






## ORIGINAL ARTICLE

**COVERAGE OF THE *BOLSA FAMÍLIA* PROGRAM AND OF PRIMARY CARE IN SANTA CATARINA: ANALYSIS OF THE INTER-FEDERATIVE AGREEMENT INDICATORS**

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**ABSTRACT**

**Objective:** to evaluate Primary Care coverage in the municipalities of Santa Catarina and the reach of the agreement indicator corresponding to coverage of the *Bolsa Família* Program. **Method:** an ecological, cross-sectional and descriptive study, using spatial analysis and probabilistic relationships, resorting to calculation of the Spearman's coefficient with the aid of the Statistical Package for the Social Sciences software. It was conducted with 2017 and 2018 data from 295 municipalities of Santa Catarina, Brazil. **Results:** there is a direct correlation ( $p < 0.05$ ) between the indicators corresponding to Coverage by the Primary Care and Family Health Strategy teams with that of Coverage by the *Bolsa Família* Program. Santa Catarina did not present good performance in the fulfillment of the goals agreed upon in 2017-2018 regarding the indicator corresponding to Coverage by the *Bolsa Família* Program, presenting mean values of 83.4 and 85.6 in 2017 and 2018, respectively. **Conclusion:** the study contributed to understanding the influence of the *Bolsa Família* Program on the health indicators.

**DESCRIPTORS:** Primary Health Care; Social Indicators; Family Health; Social Determinants of Health; National Health Programs.

**HOW TO REFERENCE THIS ARTICLE:**

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## INTRODUCTION

Federal Law No. 10,836, dated January 9<sup>th</sup>, 2004, created the Bolsa Família Program (*Programa Bolsa Família*, PBF) and, in order to share administration and execution of the actions of other income transfer programs of the Federal Government, it integrated the *Bolsa Escola*, *Bolsa Alimentação*, *Auxílio Gás* and *Cartão Alimentação* programs into only one program, administered by the Ministry of Social Development<sup>(1)</sup>.

Its objectives include promotion of access to the public services network, such as health, education and social assistance; fight against hunger and promotion of food and nutrition safety; encouragement for the emancipation of families living in poverty; in addition to seeking intersectoriality, situations that demanded synergy of different public agencies to promote effectiveness of the PBF<sup>(2)</sup>.

After its implementation, diverse scientific evidence pointed out an association between the PBF and the reduction of poverty and income inequality, in addition to an improvement in the living conditions of children and mothers due to increased use of preventive health services and the consequent reduction in disease levels. These results confirmed that income transfer programs contribute to reducing inequalities and to the reach of essential life areas, such as nutrition, sanitation and use and access to health services, consequently resulting in better health levels and, especially, better infant mortality indicators<sup>(3)</sup>.

In the face of these dimensions, the PBF started to be an adjuvant policy to food safety actions and to maintain an association with the improvement of the socio-economical aspects<sup>(3-4)</sup>, attributing responsibilities to the health sector, since granting of the benefit is related to the performance of prenatal care, nutritional follow-up, and monitoring of the child's and woman's health.

In this scenario, it was up to Primary Care to monitor the conditioning factors of health that provided answers to the PBF, requesting that the municipalities operationalized actions such as recording the monitoring of individuals benefited by the programs, follow-up and location of families, in addition to home visits and follow-up of the vaccination schedule and of the growth and development of children under seven years old, performance of prenatal and puerperium consultations for pregnant women, and participation in educational activities about breastfeeding and healthy eating, activities inherent to the primary care level<sup>(5-6)</sup>.

Therefore, the PBF coverage indicator was included in the Inter-Federative Agreement System of Indicators (*Sistema de Pactuação Interfederativa de Indicadores*, SISPACTO)<sup>(7)</sup>, an instrument that assists municipalities in the implementation of methods that enable assessment, monitoring and control of indicators and health activities in a clear and objective way. Such indicators are operationalized in a tripartite way, serving as a legal instrument of co-responsibility among the federated entities, aiming at the construction of effective and resolute health services, in addition to serving as a national strategy for monitoring performance of the system at the local health level<sup>(8)</sup>. In this regard, the indicator corresponding to Coverage of the Bolsa Família Program, focus of this study, was present among the monitored and agreed upon indicators.

Therefore, the hypothesis of this study is that municipalities with greater Primary Care coverage obtain better results in the 2017-2021 inter-federative agreement indicator, and its objective is to evaluate Primary Care coverage in the municipalities of Santa Catarina and the reach of the agreement indicator corresponding to Coverage of the Bolsa Família Program.

## METHOD

The methodological approach used was of the ecological and cross-sectional type, using the spatial analysis technique, performed with data from 2017 and 2018, considering the 295 municipalities in the state of Santa Catarina as analysis units. The registration method of probabilistic relationships was used, aiming to analyze Primary Care health coverage and the inter-federative agreement indicators available, referring to 2017 and 2018, being tabulated in 2020.

The data were extracted from the official database of the state of Santa Catarina, available and publicly accessible by DIVE/SC<sup>(9)</sup>. The estimated Population coverage by the Primary Care teams was used as dependent variable; the other indicators were worked on as independent variables. The data were selected according to the list of inter-federative agreement indicators, and the 23 indicators agreed upon were included in the analysis.

The data analysis process was initiated with a descriptive exploration including mean, standard deviation, median, percentiles 25 and 75, minimum and maximum for all the study indicators. A correlation matrix based on calculation of the Spearman's correlation coefficient was proposed. All the tests considered a bidirectional  $\alpha$  value of 0.05 and a 95% confidence interval and were performed with the aid of two software programs: R Project for Statistical Computing, IBM Software Group, and Statistical Package for the Social Sciences, organizing the data in Excel 2016®.

Choropleth maps were also plotted with indicators selected for assessment and distribution of the indicators in the study area for 2017 and 2018. The maps were developed in the QGIS3.10.2 software.

As the study was developed based on secondary data sources, it waived approval by the Research Ethics Committee.

## RESULTS

The data shown in Table 1 reveal that 2017 presented a lower mean (Mean=83.4; SD=13.6) when compared to the 2018 mean (Mean=85.6; SD=12), regarding the agreement indicator corresponding to Coverage of the Bolsa Família Program.

Table 1 - Inter-federative agreement indicators referring to 2017 and 2018. Florianópolis, SC, Brazil, 2020 (continues)

	2017						
	Mean	SD	Median	P25	P75	Min.	Max.
Population Coverage of Family Health	95.8	12.4	100	100	100	0	100
Coverage of the Bolsa Família program	83.4	13.6	86.5	77.9	92.6	0	100
Population Coverage of Primary Care teams	82.8	25.3	100	65.4	100	0	100

	2018						
	Mean	SD	Median	P25	P75	Min.	Max.
Population Coverage of Family Health	95.7	12.8	100	100	100	0	100
Coverage of the Bolsa Família program	85.6	12	88.2	79.8	94	0	100
Population Coverage of Primary Care teams	82.4	25.5	100	66.7	100	0	100

Key: SD: Standard Deviation; P25: Percentile 25; P75: Percentile 75.

Source: The authors (2020)

The variables presented concern the following: number of deaths due to chronic non-communicable diseases (V4); premature mortality rate due to chronic non-communicable diseases (V5); percentage of deaths in women of reproductive age studied (V6); percentage of deaths due to defined underlying causes (V7); percentage of vaccines with adequate coverage (V8); proportion of closed cases of notifiable diseases (V9); percentage of cure of leprosy (V10); new cases of Congenital Syphilis (V11); cases of AIDS in children under five years old (V12); percentage of water analysis performed (V13); reason for cervical examination (V14); reason for mammography (V15); percentage of pregnancies in adolescence (V17); number of deaths (V18); infant mortality rate (V19); number of maternal deaths (V20); population coverage of Family Health (V21); coverage of the Bolsa Família Program (V22); population coverage of PC teams (V23); performance of VISA actions (V24); matrixing actions of CAPS (V25); and proportion of "occupancy" in ART notifications (V26).

The variables that did not appear marked in the matrix (Figure 1 and Figure 2): V5, V8, V11, V12, V13, V15, V16, V17, V19 in 2017 and V5, V7, V12, V13, V16, V17, V19 in 2018, were those that presented no statistical significance ( $p \geq 0.05$ ). All the correlations were significant ( $p < 0.05$ ). The correlation coefficient is defined by the color: the stronger the color, the more correlated the indicators are.

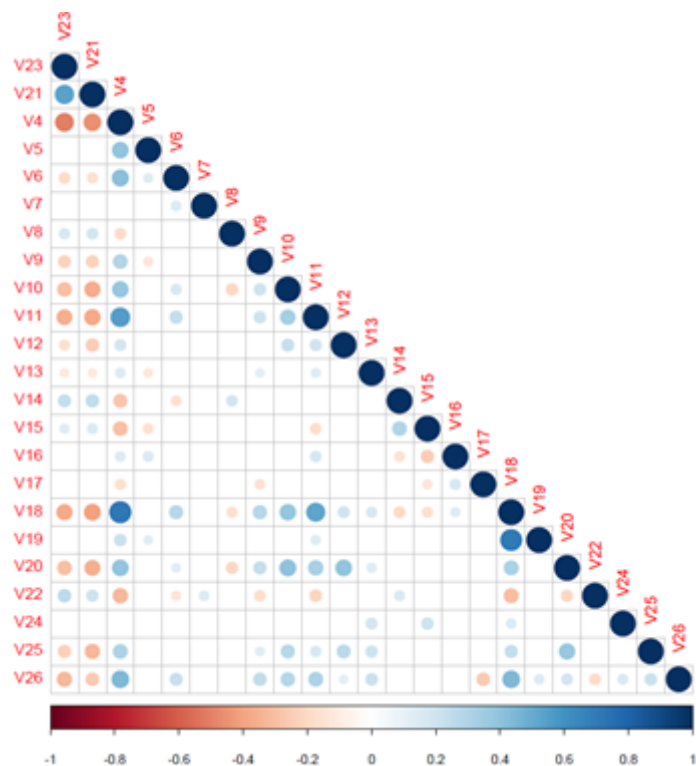


Figure 1 - Correlation matrix of the 2017 inter-federative agreement indicators. Florianópolis, SC, Brazil, 2020. Source: The authors (2020)

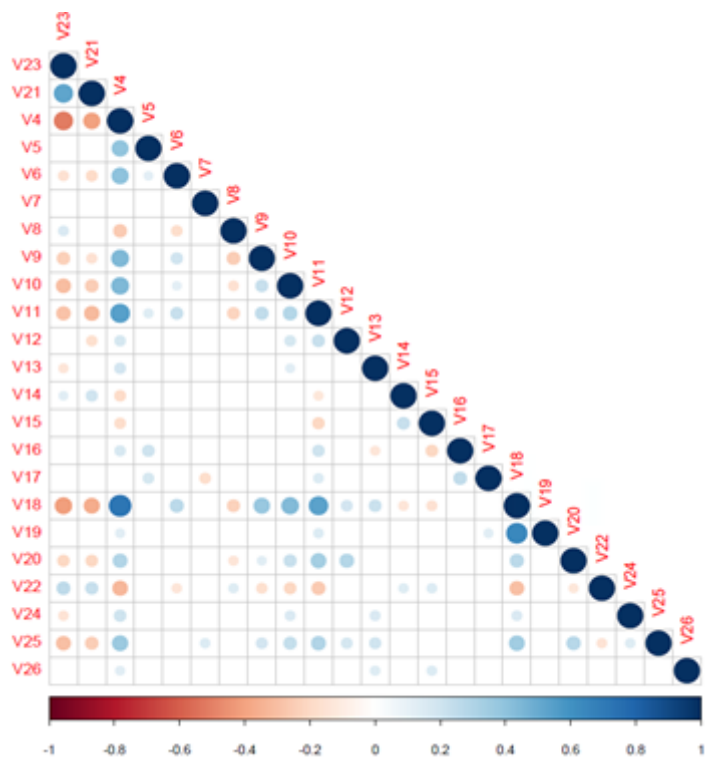


Figure 2 - Correlation matrix of the 2018 inter-federative agreement indicators. Florianópolis, SC, Brazil, 2020. Source: The authors (2020)

Thus, it can be verified, for example, that coverage of the Bolsa Família Program is inversely correlated with the number of infant deaths, both for 2017 and for 2018.



Based on Figures 3 and 4, it can be seen that both in 2017 and in 2018, coverage of the Bolsa Família Program was inversely correlated with the number of infant deaths, the number of maternal deaths, the number of deaths due to Chronic Non-Communicable Diseases (CNCDs), the percentage of deaths in women of reproductive age and new cases of congenital syphilis, which means that as one variable increased, the other decreased. It was also inversely correlated with the percentage of cure of leprosy, even though, for this variable, its correlation was only present in 2018.

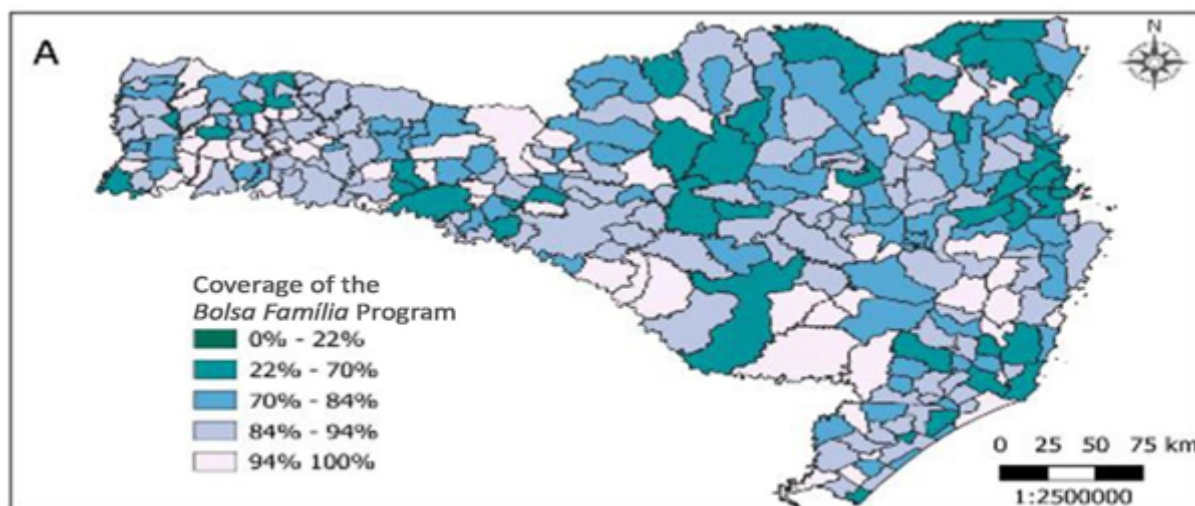


Figure 3 - Coverage of the Bolsa Família Program in the state of Santa Catarina during 2017. Florianópolis, SC, Brazil, 2020. Source: The authors (2020)

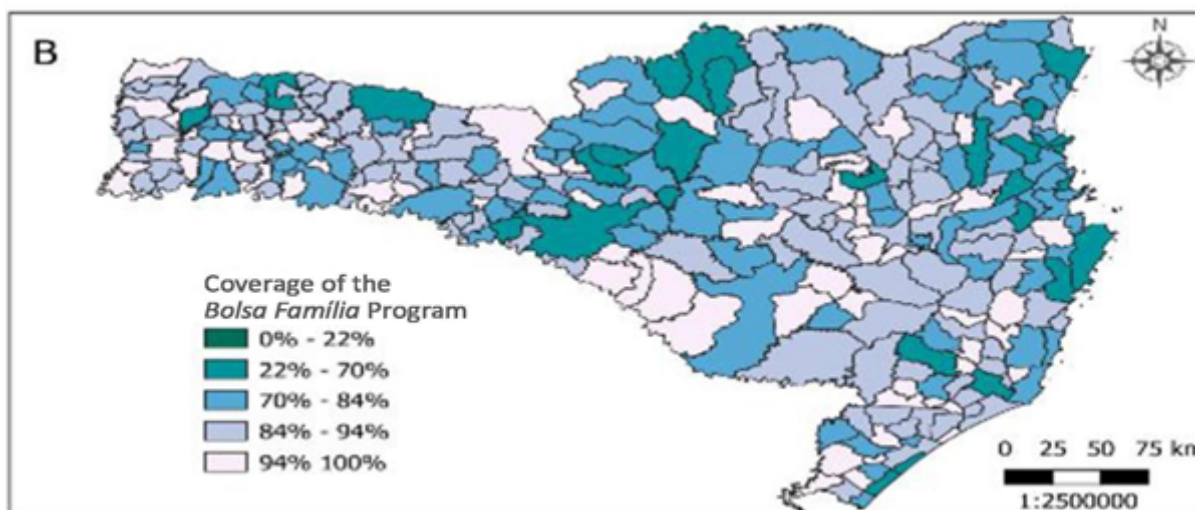


Figure 4 - Coverage of the Bolsa Família Program in the state of Santa Catarina during 2018. Florianópolis, SC, Brazil, 2020. Source: The authors (2020)

On the other hand, coverage of the Bolsa Família Program was proportionally related to the percentage of deaths due to a defined underlying cause in 2017. It is also noteworthy for being a variable proportionally related to coverage of the FHS teams, to the population

coverage of the Primary Care teams and to the reason for cervical cytopathological examination in both years, that is, as one variable increased, the other followed the same trend.

In view of the correlation between the variables, Figure 2 shows the representation of the coverage by the Bolsa Família Program correlated with that of the Family Health teams and the population coverage of the Primary Care teams in the heat maps.

## DISCUSSION

Based on the aforementioned evidence, it can be seen that development of the PBF influences the increase or reduction in mortality indicators such as infant death, maternal death, deaths due to CNCs and deaths in women of reproductive age. These correlations show the effectiveness of income transfer actions to infer mortality indicators, generating satisfactory results for the population's health<sup>(3)</sup>.

Thus, it is observed that income transfer policies, developed in association with the Family Health Strategy – a capillary care network that acts on the specificities of the territory, families and communities through care longitudinality – can be fruitful allies to the development and improvement of other indicators of interest to collective health.

This fact is consistent with other studies, which sought to understand the impact of the PBF on infant mortality and showed a reduction in this indicator and an increase in the number of prenatal consultations, especially in scenarios where coverage of the Family Health Strategy teams was high<sup>(3)</sup>.

However, actions to improve such indicators cannot be limited to controlling the PBF conditioning factors, given that the Brazilian infant mortality rate is still high, with a mean of 12.4 per 1,000 live births, while countries like Singapore, Norway and Japan have less than two deaths per 1,000 live births<sup>(10)</sup>.

In this aspect, women's health also gains prominence: from the data, the correlation between the PBF coverage indicators and those of maternal death and deaths in women of reproductive age is evident, and the PBF may have a contribution share since, in addition to organizing income for the families, it encourages access to the health services<sup>(11)</sup>.

However, there is still a long way ahead for the improvement of several indicators. Congenital syphilis, for example, still remains an important public health problem with 3.5 cases per 1,000 live births, justified by social vulnerability and lack of attention to prenatal care<sup>(12)</sup>.

Among the correlations perceived, there is also an influence of the PBF on the ratio of cervical cytopathological examinations, a preventive method widely used to detect Cervical Cancer precursor lesions, an association possibly related, among other factors, to the guidelines of the program aimed at the use of health systems. And, for this to occur, both coverage and organization of the work process in Primary Care are necessary<sup>(13)</sup>.

Therefore, it is clear that the Program acts and reverberates in other inter-federatively agreed upon health indicators. However, it is necessary to enable an arrangement compatible with the work process of the different health teams at the primary level, in order to strengthen achievement of the agreed upon goals, since this analysis, based on the data, proved to be weakened.

This can be a reflection of the recurring lack of professionals for completeness of the teams, which sometimes overloads a professional, leading them to prioritize certain activities, not to mention the professionals' lack of understanding about the real meaning

of the program, as well as about its implementation and scarce supervisory attitudes to assess good use of the benefit by the families<sup>(14)</sup>. From this perspective, it is important that the health area recognizes its role in the PBF, especially the primary care level, as an activity that deserves attention, especially due to the correlation pointed out in the findings between the PBF and some indicators of interest to primary care.

In the core of this scenario, the primary care professional, in addition to monitoring other indicators<sup>(15)</sup>, plays a central role in the development and achievement of goals related to the health domain in the PBF, as it is a program that, when carried out, reduces the chances of developing comorbidities<sup>(16)</sup>.

Regarding the limitations, as this is a study based on secondary data, there is a need to evaluate operationalization, from the perspective of the performance of Primary Care teams, regarding the work process of the Bolsa Família Program in the different scenarios of Santa Catarina.

## CONCLUSION

The results of the study point out that the state of Santa Catarina did not perform well in meeting the goals agreed upon in 2017-2018 with regard to the indicator corresponding to Coverage by the Bolsa Família Program. However, it is clear that, when the PBF Coverage indicators are correlated, especially with the mortality indicators (such as infant deaths, maternal deaths, deaths due to CNCs and percentage of deaths in women of reproductive age, in addition to new cases of Congenital Syphilis), there is influence of the BFP, shown by the study findings, given the inverse correlation between coverage and indicators.

Finally, the data revealed a direct correlation between the indicators corresponding to Coverage by the Primary Care teams and Population Coverage of the Family Health Strategy and Coverage by the Bolsa Família Program, highlighting that, the higher one of them is, the other will also be higher.

Results from research studies like this should support public policy decision-making, in addition to leading to an understanding of the influence of the Bolsa Família Program, either positive or negative, especially on the mortality indicators. However, there is still a long and difficult path ahead in the search for the effectiveness quality of the PBF, in which overcoming inequalities for its implementation in the health services remains a challenge.

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**Role of Authors:**

Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work - Zamprogna KM, Souza S da S de, Cunha AC da, Laurindo DLP; Drafting the work or revising it critically for important intellectual content - Suplici SER, Cunha AC da, Laurindo DLP; Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved - Zamprogna KM, Souza S da S de. All authors approved the final version of the text.

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