancy of fall from height as second-most common suicidal method in the present sample can be related to the peculiar morphology of the mountainous territory with cliffs and bridges across waterways.

Among the decedents, psychiatric records were found in 19.2% of Group 1 (mostly bipolar disorder), 34.9% of Group 2 (mostly depression), and 18.6% of Group 3 (slight prevalence of depression over bipolar disorder). The leading method chosen by the psychiatric population of Group 3 was—by far—fall from height (53.8%). This can be explained with the major physical and mental impairment of this subgroup of psychiatric and elder subjects, as fall from height only requires a residual ambulatory ability and minor planning of the act. In all the psychiatric subgroups, no cases of firearms suicides were observed; this is consistent with the strict Italian statutory requirements for firearms licenses. The suicide place was more frequently the decedent’s home for all the groups. While home (70%) outdistanced the other suicidal places in Group 3, such as waterway (8.6%), and bridge (5.7%), in the other groups, the prevalence was slighter. The choice of an intimate place to commit suicide can be related with a higher sense of discretion in the elder population.

This presentation provides attendees with a greater awareness of the importance of social and geographical factors in the forensic reconstruction of the suicidal act.

Reference(s):

1. Andrea Miranda-Mendizabal et al. Gender differences in suicidal behavior in adolescents and young adults: Systematic review and meta-analysis of longitudinal studies. *International Journal of Public Health* 64, no. 2 (2019): 265–283, <https://doi.org/10.1007/s00038-018-1196-1>.
2. Pauliana Valéria Machado Galvão et al. Temporal distribution of suicide mortality: A systematic review. *Journal of Affective Disorders* 228 (2018): 132–142, <https://doi.org/10.1016/j.jad.2017.12.008>.

Suicide, Social Isolation, Elderly Population