

# The negative effect of financial constraints on planning prevention activities: some evidence from the Italian experience

Annalisa Rosso, Corrado De Vito, Carolina Marzuillo, Azzurra Massimi, Elvira D'Andrea, Paolo Villari

Department of Public Health and Infectious Diseases, Sapienza University of Rome, Piazzale Aldo Moro, 5—00185 Rome, Italy

**Correspondence:** Paolo Villari, Department of Public Health and Infectious Diseases, Sapienza University of Rome, Piazzale Aldo Moro 5, Rome, 00185, Italy, Tel: +39 06 49914886, Fax: +39 06 49914449, e-mail: [paolo.villari@uniroma1.it](mailto:paolo.villari@uniroma1.it)

This study was aimed to assess the association between regional financial deficits and Recovery Plans and the quality of the 702 projects developed by the Italian Regions within the National Prevention Plan 2010–13. Multivariate analyses showed significant associations between Recovery Plans and low quality of projects, possibly due to weak regional public health capacities. Regions with Recovery Plans are likely to focus mainly on short-term issues with a high impact on health care costs, leaving few resources available for prevention. A different approach to financial deficit focused on long-term strategies, including those for health promotion and disease prevention, is needed.

## Introduction

The recent global economic and financial crisis led European countries to make substantial reductions in some areas of public expenditure, which may increase risks to health.<sup>1</sup> In Italy, the process of decentralization of health care from the central government to the Regions and the related fiscal federalism, initiated >10 years ago, has led to regional discrepancies in spending on health care and to a significant cumulative deficit, mostly concentrated in a few Regions.<sup>2–4</sup> As a consequence, the government imposed to those Regions the implementation of Recovery Plans, which should define a strategy for retrenchment and stabilization through the implementation of short-term actions and long-term system reorganizations.<sup>5</sup>

Our hypothesis was that health promotion and disease prevention activities were not among the main priorities of Regions with Recovery Plans. The aim of this study was to assess the association between Recovery Plans and the quality of projects included by the Italian Regions in their Regional Prevention Plans (RPPs), developed in accordance with the National Prevention Plan (NPP) 2010–12 (extended to 2013), that is the main policy and planning instrument for prevention in Italy.<sup>6</sup> (See [Supplementary Appendix](#) for details on Recovery Plans and the NPP).

## Methods

RPPs were appraised using a tool specifically designed by a Scientific Committee appointed by the Italian Ministry of Health.<sup>7</sup> The tool was composed of two sections: (i) descriptive analysis of the RPP, focused mainly on the analysis of the Strategic Framework section of the RPP, where the regional context and needs are spelled out; and (ii) analysis of the projects included in the Operational Plan section of the RPP, grouped into four macroareas (Predictive medicine, Universal prevention, Prevention in high risk groups and Prevention of complications and recurrence of chronic diseases). The quality of projects included in the RPPs was assessed using the following six outcome variables: (a) coherence of the project

with the regional epidemiological context; (b) coherence of the project with the Regional Health Plan or other regional health programs/policies; (c) reporting evidence of the effectiveness of the interventions proposed in the project; (d) consideration of the cost-effectiveness of the interventions proposed in the project; (e) consideration of project sustainability (i.e. the capacity to continue with the public health interventions proposed after completion of the project); (f) consideration of project feasibility. For the purposes of analysis the outcome variables were codified as 0 or 1, signifying a no or yes response, respectively, to particular questions in the evaluation tool.

Multiple logistic regression with backward elimination was performed to identify possible associations of Recovery Plans with the six selected quality variables of the 702 projects included in the 19 RPPs 2010–13. To control for confounding factors, the following four covariates were included in the models: (i) regional Gross Domestic Product (GDP) per capita in 2010 (high if above the median, low if below the median); (ii) geographic area (North, Center, South and Islands); (iii) macroarea of intervention (Predictive medicine, Universal prevention, Prevention in high-risk groups and Prevention of complications and recurrence of chronic diseases); (iv) quality of the Strategic Framework section of RPP. A 0–10 summary score was calculated using 10 quality items identified through a principal component analysis (PCA) and included in the models as a dichotomous variable (high if above the median, low-medium if below). A sensitivity analysis was performed replacing the dichotomous quality score with either an ordinal quality score or quality components as covariates in the regression models.

Stratified models were built if a statistically significant interaction at 0.15 level was found. Robust standard errors were estimated in order to adjust for the regional (cluster) effect (See [Supplementary Appendix](#) for detailed methodology).

## Results

The average quality score of the 19 RPPs, based on the positive answers to the 10 questions listed in the [Supplementary table S1](#),

**Table 1** Results of multiple logistic regression analyses investigating the impact of recovery plans and other covariates on selected quality items of projects included in RPPs

Variable	Regions with low GDP			Regions with high GDP		
	OR	95% CI	P value	OR	95% CI	P value
Coherence of projects with the regional epidemiological context						
Recovery plans	0.62	0.42–0.90	0.013	0.71	0.35–1.44	0.344
Macroarea of intervention						
Universal prevention (referral)	1	–	–	1	–	–
Predictive medicine	1(omitted)	–	–	0.21	0.04–1.04	0.056
Prevention in high risk groups	0.87	0.40–1.90	0.736	0.47	0.25–0.88	0.019
Tertiary prevention <sup>a</sup>	1.17	0.11–12.94	0.899	0.98	0.30–3.13	0.969
Geographic area						
North (referral)	1	–	–	1	–	–
Centre	0.46	0.26–0.79	0.005	2.43	0.91–6.49	0.075
South and islands	0.20	0.19–0.20	<0.001	1(omitted)	–	–
Coherence of projects with the regional health plan or other regional health programs/policies						
Recovery plans	2.13	1.31–3.46	0.002	1.31	0.29–5.96	0.725
Macroarea of intervention						
Universal prevention (referral)	1	–	–	1	–	–
Predictive medicine	0.46	0.07–2.94	0.412	0.66	0.11–4.11	0.658
Prevention in high risk groups	0.28	0.13–0.60	0.001	0.85	0.48–1.50	0.585
Tertiary prevention <sup>a</sup>	1.35	0.27–6.68	0.717	0.95	0.37–2.45	0.919
Geographic area						
North (referral)	1	–	–	1	–	–
Centre	0.20	0.18–0.22	<0.001	10.35	2.68–39.97	0.001
South and islands	0.09	0.07–0.11	<0.001	1(omitted)	–	–
Evidence reporting on the effectiveness of the interventions proposed in the projects						
Recovery plans	0.51	0.20–0.90	0.026	1.17	0.69–1.99	0.568
Macroarea of intervention						
Universal prevention (referral)	1	–	–	1	–	–
Predictive medicine	0.83	0.28–2.43	0.740	2.27	0.30–17.14	0.568
Prevention in high risk groups	2.11	1.25–3.58	0.005	3.75	1.54–9.12	0.004
Tertiary prevention <sup>a</sup>	0.29	0.07–1.15	0.078	1.44	0.37–5.59	0.601
Geographic area						
North (referral)	1	–	–	1	–	–
Centre	1.54	0.88–2.71	0.132	3.28	1.89–5.70	<0.001
South and Islands	1.46	0.95–2.25	0.081	1(omitted)	–	–
Considerations on the project's sustainability						
Recovery plans	0.06	0.03–0.16	<0.001	0.73	0.16–3.31	0.680
Macroarea of intervention						
Universal prevention (referral)	1	–	–	1	–	–
Predictive medicine	0.82	0.19–3.51	0.792	1(omitted)	–	–
Prevention in high risk groups	1.33	0.55–3.23	0.522	2.03	0.38–10.87	0.410
Tertiary prevention <sup>a</sup>	2.12	0.59–7.63	0.252	1(omitted)	–	–
Geographic area						
North (referral)	1	–	–	1	–	–
Centre	0.49	0.01–0.22	<0.001	2.16	0.76–6.11	0.148
South and islands	0.51	0.25–1.03	0.062	1(omitted)	–	–
All regions						
Consideration of the cost-effectiveness of the intervention proposed						
Recovery plans	0.23	0.12–0.41	<0.001			
Macroarea of intervention						
Universal prevention (referral)	1	–	–			
Predictive medicine	3.21	1.36–7.59	0.008			
Prevention in high risk groups	3.15	1.67–5.95	<0.001			
Tertiary prevention <sup>a</sup>	2.53	0.51–12.44	0.253			
Geographic area						
North (referral)	1	–	–			
Centre	2.03	0.88–4.67	0.096			
South and islands	2.59	1.51–4.42	0.001			
Considerations on the project's feasibility						
GDP pro capita	0.06	0.02–0.15	<0.001			
North	5.54	3.06–10.05	<0.001			

Notes: Variables were kept in the model if they reach statistical significance in at least one of the two stratified models.

a: Prevention of complications and recurrence of chronic diseases.

was 7.7 (range 3–10) and it was lower in the eight Italian Regions with Recovery Plans in 2010 (Abruzzo, Calabria, Campania, Lazio, Molise, Piemonte, Puglia, Sicilia) (7.2 vs. 8.2). Only two Regions, without Recovery Plans, did not develop their RPPs.

The 404 projects developed by Regions with Recovery Plan, compared with the 399 projects of other Italian Regions, were less coherent with the regional epidemiological context (82.5 vs. 88.8%), more consistent with the regional health planning (87.2 vs. 83.0%),

reported less frequently the evidence on the effectiveness and the cost-effectiveness of the interventions proposed (27.9 vs. 33.4% and 4.4 vs. 11.0%, respectively), and discussed less frequently sustainability (5.0 vs. 16.7%). The percentages of projects including considerations on their feasibility were similar in Regions with Recovery Plans and those without (21.3 vs. 22.7%).

In the multivariate analysis, the association between the existence of Recovery Plans and low quality of projects reached the statistical significance for the lack of coherence of projects with the regional epidemiological context (in Regions with low GDP), the absence of reported evidence on the effectiveness of the interventions proposed (in Regions with low GDP), the absence of consideration of the cost-effectiveness (in all Regions), and the lack of consideration of project sustainability (in Regions with low GDP) (table 1). A statistical significant association with the lack of consideration of project feasibility (in all Regions) was detected only if the covariate quality of the Strategic Framework section of RPPs was included in the model as quality components instead of dichotomized quality score (See [Supplementary Appendix](#) for the results of the sensitivity analysis). In contrast, there was a statistical significant association between Recovery Plans and coherence of projects with the Regional Health Plan or other regional health programs/policies (table 1).

## Discussion

The quality of prevention projects developed in the RPPs 2010–13 was lower in Regions with a Recovery Plan. After controlling for regional GDP per capita, area of intervention and geographic area, we found an association between Recovery Plans and lower levels of projects coherence with the regional epidemiological context, absence of reported evidence on the effectiveness and cost-effectiveness of the interventions proposed, lack of consideration of sustainability (mainly in regions with low GDP), and to a lesser extent, lack of consideration of project feasibility.

We believe two main factors to be responsible for the association between Recovery Plans and lower projects quality, acknowledging that further research may be useful to support our hypotheses. First, the lower quality of prevention projects developed by Italian Regions with Recovery Plans may be a consequence of weak management skills and public health capacities. Such weaknesses could also be the underlying causes of financial deficit in the same Regions: financially distressed Regions have in fact proven to have both the largest and weakest management teams among all Italian Regions.<sup>5</sup>

Second, Regions with Recovery Plans are likely to be focused mainly on short-term issues with a high impact on health care costs (i.e. restructuring hospital care), leaving few resources available for prevention.<sup>5</sup> This approach is common to most EU Member States, which have recently introduced reforms that focus primarily on generating immediate savings, without taking into account medium- and long-term goals, such as improving the efficiency and quality of health care spending.<sup>8</sup>

Evidence suggests that cuts to public health budgets may help countries to meet short-term cost-containment goals but are likely to lead to cost increases and lower population health gains in the longer term,<sup>9</sup> whereas prevention investments improve the value for money of public health funding.<sup>10</sup> Thus, we suggest to develop a different approach to financial deficit in Italy focused also on long-term strategies, including those for health promotion and disease prevention with demonstrated effectiveness and cost-effectiveness, and on strong central Government support for capacity building in weaker Regions (See [Supplementary Appendix](#) for study limitations).

## Supplementary data

Supplementary data are available at *EURPUB* online.

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*Conflicts of interest:* None declared.

### Key points

- The quality of projects for health promotion and prevention activities developed in Italy in the period 2010–13 was lower in Italian Regions with financial deficit and Recovery Plans.
- Projects developed by Regions with Recovery Plan were less coherent with the regional epidemiological context, reported less frequently the evidence on the effectiveness and cost-effectiveness of the intervention proposed and discussed more rarely the sustainability.
- Possible explanations of the lower quality include weak public health capacities and greater attention on short-term health care cost containment.
- An approach to financial deficit more focused on long-term strategies, including those for health promotion and disease prevention, is needed.

## References

- 1 Karanikolos M, Mladovski P, Cylus J, et al. Financial crisis, austerity, and health in Europe. *Lancet* 2013;381:1323–31.
- 2 Tediosi F, Gabriele S, Longo F. Governing decentralization in health care under tough budget constraint: what can we learn from the Italian experience? *Health Policy* 2009;90:303–12.
- 3 Bordignon M, Turati G. Bailing out expectations and public health expenditures. *J Health Econ* 2009;28:305–21.
- 4 Lega F, Sargiacomo M, Ianni L. The rise of governmentality in the Italian National Health System: physiology or pathology of a decentralized and (ongoing) federalist system? *Health Serv Manage Res* 2010;23:172–80.
- 5 Ferrè F, Cuccurullo C, Lega F. The challenge and the future of health care turnaround plans: evidence from the Italian experience. *Health Policy* 2012;106:3–9.
- 6 Boccia A, De Vito C, Marzuillo C, et al. The governance of prevention in Italy. *Epidemiol Biostat Public Health* 2013;10:e89141–2.
- 7 Rosso A, Marzuillo C, Massimi A, et al. Policy and planning of prevention in Italy: Results from an appraisal of prevention plans developed by Regions for the period 2010–2012. *Health Policy* 2015; Apr 2. [Epub ahead of print]
- 8 European Commission—Directorate-General for Economic and Financial Affairs. Report on Public Finances in EMU, 2013. Part IV Public Expenditure on Health: Its Growing Importance, Drivers and Policy Reforms to Curb Growth. European Commission, Bruxelles, 2013. Available at: [http://ec.europa.eu/economy\\_finance/publications/european\\_economy/2013/pdf/ee-2013-4-04.pdf](http://ec.europa.eu/economy_finance/publications/european_economy/2013/pdf/ee-2013-4-04.pdf)
- 9 Martin-Moreno JM, Anttila A, von Karsa L, et al. Cancer screening and health system resilience: keys to protecting and bolstering preventive services during a financial crisis. *Eur J Cancer* 2012;48:2212–18.
- 10 Merkur S, Sassi F, McDaid D. Policy Summary 6. Promoting Health, Preventing Disease: Is there an Economic Case? Copenhagen: WHO Regional Office for Europe and European Observatory on Health Systems and Policy, 2013.